NOTICE OF INVITING BIDS

Construction Services for KVCR Radio and Television Building Repurpose NIB # 03-1718-10A

NIB RELEASED: 01/7/2019
Site Walk and Conference (mandatory): 1:00 P.M. PST on 01/17/12019
REQUESTS FOR INFORMATION DUE: 5:00 P.M. PST on 01/21/2019
FINAL ADDENDUM DUE: 5:00 PM PST ON 01/24/2019
PROPOSALS DUE: 2:00 P.M. PST on 01/31/2019
PROPOSALS PUBLICALLY OPENED: 2:01 P.M. ON 01/31/2019
Submit Requests for Information to:
Nicole Cannon, NCA Studio Inc., Program Manager
Phone: (323) 372-1297
Email: nicole@ncastudio.com

Submit Proposals To:
San Bernardino Community College District
ATTN: **Hussain Agah, Director of Facilities Planning & Construction**
114 South Del Rosa Drive, San Bernardino, CA 92408
Phone: 909.382.4094
Email: hagah@sbccd.cc.ca.us

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1.0 INSTRUCTION TO BIDDERS:

1.1. NOTICE FOR INVITING BIDS/PROPOSALS:

NOTICE IS HEREBY GIVEN that the San Bernardino Community College District, hereinafter referred to as "District", is calling for and will receive sealed Proposals for the award of a contract for the "**Construction Services for KVCR Radio and Television Building Repurpose, NIB #03-1718-10A ."** Proposals will be accepted up to but not later than, the time stated in Section 1.3 below.

License Required: California Contract License B.

~~1.2. PREQUALIFICATION REQUIREMENTS:~~

~~In compliance with the Resolution for the Districtwide Pre-Qualification Program for all Construction Projects adopted on August 13, 2015 by the District's Board of Trustees, prequalified contractors and subcontractors that have participated in the District's Prequalification Program and have received a prequalification approval status and can meet the specific scope of work and services requirements are hereby invited to submit their Bid for the project listed above.~~

To learn more about the Prequalification Program you can access this link:
SBCCD/Facilities Planning/Prequalification

Note: Prequalification not required to bid. This Bid is open to all Public Works Contractors with a valid B License and registered with the DIR.

1.3. TIMELINE:

The anticipated timeline, subject to change, for the complete process is as follows:

1st Advertisement for Notice of Inviting Bids ("NIB"):	**01/07/2019**
2nd Advertisement for NIB:	**01/14/2019**
MANDATORY Job-Walk at KVCR 701 S. Mount Vernon Avenue, San Bernardino CA 92410:	**01/17/2019**
Deadline for NIB Requests for Information:	**01/21/2019**
Answer posted NIB Requests for Clarifications (Final Addendum):	**01/24/2019**
Deadline for Submission of NIB Bid Submission:	**01/31/2019**

Tentative Issue Notice of Intent to Award to the Lowest responsible and responsive bidder:	**02/06/2019**
Tentative Board Approval (February Board Date):	**02/21/2019**
Issue Notice to Proceed (NTP):	**03/01/2019**
Construction:	**03/01/2019 - 06/30/2019**

1.4. PROPOSAL SUBMISSION:

Proposal Submission Deadline: ***2:00 p.m. on the 31st day of January 2019*.**

Place of Proposal Receipt: San Bernardino Community College District
Public Board Room
114 S. Del Rosa Drive
San Bernardino, CA 92408

All proposals shall be made and presented only on the forms presented by the District and pursuant to the instructions set forth in this NIB. Any proposals received after the time specified above, or after any extensions due to material changes, shall be returned unopened.

1.5. PRE-PROPOSAL INFORMATION:

There will be one scheduled Mandatory Site Walk and Conference. Attendance by a representative of the Contractor is MANDATORY for submitting a Proposal to this NIB.

The MANDATORY Site Walk and Conference will be held on January 17, 2019 at 1:00 p.m. PST at the KVCR 701 S. Mount Vernon Avenue, San Bernardino CA 92410.

Coordinate with **Nicole Cannon/ NCA Studio Inc, Program Manager,** nicole@ncastudio.com

1.6. PROJECT IDENTIFICATION & DESCRIPTION:

San Bernardino Community College District, Construction Services for KVCR Radio and Television Building Repurpose, NIB #03-1718-10A.

THE SCOPE OF WORK AND SERVICES INCLUDE:

a. The scope of work includes the tenant improvement of the existing 18,253 sf broadcast facility. Work includes architectural, mechanical and electrical work and will be done in conjunction with the building's broadcast technology modernization project.

1.7. INQUIRIES:

Inquiries regarding the Project are to be directed to: **Nicole Cannon/ NCA Studio,**

Program Manager. All proposal documentation questions, concerns, and clarification requests shall be in writing and submitted via email to nicole@ncastudio.com. All inquiries via writing shall be clearly identified as the Construction Services for KVCR Radio and Television Building Repurpose, NIB #03-1718-10A

All telephonic inquiries will be documented in writing. No Requests for Information will be accepted after 5:00 p.m. PST on January 21, 2019.

1.8. DSITRICT'S EXECUTIVE VICE CHANCELLOR AUTHORITY: DELEGATED BOARD AUTHORITY TO INCREASE AND DECREASE CONTRACT TIME AND CONTRACT PRICE:

The District's Board of Trustees has delegated authority to the District's Executive Vice Chancellor for Fiscal Services to execute change orders, partial change orders, Construction Directives, and compromises, which may increase and/or decrease the Contract Price and/or may increase and/or decrease the Contract Time for this Project. As such, the Vice Chancellor for Fiscal Services' signature on a change order, partial change order, Construction Directive, and/or compromise is sufficient to bind the DISTRICT provided that the increased and/or decreased costs of individual changes do not exceed the amount specified in the applicable contract.

California Public Contract Code Sections 20651, 20655, and 20659, as revised in accordance with Section 22020, if applicable, or ten percent (10%) of the original contract price, whichever is greater. See the General Conditions for more specific information regarding the level of the Vice Chancellor for Fiscal Services signature authority.

1.9. EQUAL OPPORTUNITY EMPLOYMENT

The District is an equal opportunity employer. The District encourages the participation of minority, women, and disabled veteran businesses.

1.10. COMPLIANCE WITH PROPOSAL REQUIREMENTS

Each proposal must strictly conform with and be responsive to the contract documents as defined in the General Conditions.

The District reserves the right to reject any or all bids,and to waive any irregularities or informalities in any proposals or any requirements of these specifications as to bidding procedures.

1.11. SUBCONTRACTORS

Each bidder shall submit with its bid, on the form furnished with the contract documents, a list of the designated subcontractors on this Project as required by the Subletting and Subcontracting Fair Practices Act, California Public Contract Code Sections 4100 et. seq.

1.12. BID SECURITY

In accordance with California Public Contract Code Section 22300, the DISTRICT will permit the substitution of securities for any monies withheld by the DISTRICT to ensure performance under the contract. At the request and expense of the Contractor, securities equivalent to the amount withheld shall be deposited with the DISTRICT, or with a state or federally chartered bank as the escrow agent, who shall then pay such monies to the Contractor. Upon satisfactory completion of the contract, the securities shall be returned to the Contractor.

Each bidder's bid must be accompanied by one of the following forms of bidder's security: (1) cash; (2) a cashier's check made payable to the DISTRICT; (3) a certified check made payable to the District; or (4) a bidder's bond executed by a California admitted surety as defined in Code of Civil Procedure Section 995.120, made payable to the District in the form set forth in the contract documents. Such bidder's security must be in an amount not less than ten percent (10%) of the maximum amount of bid as a guarantee that the bidder will enter into the proposed contract, if the same is awarded to such bidder, and will provide the required Performance and Payment Bonds and insurance certificates. In the event of failure to enter into said contract or provide the necessary documents, said security will be forfeited.

1.13. PUBLIC WORKS REFORMS (SB 854) REQUIREMENTS

No contractor or subcontractor may be listed on a bid proposal for a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5 [with limited exceptions from this requirement for bid purposes only under Labor Code section 1771.1(a)].

No contractor or subcontractor may be awarded a contract for public work on a public works project unless registered with the Department of Industrial Relations pursuant to Labor Code section 1725.5.

1.14. PREVAILING WAGES REQUIREMENTS

The DISTRICT has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this work is to be performed for each craft, classification, or type of worker needed to execute the contract. These per diem rates, including holiday and overtime work, as well as employer payments for health and welfare, pension, vacation, and similar purposes, are on file at the DISTRICT, and are also available from the Director of the Department of Industrial Relations at; http://www.dir.ca.gov/OPRL/PWD/index.htm. Pursuant to California Labor Code Sections 1720 et seq., it shall be mandatory upon the Contractor to whom the contract is awarded, and upon any subcontractor under such Contractor, to pay not less than the said specified rates to all workers employed by them in the execution of the contract.

1.15. WITHDRAWAL OF BIDS

No bidder may withdraw any bid for a period of sixty (60) calendar days after the date set for the opening of bids.

1.16. BONDS

Separate payment and performance bonds, each in an amount equal to 100 % of the total contract amount are required, and shall be provided to the District prior to execution of the contract and shall be in the form set forth in the contract documents.

All bonds (Bid, Performance, and Payment) must be issued by a California admitted surety as defined in California Code of Civil Procedure Section 995.120.

1.17. TIMELY DELIVERY OF BIDS

It is each bidder's sole responsibility to ensure its bid is timely delivered and received at the location designated as specified above. Any bid received at the designated location after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

2.0 DISTRICT AND KVCR PROFILE

The District was established in 1926 and serves most of the County of San Bernardino and a small portion of the County of Riverside. The District includes two comprehensive community colleges: San Bernardino Valley College and Crafton Hills College, a Professional Development Center, and KVCR-TV and FM. The District employs approximately 800 full-time permanent faculty and staff and approximately 600 part-time faculty, and have approximately 17,000 students enrolled in one or more courses during the 2015 Spring Semester.

KVCR is dual license television and radio broadcast station responsible for acquiring, producing and disseminating educational, informational and cultural content via all platforms, including TV, FM radio and online. KVCR radio, 91.9 FM, went on the air in 1952, KVCR-TV Channel 24 in 1962. Both have served the students, faculty, staff, and administration of the District, Crafton Hills College and San Bernardino Valley College, as well as the greater Los Angeles metropolitan area with a primary focus on the Inland Empire and Coachella Valley.

In September 2011, through a partnership between the San Manuel Band of Mission Indians and KVCR, FNX|First Nations Experience was launched in Southern California. FNX is the first public television network in the United States focusing on Native American and world indigenous cultures. FNX broadcasts 24/7 and features content that reflects the authentic voices, stories, experiences and reality of indigenous peoples worldwide.

In the summer of 2014, FNX had seven affiliate stations broadcasting in ten states – from Alaska to Illinois. In May 2014, FNX was granted full-channel status on the Public Television Interconnect System and is expected to be available, via satellite, to over 300 public TV stations in November 2014. FNX broadcasts locally on KVCR-Digital Channel 24.2, on DirecTV Channel 24-2 and on Verizon FIOS Channel 471.

2.1 PROJECT OVERVIEW

San Bernardino Community College District (SBCCD) SBCCD is seeking qualified Manufacturers/Vendors to provide Radio and Television Production Systems and Equipment for the KVCR Technology Core Modernization at 701 S. Mount Vernon Avenue, San Bernardino CA 92410**.**

KVCR is a division of the San Bernardino Community College District. It services the Inland Empire area of Southern California with both Television and Radio with their affiliation with Public Broadcasting, PBS and FNX and National Public Radio, NPR. The station was dedicated in 1962 as a UHF Public Television Station, Channel 24, and at that time incorporated FM 91.9 radio which was established in 1953. In 1970 the radio side became the area's NPR affiliate.

KVCR has set 2019 as a target year for completing a technology upgrade and facility repurpose. The technology modernization is anticipated to be done in parallel with the repurposing of portions of their radio, television and office spaces within their existing facility.

The building repurpose includes modifications to the radio studios, video production control rooms, storage room shelving updateas, and a general finishes update in the remaining office areas. Associated mechanical, electrical and data updates will also be required.

3.0 PROJECT MANAGER AND PRIMARY CONTACT

Nicole Cannon/ NCA Studio is the primary contract regarding this RFP [email: nicole@ncastudio.com] and will continue as the Program Manager for the project duration.

4.0 RFP EXHIBITS*:*

4.1 EXHIBIT A – BID FORMS
4.2 EXHIBIT B - GENERAL CONDITIONS
4.3 EXHIBIT C - PROJECT SPECIFICATIONS
4.4 EXHIBIT D - AGREEMENT FORM
4.5 EXHIBIT E – PLANS
4.6 EXHIBIT F - TECHNICAL SPECIFICATIONS
4.7 EXHIBIT G – PROJECT SCHEDULE
4.8 EXHIBIT H – EXISTING BUILDING PLANS
4.9 EXHIBIT I – ACADEMIC CALENDAR

END OF INVITATION FOR BIDS

EXHIBIT A

BID FORMS

SECTION 00 20 00 - INSTRUCTIONS TO BIDDERS

1. Preparation of Bid Form. The DISTRICT invites bids on the form attached to be submitted at the time and place stated in the Notice Inviting Bids. Bids shall be submitted on the prescribed Bid forms and completed in full. All bid items and statements shall be properly filled out. Numbers shall be stated both in words and in figures where so indicated. The signatures of all persons signing the bid shall be in permanent blue ink. Prices, wording and notations must be in ink or typewritten. Erasures or other changes shall be noted over by signature of the bidder. This section is intended to assist the bidders with submitting their bid proposals for this Project and is not in any way intended to make changes to the project specifications, plans, or contract

2. Form and Delivery of Bid Proposals. All bid proposals shall be made on the bid proposal form provided, and the complete bid, together with any and all additional materials as required by the Contract Documents, shall be enclosed in a sealed envelope, addressed and delivered to the designated location and must be received on or before the time set forth in the Notice Inviting Informal Bids. All envelopes containing bids shall be sealed and plainly marked with the bidder's name, address, telephone number, bidder's California contractor's license number and the particular project for which the bid is submitted. The DISTRICT reserves the right to reject any bid if all of the information required on or by the Bid Proposal Form not furnished. **The following is the list of required items: Bid Proposal Form, Bid Guarantee Form, Bid Bond (*Notarized)*, Designation of Subcontractors, Non-collusion Declaration, Contractor's Certification Regarding Worker's Compensation, Acknowledgement of Bidding Practices Regarding Indemnity, Bidder's Acknowledgement of Project Duration, and Site Visit Certification.** It is each bidder's sole responsibility to ensure its bid(s) is timely delivered and received at the location designated in the Notice Inviting Informal Bids. Any bid received at the designated location after the scheduled closing time for receipt of bids shall be returned to the bidder unopened.

3. Bid Security. Each bid must be accompanied by one of the following forms of bidder's security: (1) cash; (2) a cashier's check made payable to the DISTRICT; (3) a certified check made payable to the DISTRICT; or (4) a bidder's bond executed by a California admitted surety as defined in Code of Civil Procedure section 995.120, made payable to the DISTRICT, in the form set forth in the contract documents. Such bidder's security must be in an amount not less than ten percent (10%) of the maximum amount of such bidder's bid as a guarantee that the bidder will enter into the proposed contract, if the same is awarded to such bidder, and will provide the required Performance and Payment Bonds and insurance certificates. In the event that a bidder is awarded the contract and such bidder fails to enter into said contract or provide the necessary documents within ten (10) calendar days after notification of the award of the contract to bidder, said security will be forfeited.

4. Signature. The bid form, all bonds, all designations of subcontractors, the Contractor's Certificate, the Agreement, and all Guarantees must be signed in permanent blue ink in the name of the bidder and must bear the signature of the person or persons duly authorized to sign the bid.

If bidder is a corporation, the legal name of the corporation shall first be set forth, together with two signatures: one from the President and one from the Secretary or Assistant Secretary. Alternatively, the signature of other authorized officers or agents may be affixed, if a certified copy of the resolution of the corporate board of directors authorizing them to do so is presented to the DISTRICT upon request. Such documents shall include the title of such signatories below the signature and shall bear the corporate seal.

If bidder is a partnership, the true name of the firm shall first be set forth, together with the names of all persons comprising the partnership or co-partnership. The bid must be signed by all partners comprising the partnership unless proof in the form of a certified copy of a statement of partnership acknowledging the signer to be a general

partner is presented to the DISTRICT, in which case the general partner may sign. Bids submitted as joint ventures must so state and be signed by each joint party. Bids submitted by individuals must be signed by the bidder unless an up to date power- of-attorney is on file in the DISTRICT office, in which case, said person may sign for the individual.

The above rules also apply in the case of the use of a fictitious firm name. In addition, however, where a fictitious name is used, it must be so indicated in the signature.

5. Modifications. Changes in or additions to the bid form, recapitulations of the work bid upon, alternative proposals, or any other modification of the bid form which is not specifically called for in the contract documents may result in the DISTRICT's rejection of the bid as not being responsive to the Notice Inviting Informal Bids. No oral or telephonic modification of any bid submitted will be considered.

6. Erasures, Inconsistent or Illegible Bids. The bid submitted must not contain any erasures, interlineations, or other corrections unless each such correction creates no inconsistency and is suitably authenticated by affixing in the margin immediately opposite the correction the signature or signatures of the person or persons signing the bid. In the event of inconsistency between words and figures in the bid price, words shall control figures. In the event that the DISTRICT determines that any bid is unintelligible, inconsistent, or ambiguous, the DISTRICT may reject such bid as not being responsive to the Notice Inviting Bids

7. Examination of Site and Contract Documents. At its own expense and prior to submitting a bid proposal, each bidder shall examine carefully the site of the work and the Contract Documents, and shall satisfy itself as to the character, quality, and quantity of the surface and subsurface materials or obstacles to be encountered. The submission of a bid proposal shall be conclusive evidence that the bidder has satisfied itself through bidder's own investigation as to the conditions to be encountered; the character, quality, and scope of work to be performed; ~~the design and DSA approval to be furnished;~~ the materials and equipment to be furnished; and all requirements of the Contract Documents. ~~Where investigations of subsurface conditions have been made with respect to foundation or other structural design, and that information is made available to bidder or shown in the Contract Documents, said information represents only a statement as to the character of materials which have been actually encountered and is only made available or included for the convenience of bidders. Investigations of subsurface conditions are made for the purpose of design, and the District assumes no responsibility whatsoever with respect to the sufficiency or accuracy of borings, the log of test borings, or other investigations, or of the interpretation thereof, and there is no guaranty, either expressed or implied, that the conditions indicated are representative of those existing throughout the work, or any part of it, or that unanticipated conditions may not occur. When a log of test borings is made available to bidder or included in the Contract Documents, it is expressly understood and agreed that said log of test borings does not constitute a part of the Contract, and represents only an opinion of the District as to the character of the materials to be encountered, and is made available or included in the Contract Documents only for the convenience of the bidders.~~ Making such information available to bidders is not to be construed in any way as a waiver of the requirement that bidders perform their own investigation, and bidders must satisfy themselves, through their own investigations, as to conditions to be encountered. The Bidder shall familiarize itself with all local laws, ordinances, rules and requests that may affect the work or the performance of the work. Bidders shall thoroughly examine and be familiar with the drawings and specifications. The failure or omission of any bidder to receive or examine any contract documents, form, instrument, addendum, or other document or to visit the site and become acquainted with conditions there existing shall not relieve any bidder from obligations with respect to the bid or to the contract. The submission of a bid shall be taken as prima facie evidence of compliance with this Paragraph. Bidders shall not, at any time after submission of the bid, dispute, complain, or assert that there were any misunderstandings with regard to the nature or amount of work to be done.

8. Withdrawal of Bids. Any bid may be withdrawn, either personally or by written request, at any time prior to the scheduled closing time for receipt of bids. The bid security for bids withdrawn prior to the scheduled closing time for receipt of bids, in accordance with this Paragraph, shall be returned upon demand therefore. No bidder may withdraw any bid for a period of 60 calendar days after the date set for the opening of bids.

9. Agreements, Insurance, and Bonds. The Agreement form which the successful bidder, as Contractor, will be required to execute, and the form of the bonds and insurance endorsements which such Contractor will be required to furnish, are included in the contract documents and should be carefully examined by the bidder. Payment bond and performance bonds in the amount of one hundred percent (100%) of the amount of the contract and insurance endorsements must be furnished in four (4) identical counterparts as required in the contract, all prior to execution of the contract.

Base Bid shall include all costs required to perform the work as required by the contract documents.

10. Interpretation of Plans and Documents. If any prospective bidder is in doubt as to the true meaning of any part of the contract documents, or finds discrepancies in, or omissions from the drawings and specifications, and/or applicable Federal, State, or local regulations or requirements a written request for an interpretation or correction thereof shall be submitted to the Project Manager. The bidder submitting the request shall be responsible for its prompt delivery. Any interpretation or correction of the contract documents will only be made by addendum duly issued, and a copy of such addendum will be mailed or delivered to each Contractor receiving a set of the contract documents**.** No person is authorized to make any oral interpretation of any provision in the contract documents, nor shall any oral interpretation be binding on the DISTRICT. If discrepancies on drawings, or in specifications, or conflicts between drawings and specifications are not covered by addenda, bidder shall include in the bid methods of construction and materials resulting in the higher bid.

11. Award of Contract. The DISTRICT reserves the right to reject any or all bids, or to waive any irregularities or informalities in any bids or in the bidding. The award of the contract, if made by the DISTRICT, will be by action of the governing board and to the lowest responsible and responsive bidder from among those bidders responsive to the call for bids. In the event an award is made, and such bidder fails or refuses to execute the contract and provide the required documents within ten (10) calendar days after notification of the award of the contract to bidder, the DISTRICT may award the contract to the next lowest responsible and responsive bidder or release all bidders. Each bid must conform, and be responsive, to the contract documents as defined in the General Conditions.

Alternates. The lowest bid shall be the lowest total bid price on the base contract and all additive and/or deductive items and/or project allowances. If alternate bids are called for, the contract may be awarded at the election of the governing board to the lowest responsible and responsive bidder alternates as selected by the governing board. In the event there is a tie for the lowest total bid price, the tie will be broken by flipping a coin.

12. Evidence of Responsibility. In selecting the lowest responsible bidder, consideration will be given not only to the financial standing but also to the general competency of the bidder for the performance of the Work covered by the bid. Upon the request of the DISTRICT, a bidder whose bid is under consideration for the award of the contract shall submit promptly to the DISTRICT satisfactory evidence showing the bidder's financial resources, surety and insurance claims experience, construction experience, completion ability, workload, organization available for the performance of the contract, and other factors pertinent to a Project of the scope involved.

13. Listing of Subcontractors. Each bidder shall submit with his bid, on the form furnished with the contract documents, a list of the names and locations of the places of business of each subcontractor who will perform work or labor or render service to the bidder in or about the Project, or a subcontractor who under subcontract to the bidder, specially fabricates and installs a portion of the work, in an amount in excess of one-half of 1 percent of the

bidder's total bid as required by the Subletting and Subcontracting Fair Practices Act (Public Contract Code section 4100, et. seq.). Bidders shall be required to supply the Distinct the CSLB number of each listed subcontractor. If License numbers are not included on bid day sub list log bidders shall no latter that 24hr after bids are received resubmit the subcontractor log with the required license information. Forms should be delivered to same location bids were received.

14. Workers' Compensation. In accordance with the provisions of Labor Code section 3700, the successful bidder as the Contractor shall secure payment of compensation to all employees. The Contractor shall sign and file with the DISTRICT the following certificate prior to performing the work under this contract: "I am aware of the provisions of section 3700 of the Labor Code, which requires every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provisions before commencing the performance of the work of this contract." The form of such certificate is included as a part of the contract documents.

15. Contractor's License. The bidder must possess the appropriate valid contractor's license specified in the Notice Inviting Informal Bids at the time the bids are opened. If, at the time the bids are opened, bidder is not licensed to perform the Project in accordance with Division 3, Chapter 9, of the Business and Professions Code for the State of California and the Notice to Contractors calling for bids, such bid will not be considered and the Contractor will forfeit its bid security to the DISTRICT. The bidder must maintain the required license(s) throughout the duration of the contract.

16. Anti-Discrimination. It is the policy of the DISTRICT that in connection with all work performed under contracts, there be no discrimination against any prospective or active employee engaged in the work because of race, color, ancestry, national origin, religious creed, sex, age, or marital status. The Contractor agrees to comply with applicable federal and California laws, including, but not limited to, the California Fair Employment and Housing Act, beginning with Government Code section 12900 and Labor Code section 1735. In addition, the Contractor agrees to require like compliance by any subcontractors employed on the work by such Contractor.

17. Hold Harmless. Contractor shall defend, indemnify and hold harmless DISTRICT, Architect, Project Manager, Program Manager, Inspector, the State of California and their officers, employees, agents and independent contractors from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs or expenses of any kind arising from death, personal injury, property damage or other cause based or asserted upon any act, omission, or breach connected with or arising from the progress of Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, Contractor shall protect and defend, at its own expense, DISTRICT, Project Manager, Program Manager, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from any legal action including attorneys fees or other proceeding based upon such act, omission, or breach.

Furthermore, Contractor agrees to and does hereby defend, indemnify and hold harmless DISTRICT, Project Manager, Program Manager, Architect, Inspector, the State of California and their officers, employees, agents and independent contractors from every claim or demand made, and every liability, loss, damage, expense or attorneys fees of any nature whatsoever, which may be incurred by reason of:

(a) Liability for (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage or expense, sustained by any person, firm or corporation or in connection with the Work called for in this Agreement or the Contract Documents, except for liability resulting from the sole or active negligence, or the willful misconduct of the DISTRICT.

(b) Any bodily injury to or death of persons or damage to property caused by any act, omission or breach of Contractor or any person, firm or corporation employed by Contractor, either directly or by independent contract, including all damages or injury to, loss (including theft), or loss of use of, any property, sustained by any person, firm or corporation, including the DISTRICT, arising out of or in any way connected with Work covered by this Agreement or the Contract Documents, whether said injury or damage occurs either on or off DISTRICT property, but not for any loss, injury, death or damages caused by the sole or active negligence or willful misconduct of the DISTRICT.

(c) Any dispute between Contractor and Contractor's subcontractors / supplies / sureties, including, but not limited to, any failure or alleged failure of the Contractor (or any person hired or employed directly or indirectly by the Contractor) to pay any Subcontractor or Material man of any tier or any other person employed in connection with the Work and/or filing of any stop notice or mechanic's lien claims.

Contractor, at its own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the DISTRICT, Owner's Representative, Project Manager, District Consultant, Architect, Inspector, its officers, agents or employees, on any such claim or liability, and shall pay or satisfy any judgment that may be rendered against the DISTRICT, its officers, agents or employees in any action, suit or other proceedings as a result thereof.

18. Disqualification of Bidders and Proposals. More than one proposal for the same work from any individual, firm, partnership, corporation, or association under the same or different names will not be accepted; and reasonable grounds for believing that any bidder is interested in more than one proposal for the work will be cause for rejecting all proposals in which such bidder is interested and the bidder will forfeit their bid security to the DISTRICT.

19. Unbalanced or Altered Bids. Proposals in which the prices are obviously unbalanced, and those which are incomplete or show any alteration of form, or contain any additions, exclusions or conditional or alternate bids that are not called for or otherwise permitted, may be rejected. A proposal on which the signature of the bidder has been omitted may be rejected.

20. Employment of Apprentices. The Contractor and all Subcontractors shall comply with the provisions of California Labor Code sections 1777.5, 1777.6, and 1777.7 concerning the employment of apprentices. The Contractor and any Subcontractor under him shall comply with the requirements of said sections, including applicable portions of all subsequent amendments in the employment of apprentices; however, the Contractor shall have full responsibility for compliance with said Labor Code sections, for all apprentice-able occupations, regardless of any other contractual or employment relationships alleged to exist.

21. Non-Collusion Declaration. Public Contract Code section 7106 requires bidders to submit a declaration of non-collusion with their bids. This form is included with the bid package and must be signed and dated by the bidder and each subcontractor under penalty of perjury.

22. Wage Rates, Travel and Subsistence.

(a) Pursuant to Labor Code Sections 1770 et. seq., the DISTRICT has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this work is to be performed for each craft, classification or type of worker needed to execute the contract. Copies are available from the DISTRICT to any interested party on request and are also available from the Director of the Department of Industrial Relations. The Contractor shall obtain copies of the above-referenced prevailing wage sheets and post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

(b) Any worker employed to perform work on the Project and such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.

(c) Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the contract documents or authorized by law.

(d) The Contractor shall post, at appropriate, conspicuous, weatherproof points at the site, a schedule showing all determined minimum wages actually earned.

(e) These per diem rates, including holiday (New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day) and overtime work, and employer payments for health and welfare, pension, vacation, and similar purposes, are on file at the administrative office of the DISTRICT, located as noted above and are also available from the Director of the Department of Industrial Relations. It is the Contractor's responsibility to ensure the appropriate prevailing rates of per diem wages are paid for each classification. It shall be mandatory upon the Contractor to whom the contract is awarded, and upon any subcontractor under such Contractor, to pay not less than the said specified rates to all workers employed by them in the execution of the contract.

23. No Telephone or Facsimile Availability. No telephone or facsimile machine will be available to bidders on the DISTRICT premises at any time.

24. Filing of Bid Protests. Bidders may file a "protest" of a contract award with the DISTRICT's Director of Business Services: San Bernardino Community College District, Business Services, 114 Del Rosa Drive, San Bernardino, CA 92408. In order for a bidder's protest to be considered valid, the protest must:

(a) Be filed timely and in writing as detailed in this Paragraph.

(b) Clearly identify in detail the specific issues related to the bid protest.

(c) Clearly identify in detail the specific DISTRICT Staff/Board recommendation or action being protested.

(d) Clearly identify in detail the specific grounds of the protest and the facts supporting the particular protest.

(e) Include all relevant and supporting documentation with the protest at the time of filing.

(f) The party filing the protest shall concurrently transmit a copy of the initial protest document and any attached documentation to all other parties with a direct financial interest, which may be adversely affected by the outcome of the protest. Such parties include all other bidders or proposers who appear to have a reasonable prospect of receiving an award depending upon the outcome of the protest.

The District will issue a decision on the protest. If the District determines that a protest is frivolous, the party originating the protest may be determined to be irresponsible and that party may be determined to be ineligible for future Contract awards.

The procedure and time limits set forth in this section are mandatory and are the bidder's sole remedy in the event of bid protest and failure to comply with these procedures shall constitute a waiver of any rights to further pursue the bid protest, including filing a Government Code claim or legal proceeding.

If the bid protest does not comply with each and every one of the requirements set forth above, it will be rejected as invalid. A protest regarding the recommended award of a contract solicited by the Notice Inviting Informal Bids must be filed in writing with the DISTRICT within five (5) calendar days after the bid opening. If the protest is valid, the DISTRICT shall review the basis of the protest along with all relevant information and documents and will provide the protesting bidder a written decision.

25. Ambiguity. In the event of ambiguity due to a conflict between words and numbers with respect to the amount of the bid, words shall govern over numbers.

26. Bids: Bids to receive consideration, shall be made in accordance with the following instructions.

Local Hire: The San Bernardino Community College District (SBCCD) strongly encourages local hire and apprenticeship participation in the construction workforce, refer to Board Policy BP-6610 . Bidder attention is directed to the following provisions:

1. The definition of contractor is limited to the total workforce of the prime or principal contractor and all subcontractors who work in SBCCD under the construction contract.

2. A "local hire" is defined as an employee whose residence is within SBCCD at the time of the project bid opening.

3. Bidders are to complete the "Local Hire Information and Form Checklist".

~~With respect to application of the local hire policy, bidder attention is directed to the following:~~

~~1. The SBCCD strongly encourages, within the constraints of federal and state law, the employment of SBCCD residents on SBCCD construction projects.~~

~~2. Bidders on construction projects will be required to complete a "Local Hire Information Form & Checklist" to be submitted with construction bids which indicates the bidder's effort to employ local hire.~~

~~3. To the extent possible and applicable and as permitted by law, bidders are expected to utilize the services of the Center for Military Recruitment, Assessment and Veterans Employment and its "Helmets to Hardhats" programs to serve as a resource for preliminary orientation, assessment of construction aptitude, referral to apprenticeship programs or hiring halls, counseling and mentoring, support network, employment opportunities and others needs as identified by the District. The District may request the awarded contractor to provide documents or other evidence to demonstrate efforts to comply with these requests.~~

Apprenticeship Program: Unless such provision would conflict with a state or federal law or regulation applicable to a particular contract for a public works project, SBCCD contracts shall contain provisions pursuant to which each contractor or subcontractor shall make a good faith effort to employee apprentices who are enrolled in, and participating in, an apprenticeship program serving the San Bernardino and Riverside Counties, and approved by the State Department of Apprenticeship Standards. This apprenticeship requirement shall apply to any apprentice-able craft or trade in which the contractor employs workers in performing any work under the contract. A contractor may evidence its good faith effort by complying with California Labor Code Section 1777.5 and the implementing

regulations, and by seeking apprentices from apprenticeship programs serving San Bernardino and Riverside Counties.

A contractor employing apprentices pursuant to this section shall employ apprentices in a ratio consistent with the provisions of the California Labor Code or federal requirements as applicable for federal aid contracts.

This section shall not be construed to exempt a contractor from any otherwise-applicable requirement imposed upon the contractor by federal or state law.

END OF SECTION

SECTION 00 30 01 – BID PROPOSAL FORM

PROPOSAL FOR: Construction Services for KVCR Radio and Television Building Repurpose, NIB #03-1718-10A

TO: San Bernardino Community College District, acting by and through its Governing Board, herein called "DISTRICT."

RE: (BIDDER): _____

1. Pursuant to and in compliance with your Notice Inviting Bids and other documents relating thereto, the undersigned bidder, having familiarized himself with the terms of the contract, the local conditions affecting the performance of the contract and the cost of the work at the place where the work is to be done, hereby proposes and agrees to perform within the time stipulated, the contract, including all of its component parts, and everything required to be performed, including its acceptance by the DISTRICT, and to provide and furnish any and all labor, materials, tools, expendable equipment, utility and transportation services, and California sales and other applicable taxes, permits, licenses and fees required by the agencies with authority in the jurisdiction in which the work will be located necessary to perform the contract and complete all of the work in a workmanlike manner required in connection with the work required by this bid proposal**,** for the **KVCR Radio and Television Building Repurpose** in the DISTRICT described above, all in strict conformance with the drawings and other contract documents on file at the Purchasing Office of said DISTRICT for amounts set forth herein.

2. ADDENDA: The undersigned has thoroughly examined any and all Addenda (if any) issued during the bid period and are thoroughly familiar with all contents thereof and acknowledges receipt of the following Addenda: (Bidder to list all addenda).

ADDENDUM NO. _____	DATE RECEIVED _____
ADDENDUM NO. _____	DATE RECEIVED _____
ADDENDUM NO. _____	DATE RECEIVED _____

1. BASE BID

Base Bid shall include all costs required to perform the work as required by the contract documents and as may be expanded and/or reduced by Addenda.

The bidder agrees to perform all work required for this BID Proposal for the lump sum (turnkey) of:

a. BASE BID:

_____ Dollars
(In words printed or typed)

$_____ (In figures)

b. BID ALTERNATE #1:

_____ Dollars
(In words printed or typed)

$_____ (In figures)

c. BID ALTERNATE #2:

_____ Dollars
(In words printed or typed)

$_____ (In figures)

TOTAL BID ALTERNATES

_____Dollars
(In words printed or typed)

$ _____ (In figures)

***d.* BID ALLOWANCE:**

BID ALLOWANCE	DESCRIPTION	VALUE ($)
ALLOWANCE NO. 01	Unforeseen Conditions and Not Included in the Scope of Work	$50,000.00
	Allowance Subtotal	$ 50,000.00

Fifty Thousand Dollars

***e.* TOTAL BID (Base Bid, Add Alternate #1, Add Alternate #2, and Bid Allowance):**

_____Dollars
(In words printed or typed)

$ _____ (In figures)

Total bid amount shall include the base bid amounts, alternate bids, and total package allowances, if any. The lowest responsive bid shall be determined based on the sum of the base bids, add alternates and allowances.

2. The undersigned bidder shall be licensed and shall provide the following information:

Bidder's California Contractor's
License Number: _____
License expiration date: _____
Name on License: _____
Type of License: _____

If the bidder is a joint venture, each member of the joint venture must include the above information.

3. Attached is bid security in the amount of not less than ten percent (10%) of the bid: $ _____. Bid bond, certified check, cashier's check, or cash. (circle one)

4. The names and contact information of all persons interested in the foregoing proposal as principals are as follows:

_____

_____

_____

_____

_____

(IMPORTANT NOTICE: If bidder or other interested person is a corporation, state the legal name of such corporation, as well as the names of the president, secretary, treasurer, and manager thereof; if a co-partnership, state the true names of the firm, as well as the names of all individual co-partners comprising the firm; if bidder or other interested person is an individual, state the first and last names in full.)

5. Notice of Intent to Award Contract or other correspondence should be addressed to the undersigned at the address stated below.

_____

_____

_____

_____

_____

6. ATTACHED TO THIS BID LETTER: Attached to this bid letter and by this reference incorporated herein and made a part of these completed Contract Bid Forms are:

	Name of Form/Document	**Section Number**
❑	Bid Proposal Form	Section 00 30 01
❑	Bid Guarantee Form	Section 00 30 02
❑	Bid Bond (Notarized)	Section 00 30 03
❑	Designation of Subcontractors	Section 00 30 04
❑	Non-Collusion Declaration (Notarized)	Section 00 30 05
❑	Contractor's Certification Regarding Worker's Compensation	Section 00 30 06
❑	Prevailing Wages Certification	Section 00 30 07

- ❑ Acknowledgement of Bidding Practices Regarding Indemnity Section 00 30 08
- ❑ Bidder's Acknowledgement of Project Duration Section 00 30 09
- ❑ Site Visit Certification Section 00 30 10

7. TIME FOR COMPLETION: The DISTRICT may give a notice to proceed within thirty (30) days of the award of the bid by the DISTRICT. Once the CONTRACTOR has received the notice to proceed, the CONTRACTOR shall complete the work in the time specified in the Agreement.

   In the event that the DISTRICT desires to postpone giving the notice to proceed beyond this thirty (30) day period, it is expressly understood that with reasonable notice to the CONTRACTOR, the DISTRICT may postpone giving the notice to proceed. It is further expressly understood by the CONTRACTOR, that the CONTRACTOR shall not be entitled to any claim of additional compensation as a result of the postponement of giving the notice to proceed.

   If the CONTRACTOR believes that a postponement will cause a hardship to it, the CONTRACTOR may terminate the contract with written notice to the DISTRICT within ten (10) days after receipt by the CONTRACTOR of the DISTRICT's notice of postponement. It is further understood by the CONTRACTOR that in the event that the CONTRACTOR terminates the Contract as a result of postponement by the DISTRICT, the DISTRICT shall only be obligated to pay the CONTRACTOR for work performed by the CONTRACTOR at the time of notification of postponement. Should the CONTRACTOR terminate the contract as a result of a notice of postponement, the DISTRICT shall have the authority to award the contract to the next lowest responsible bidder.

8. It is understood that the DISTRICT reserves the right to reject any or all bids and/or waive any irregularities or informalities in this bid or in the bid process. The CONTRACTOR understands that it may not withdraw this bid for a period of sixty (60) days after the date set for the opening of bids.

9. The required List of designated subcontractors is attached hereto.

10. The required notarization: Bid Bond and the Non-Collusion Declarations for CONTRACTOR***, and the Non-Collusion Declarations for*** subcontractors are attached hereto.

11. It is understood and agreed that if written notice of the acceptance of this bid is mailed, telegraphed, or delivered to the undersigned after the opening of the bid, and within the time this bid is required to remain open, or at any time thereafter before this bid is withdrawn, the undersigned will execute and deliver to the DISTRICT a contract in the form attached hereto in accordance with the bid as accepted and prepared by Owner, and that he will also furnish and deliver to the DISTRICT the Performance Bond and Payment Bond, all within ten (10) calendar days after receipt of notification of award, and that the work under the contract shall be commenced by the undersigned bidder, if awarded the contract, by the start date provided in the DISTRICT's Notice to Proceed, and shall be completed by the CONTRACTOR in the time specified in the contract documents.

12. Time is of the essence regarding this contract, therefore, in the event the bidder to whom the Notice of Intent to Award Contract is given fails or refuses to post the required bonds and return executed copies of the Agreement form within ten (10) calendar days from the date of receiving the Notice of Intent to Award Contract, the DISTRICT may declare the bidder's bid deposit or bond forfeited as damages.

13. Pursuant to Government Code section 4552, in submitting a bid to the DISTRICT, the bidder offers and agrees that if the bid is accepted, it will assign to the DISTRICT all rights, title, and interest in, and to all causes of

action it may have under section 4 of the Clayton Act (15 U.S.C. § 15) or under the Cartwright Act (Business and Professions Code sections 16700, et. seq.,), arising from the purchase of goods, materials, or services by the bidder for sale to the DISTRICT pursuant to the bid. Such assignment shall be made and become effective at the time the DISTRICT tenders final payment to the bidder.

14. The bidder declares that he/she has carefully examined the location of the proposed work, that he/she has examined the Plans, General Conditions of the contract, Supplemental Conditions of the contract, and Specifications, and read the accompanying instructions to bidders, and hereby proposes and agrees, if this proposal is accepted, to furnish all materials and do all work required to complete the said work in accordance with the Plans, General Conditions of the contract, Supplementary Conditions of the contract, and Specifications, in the time and manner therein prescribed for the unit cost and lump sum amounts set forth in this Bid Form.

15. In the event of ambiguity due to a conflict between words and numbers with respect to the amount of the bid, words shall govern over numbers.

16. The bidder is familiar with Government Code sections 12650, et. seq., and Penal Code section 72 and understands that false claims can lead to imprisonment.

17. The bidder acknowledges that that they have reviewed the work outlined in the contract documents and fully understands the Scope of work required in the Proposal, and further acknowledges that this proposal includes the scope of work within this Bid Proposal. It is further understood that no exceptions, exclusions, or clarifications will be considered.

18. The undersigned has notified the District through the Project Manager of any discrepancies or omissions, or of any doubt about the meaning of any of the Contract Documents, and has contacted the District before bid date to verify the issuing of any clarifying Addenda.

I, the below-indicated bidder, declare under penalty of perjury that the information provided and representations made in this bid are true and correct.

_____
Proper Name of Bidder

_____
Address

By:_____ Date:_____
Signature of Bidder

Corporate Seal:
(If Corporation)

NOTE: *If bidder is a corporation, the legal name of the corporation shall be set forth above together with the signature of authorized officers or agents and the document shall bear the corporate seal; if bidder is a partnership, the true name of the firm shall be set forth above, together with the signature of the partner or partners authorized to sign contracts on behalf of the partnership; and if bidder is an individual, his signature shall be placed above.*

All signatures must be made in permanent blue ink

END OF SECTION

SECTION 00 30 02 – BID GUARANTEE FORM

PART 1 GENERAL

1.01 BID SECURITY

A. All bids must be valid for the time specified in **NIB #03-1718-10A** and Section **00 30 01 Bid Proposal Form**.

B. Each proposal shall be accompanied by Bid Security, pledging that the Bidder will enter into a contract with the DISTRICT in accordance with the terms stated in the proposal, and will furnish bonds as described in Sections **00 50 01 Payment Bond (California Publics Works)** and **00 50 02 Performance Bond (California Public Works)**. Should the Bidder refuse to enter into such contract or fail to furnish such Bonds, the amount of the Bid Security shall be forfeited to the DISTRICT as liquidated damages, not as a penalty.

C. Bid Security shall be in the amount of ten percent (10%) of the Base Bid(s).

D. Bid Security shall be in the form of a Bid Bond, Cashier's Check or a Certified Check. The DISTRICT shall be listed as oblige on the bond or payee on the check.

E. If a Bid Bond is submitted, the attorney-in-fact who executes the bond on behalf of the Surety shall attach to the Bond a certified, current copy of his Power of Attorney. The bid bond form supplied by the surety is adequate.

F. Bid security from all bidders will be retained for fifteen (15) days after which the bid security will be retained for the two lowest responsible bidders until the successful bidder executes its contract.

G. Bid Security for the two lowest responsible bidders will be returned to Bidders within ten (10) days after construction contracts have been signed. If the successful bidder withdraws his bid within the period specified therein for acceptance, or upon acceptance thereof the DISTRICT, fails to enter into the Contract and provide bonds within the time specified after the forms are presented to him, he shall be liable for any difference by which the cost of securing the supplies or services exceeds the amount of bid, and the bid security shall be available toward offsetting such difference.

END OF SECTION

SECTION 00 30 03 – BID BOND

KVCR Radio and Television Building Repurpose

KNOW ALL MEN BY THESE PRESENTS that we, the undersigned, (hereafter called "Principal"), and _____ (hereafter called "Surety"), are hereby held and firmly bound unto San Bernardino Community College District (hereafter called "Owner") in the sum of ($_____)

TOTAL PRICE IN WORDS

_____DOLLARS for the payment of which, well and truly to be made, we hereby jointly and severally bind ourselves, successors, and assigns.

SIGNED this _____ day of _____, 201_.

The condition of the above obligation is such that whereas the Principal has submitted to the Owner a certain Bid, attached hereto and hereby made a part hereof, to enter into a contract in writing for the construction of the **KVCR Radio and Television Building Repurpose**.

NOW, THEREFORE,

a. If said Bid is rejected, or

b. If said Bid is accepted and the Principal executes and delivers a contract or the attached Agreement form within five (5) days after acceptance (properly completed in accordance with said Bid), and furnishes bonds for his faithful performance of said Contract and for payment of all persons performing labor or furnishing materials in connection therewith,

then this obligation shall be void; otherwise, the same shall remain in force and effect. Surety, for value received, hereby stipulates and agrees that no change, extension of time, alteration, or addition to the terms of the contract, or the call for bids, or the work to be performed there under, or the specifications accompanying the same, shall in anyway affect its obligation under this bond, and it does hereby waive notice of any such change, extension of time, alteration, or addition to the terms of said contract, or the call for bids, or the work, or to the specifications.

In the event suit is brought upon this bond by the DISTRICT and judgment is recovered, the Surety shall pay all costs incurred by the DISTRICT in such suit, including without limitation, attorneys' fees to be fixed by the court, even if such fees exceed the penal sum of the bond.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations have caused their corporate seals to be hereto affixed and these presents to be signed by their proper officers, on the day and year first set forth above.

PRINCIPAL:

ATTEST: (if individual, two witnesses are required)

By:_____ By:_____

Title:_____ Title:_____

ATTEST: (if corporation)

By:_____

Title:_____
(Corporate Seal)

SURETY:

ATTEST: (if individual, two witnesses are required)

By:_____ By:_____

Title:_____ Title:_____

ATTEST: (if corporation)
By:_____

Title:_____
(Corporate Seal)

IMPORTANT: THIS IS A REQUIRED FORM

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or Project is financed, in whole or in part, with federal, grant, or loan funds, it must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)

_____

_____

_____

(Name and Address of agent or representative for service of process in California if different from above)

_____

_____

_____

(Telephone Number of Surety and agent or representative for service of process in California)

_____

_____

_____

END OF SECTION

SECTION 00 30 04 – DESIGNATION OF LISTED SUBCONTRACTORS

In compliance with the Subletting and Subcontracting Fair Practices Act (California Public Contract Code sections 4100 et. seq.,) and any amendments thereof, each bidder shall set forth below: (a) the name, license number, and location of the place of business of each subcontractor who will perform work or labor or render service to the Contractor, who will perform work or labor or work or improvement to be performed under this contract, or a subcontractor licensed by the State of California who, under subcontract to the Contractor, specially fabricates and installs a portion of the work or improvements according to detailed drawings contained in the plans and specifications in an amount in excess of one-half of one percent of the Contractor's total bid; and (b) the portion and description of the work which will be done by each subcontractor under this Act. The Contractor shall list only one subcontractor for each such portion as is defined by the Contractor in this bid.

If a Contractor fails to specify a subcontractor, or if a Contractor specifies more than one subcontractor for the same portion of work to be performed under the contract in excess of one-half of one percent of the Contractor's total bid, the CONTRACTOR shall be deemed to have agreed that the CONTRACTOR is fully qualified to perform that portion, and that the CONTRACTOR alone shall perform that portion.

No Contractor whose bid is accepted shall (a) substitute any subcontractor, (b) permit any subcontractor to be voluntarily assigned or transferred or allow the relevant portion of the work to be performed by anyone other than the original subcontractor listed in the original bid, or (c) sublet or subcontract any portion of the work in excess of one-half of one percent of the Contractor's total bid where the original bid did not designate a subcontractor, except as authorized in the Subletting and Subcontracting Fair Practices Act.

Subletting or subcontracting of any portion of the work in excess of one-half of one percent of the Contractor's total bid where no subcontractor was designated in the original bid shall only be permitted in cases of public emergency or necessity, and then only after a finding, reduced to writing as a public record, of the authority awarding this contract setting forth the facts constituting the emergency or necessity.

NOTE: If alternate bids are called for and bidder intends to use different or additional subcontractors on the alternates, a separate list of subcontractors must be provided for each such alternate.

KVCR RADIO AND TELEVISION BUILDING REPURPOSE

LIST SUBCONTRACTORS ON THE FOLLOWING PAGE.

DESIGNATION OF SUBCONTRACTORS FORM

Description & Portion of Work	Name of Subcontractor & CSLB Number	City of Place of Business	Certifications

DATED: _____ _____
Proper Name of Bidder

By: _____
(Signature of Bidder)

Address: _____
_____
_____

Phone: _____

SECTION 00 30 05 - NON-COLLUSION DECLARATION TO BE EXECUTED BY BIDDER AND SUBMITTED WITH BID

(Public Contract Code section 7106)

The undersigned declares:

I am the [INSERT NAME OF President] of [insert name of company], the party making the foregoing bid.

The bid is not made in the interest of, or on behalf of, any undisclosed person, partnership, company, association, organization, or corporation. The bid is genuine and not collusive or sham. The bidder has not directly or indirectly induced or solicited any other bidder to put in a false or sham bid. The bidder has not directly or indirectly colluded, conspired, connived, or agreed with any bidder or anyone else to put in a sham bid, or to refrain from bidding. The bidder has not in any manner, directly or indirectly, sought by agreement, communication, or conference with anyone to fix the bid price of the bidder or any other bidder, or to fix any overhead, profit, or cost element of the bid price, or of that of any other bidder. All statements contained in the bid are true. The bidder has not, directly or indirectly, submitted his or her bid price or any breakdown thereof, or the contents thereof, or divulged information or data relative thereto, to any corporation, partnership, company, association, organization, bid depository, or to any member or agent thereof, to effectuate a collusive or sham bid, and has not paid, and will not pay, any person or entity for such purpose.

Any person executing this declaration on behalf of a bidder that is a corporation, partnership, joint venture, limited liability company, limited liability partnership, or any other entity, hereby represents that he or she has full power to execute, and does execute, this declaration on behalf of the bidder.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct and that this declaration is executed on _____[date], at _____[city], _____[state].

_____
Signature

_____
Print Name

END OF SECTION

SECTION 00 30 06 – CONTRACTOR'S CERTIFICATE REGARDING WORKERS' COMPENSATION

Labor Code section 3700 in relevant part provides:

Every employer except the State shall secure the payment of compensation in one or more of the following ways:

1. By being insured against liability to pay compensation by one or more insurers duly authorized to write compensation insurance in this State.

2. By securing from the Director of Industrial Relations a certificate of consent to self-insure which may be given upon furnishing proof satisfactory to the Director of Industrial Relations, of ability to self-insure and to pay any compensation that may become due to employees.

I am aware of the provisions of Labor Code section 3700 which require every employer to be insured against liability for workers' compensation or to undertake self-insurance in accordance with the provisions of that code, and I will comply with such provision before commencing the performance of the work of this contract.

Proper Name of Bidder: _____

By: _____

_____
Signature

_____
Date

In accordance with Article 5 (commencing at section 1860), Chapter 1, Part 7, Division 2 of the Labor Code, the above certificate must be signed and filed with the awarding body before performing any work under this contract.

END OF SECTION

SECTION 00 30 07 - PREVAILING WAGE CERTIFICATION

1. Wage Rates, Travel and Subsistence.

   (a) Pursuant to Labor Code Sections 1770 et. seq., the DISTRICT has obtained from the Director of the Department of Industrial Relations the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this work is to be performed for each craft, classification or type of worker needed to execute the contract. Copies are available from the DISTRICT to any interested party on request and are also available from the Director of the Department of Industrial Relations. The Contractor shall obtain copies of the above-referenced prevailing wage sheets and post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

   (b) Any worker employed to perform work on the Project and such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.

Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the contract documents or authorized by law.

The Contractor shall post, at appropriate, conspicuous, weatherproof points at the site, a schedule showing all determined minimum wages actually earned.

These per diem rates, including holiday (New Year's Day, Memorial Day, Independence Day, Labor Day, Veteran's Day, Thanksgiving Day and Christmas Day) and overtime work, and employer payments for health and welfare, pension, vacation, and similar purposes, are on file at the administrative office of the DISTRICT, located as noted above and are also available from the Director of the Department of Industrial Relations. It is the Contractor's responsibility to ensure the appropriate prevailing rates of per diem wages are paid for each classification. It shall be mandatory upon the Contractor to whom the contract is awarded, and upon any subcontractor under such Contractor, to pay not less than the said specified rates to all workers employed by them in the execution of the contract.

I am aware of the provisions of the provisions of Article 2 (commencing at § 1720), Chapter 1, Part 7, Division 2, of the Labor Code, and I will comply with such provisions in accordance with Prevailing Wage Requirements in execution of this contract.

Contractor: _____

By: _____

_____
Signature

_____
Date

SECTION 00 30 08 – ACKNOWLEDGMENT OF BIDDING PRACTICES

TO: San Bernardino Community College District
114 S. Del Rosa Drive
San Bernardino, CA 92408

RE: Construction Contract for **KVCR RADIO AND TELEVISION BUILDING REPURPOSE**

Please be advised that with respect to the above-referenced Project, the undersigned CONTRACTOR, on behalf of itself and all subcontractors, hereby waives the benefits and protection of Labor Code section 3864, which provides:

> "If an action as provided in this chapter is prosecuted by the employee, the employer, or both jointly against the third person results in judgment against such third person, the employer shall have no liability to reimburse or hold such third person harmless on such judgment or settlement in the absence of a written agreement to do so executed prior to the injury."

This Agreement has been signed by an authorized representative of the contracting party and shall be binding upon its successors and assignees. The undersigned further agrees to promptly notify the DISTRICT of any changes of ownership of the contracting party or any subcontractor while this Agreement is in force.

_____
Contracting Party

_____
Name of Agent/Title

_____
Date

END OF SECTION

SECTION 00 30 09 – ACKNOWLEDGEMENT OF PROJECT DURATION

Construction Milestones and Constraints: shall be defined to include all scopes of work, including but not limited to:

MILESTONES:

The **KVCR RADIO AND TELEVISION BUILDING REPURPOSE** will require the project to be 100% complete including commissioning, substantial completion, and punchlist within the contract duration of ***121*** calendar days from the start date given in the Notice to Proceed by the District upon award and execution of the contract by the District.

NTP:

1- **Construction (121 Calendar Days) - issued after District Board Approval and execution of the contract,** shall consist of all general requirements, including but not limited to required surveys, submittals, deferred approvals, design services, permits and approvals, pre-construction meetings and activities, site walks, long lead procurement requirements, hall off, installation, operation, and complete contract scope of work as defined in the project document by June 30, 2019.

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CONSTRAINTS:

A. As set forth in General Conditions Specification Section 00 40 00 (Exhibit B), 00 40 01 (Exhibit C) and Project Specification (Exhibit D) and Construction Schedule Specification Section 01 32 16.

B. **Site coordination with other District's vendors, contractor, suppliers and installers working on campus and at KVCR.**

DURATIONS:

Construction Complete – 91 calendar days
Total Project Contract Duration – 121 calendar days

The undersigned acknowledges that he/she has carefully and thoroughly reviewed the Project Schedule Specification Section and Project Durations and fully understands the scheduling and manpower requirements necessary to complete the project in accordance with the Project Durations, Contractor agrees to furnish all labor, materials and equipment necessary, upon District acceptance of bidder's proposal, to fully comply with this duration requirement. The undersigned agrees to comply with any and all requirements to schedule, to ensure project completion as stipulated in the Contract Documents.

ACKNOWLEDGED AND AGREED:

DATE:_____

_____
CONTRACTOR

By:_____
(Signature)

_____
(Typed Name)

_____
(Title)

END OF SECTION

SECTION 00 30 10 – CONTRACTOR'S CERTIFICATION OF SITE CONDITIONS

I certify that I have visited the Project site, and I have had all others that I deem required visit the Project site, of the proposed Project and Work. We have fully acquainted ourselves with the conditions of the Project site, as well as those relating to the construction and labor for the Project, and we fully understand the facilities, difficulties, and restrictions, which may impact the total and adequate completion of the Project.

I agree to fully defend, indemnify and hold harmless the Owner, Project Manager, Architect, Inspectors and their directors, officers, employees, agents and volunteers from any damages, costs, expenses or omissions related to conditions that could or should have been identified during my visit to the site, and/or had I undertaken an investigation thereof.

I agree and to fully coordinate with other District's vendors, contractor, suppliers and installers working on **the KVCR Radio and Television Building Repurpose.**

I certify under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

_____
Bidder

_____
Signature

_____
Typed or Printed Name

_____
Title

END OF SECTION

EXHIBIT B

GENERAL AND SUPPLEMENTAL CONDITIONS

Section 00 40 00

General Conditions

San Bernardino Community College District

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ARTICLE 1

1.1 BASIC DEFINITIONS

Action of the Governing Board is a vote of a majority of the District's governing board.

Addenda mean written errata, interpretation and revisions to the Bid Documents issued by the District before opening of the Bids.

Approval means written authorization through action of the governing board. However, the DISTRICT'S Governing Board has delegated authority to the DISTRICT'S Vice Chancellor for Fiscal Services to execute change orders, partial change orders, and Construction Directives which increase and/or decrease the Contract Price and/or increase and/or decrease the Contract Time for this Project. As such, the Vice Chancellor for Fiscal Services' signature on a change order, partial change order, and Construction Directive is sufficient to bind the DISTRICT provided that the Vice Chancellor for Fiscal Services' delegated authority is limited to approving increased and/or decreased costs of individual changes that do not exceed the amount specified in the applicable California Public Contract Code Sections 20118.4, 20651, 20655, 22032(a), as revised in accordance with Section 22020, if applicable, or ten percent (10%) of the original contract price, whichever is greater.

Architect **means the architect, engineer, or other design professional engaged by the District to design and perform general observation of the work of construction and interpret the drawings and specifications for the Project.**

As shown, as indicated, as detailed **refer to drawings accompanying this specification.**

Bid means the written offer of a Bidder (when submitted on the approved bid form) to furnish the necessary materials and to perform the Work in accordance with the Bid Documents.

Bid Security means the certified check, cashier's check or a Bid Bond accompanying the Bid submitted by the Bidder, as a guarantee that the Bidder will enter into the Contract with the District for the performance of the Work and will furnish acceptable bonds and insurance if the Contract is awarded to the Bidder.

Bidder means an individual, firm, partnership, corporation or combination thereof, submitting a proposal for the Work contemplated, acting directly or through a duly authorized representative.

Campus Operations means all services; facilities; utilities; functions; events; and all administrative, academic, instructional, public safety, life/fire/safety, construction, and/or maintenance efforts and operations, conducted by or on behalf of the DISTRICT, or conducted with the DISTRICT'S permission on DISTRICT property. Contractor and those performing by, through and/or under the Contractor, shall not affect, in any way, any Campus Operations in the performance of the Contract. Contractor is required to include in its bid any and all costs to perform as required by the Contract without affecting, in any way, any Campus Operations. If Contractor believes that the performance required by the Contract will affect, in any way, any Campus Operations, Contractor shall immediately notify the Project Manager in writing specifically stating what must be done and how it may/will affect any Campus Operation(s). Contractor shall not perform Work that affects any Campus Operations without express written permission from the DISTRICT'S Vice Chancellor for Fiscal Services. This does not mean that Contractor can stop performing as required by the Contract, rather Contractor is required to perform said Work in such a manner and at such times so as not to

affect, in any way, Campus Operations, all at no extra cost or expense, of any kind, to the DISTRICT.

Change Order ("**CO**"), **Partial Change Order** ("**PCO**") and a **Compromise** means a written instrument prepared by the Project Manager and signed by the District, Contractor, Project Manager, and DSA stating their agreement upon all of the following: (1) a change in the Work; (2) the amount of the adjustment in the Contract Price/Sum, if any; and (3) the extent of the adjustment in the Contract Time, if any.

Construction Directive (**"CD"**) means a written instrument prepared by the Project Manager and signed by the DISTRICT'S Vice Chancellor for Fiscal Services directing the Contractor regarding: (1) a change in the Work; (2) directing the Contractor to proceed in a specific manner; (3) the amount of adjustment in the Contract Price/Sum, if any; and/or (4) the extent of the adjustment in the Contract Time, if any. The DISTRICT'S Project Manager is authorized to issue Construction Directives, however, unless signed by the DISTRICT'S Vice Chancellor for Fiscal Services, a Construction Directive issued by the Project Manager and not signed by the DISTRICT'S Vice Chancellor for Fiscal Services, is not binding on the DISTRICT to increase and/or decrease the Contract Price/Sum and/or Contract Time.

Contract or Agreement mean all of the Contract/Construction Documents for the Project. The Contractor's signing of the Contract signifies its acceptance of the time of completion as being sufficient for completion of the Work, as well as acceptance of all of the other terms and conditions of the Contract/Construction Documents. Contractor acknowledges that it has read every clause n the Agreement, these conditions, and the specifications; has examined the location where the Work is to be done; and has made all inquiries and investigation necessary to enable it to understand thoroughly the intent of all parts of the Contract/Construction Documents, and the nature of the Work; and agrees that it will not make any claim for compensation, extension of time or other allowance of any sort, based upon or arising out of any alleged misunderstanding by it of any part of the Contract documents.

General Contractor, Contractor, District, Program Manager, Project Manager and Architect are those mentioned as such in the Agreement. They are treated throughout the Contract/Construction Documents as if they are of singular number and neuter gender. Any reference to "Owner" shall mean "District". The term, "Contractor" and "General Contractor" are each references to the other term. These terms are used interchangeably in the course of the Contract/Construction Documents.

Contract Sum/Price is stated in the Contract and, includes authorized adjustments pursuant to Change Orders, Partial Change Orders, and/or Construction Directives and is the total amount payable by the District to the Contractor for performance of the Work under the Contract.

Contract Time, unless otherwise provided, is the period of time, including authorized adjustments, allotted in the Contract for Completion of the Work

Days mean calendar days.

Drawings are graphic and pictorial portions of the Contract/Construction Documents prepared for the Project and approved changes thereto, wherever located and whenever issued, showing the design, location, and scope of the Work, generally including plans, elevations, sections, details, schedules, and diagrams as drawn or approved by the Architect.

Emergency shall be defined as a sudden, unexpected occurrence, involving a clear and imminent danger, demanding immediate action to prevent or mitigate loss of, or damage to, life, health, property, or essential public services. Emergency includes such occurrences as fire, flood, earthquake, or other soil or geologic movements, as well as such occurrences as riot, accident, or sabotage.

Equal/Equivalent means a product, service, component or system which is demonstrated, through the submittal process, to the satisfaction and specific approval of the District or its designee to be equal to the product, service, component or system specified as set forth in these Contract.

Equipment is a general term which refers to vehicles, systems, assemblies, sub-assemblies, products, material, fittings, devices, appliances, fixtures, apparatus, supplies and the like used in the performance of a specific function or functions or Contract obligation.

Extra Work means work of which the performance or compensation thereof is not otherwise provided for in the Contract, but found by the Owner to be necessary or desirable to the satisfactory completion of this Contract and within its intended scope.

Inspector of Record is the individual retained by the District in accordance with titles 21 and 24 of the California Code of Regulations and who will be assigned to the Project.

Locality in which the work is performed means the county in which the Project is located.

Modification(s) means a written amendment to the Contract signed by parties, a Change Order, a Partial Change Order, a Construction Directive, a Compromise, or a written order for a minor change in the Work issued by the Architect.

Notice to Proceed means a written notice from the Owner to Contractor to proceed with the Work by a specified date.

Program Manager means the firm or individual retained by the District to manage all aspects of the Capital Improvement Program as an extension of the District's staff.

The Project is the complete construction of the Work performed in accordance with the Contract/Construction Documents.

Project Manager for the Project will be *Nicole Cannon/ NCA Studio Inc.* The Project Manager will be the District Representative during construction of the Project and will assist the District in the administration of the contract. All instructions from the District to the Bidders (and to the Contractor, when the contracts are awarded) shall be directed through the Project Manager.

The Project Manual means the volume assembled for the Work which may include, without limitation, the bidding requirements, sample forms, Conditions of the Contract, and Specifications.

Provide shall include "provide complete in place," that is "furnish and install."

Project Schedule The "Project Schedule" is the schedule produced by the General Contractor of the combined itemized CPM schedules activities to complete the scope of work within the Bid Documents. General Contractor shall staff the project sufficiently to maintain the project schedule durations and milestones. The schedule will be monitored and tracked by the General Contractor and submitted for review monthly to the Project Manager.

Reference Standards for Material, Equipment, Work, procedures or workmanship established by reference to standards or procedures published in a described reference text. Referenced Standards shall have the same force and effect as if they are physically incorporated in the Contract.

Regular Work Day consists of eight hours as required under Section 1810 of the California Labor Code.

Safety Orders are those issued by any cognizant city, county, state or federal agency.

Site refers to the grounds of the Project as defined in the Contract Documents and such adjacent lands as may be directly affected by the performance of the Work.

The Specifications are that portion of the Contract Documents consisting of the written requirements for material, equipment, construction systems, instructions, quality assurance standards, workmanship, and performance of related services.

Substantial Completion of the Work: unless defined differently in the Supplemental Conditions, the phrase means, that point in the progress of the Work where the Work is completed according to the requirements of the Contract Documents so that the District can occupy, have beneficial use of, and enjoy, the entire Project for its intended purpose; and where only minor and/or trivial defects in the Work remain that do not preclude the District occupying, having beneficial use of, or enjoying the entire Project for its intended purpose.

Standards, Rules, and Regulations referred to are recognized printed standards and shall be considered as one and a part of these specifications within limits specified. Federal, state and local regulations are incorporated into the Contract Documents by reference.

Subcontractor(s), as used herein, includes those having direct or indirect contracts with Contractor and one who furnishes labor, services, materials, products, equipment, supplies, apparatus, and the like, or one who furnishes services for a special design according to plans, drawings, and specifications of this Work. The definition includes all persons and/or entities that are entitled to file a Stop Notice on the Project under applicable law.

Surety is the person, firm, or corporation that executes as surety the Contractor's Performance Bond and Payment Bond.

Work of the Contractor or Subcontractor shall include all labor, services, materials, products, equipment, supplies, apparatus, and the like, necessary for the Contractor to fulfill all of its obligations pursuant to the Contract Documents. It shall include the initial obligation of any Contractor or Subcontractor who performs any portion of the Work, to visit the Site of the proposed Work (a continuing obligation after the commencement of the Work), to fully acquaint and familiarize itself with the conditions as they exist and the character of the operations to be carried out under the Contract Documents, and make such investigation as it may see fit so that it shall fully understand the facilities, physical conditions, and restrictions attending the Work under the Contract Documents. Each such Contractor or Subcontractor shall also thoroughly examine and become familiar with the Drawings, Specifications, and associated bid documents before preparing and submitting any bid.

Workers include laborers, workers, and mechanics.

1.2 EXECUTION, CORRELATION AND INTENT

1.2.1 Correlation and Intent

1.2.1.1 ***Documents Complementary and Inclusive.*** The Contract Documents are complementary and are intended to include all items required for the proper execution and completion of the Work. All Contract Documents form the Contractor's contract with the District. Any item of Work mentioned in the Specifications and not shown on the Drawings, or shown on the Drawings and not mentioned in the Specifications, shall be provided by Contractor as if shown or mentioned in both.

1.2.1.2 ***Coverage of the Drawings and Specifications.*** The Drawings and Specifications generally describe the Work to be performed by Contractor. Generally, the Specifications describe Work which cannot be readily indicated on the Drawings and indicate types, qualities, and methods of installation of the various materials and equipment required for the Work. It is not intended to mention every item of Work in the Specifications, which can be adequately shown on the Drawings, or to show on the Drawings all items of Work described or required by the Specifications even if they are of such nature that they could have been shown. All materials or labor for Work, which is shown on either the Drawings or the Specifications (or is reasonably inferable there from as being necessary to complete the Work), shall be provided by the Contractor to provide a complete Project. It is intended that the Work be of sound, quality construction, and the Contractor shall be responsible for the inclusion of adequate amounts to cover installation of all items indicated, described, or implied in the portion of the Work to be performed by them.

1.2.1.3 ***Conflicts.*** In the event there is a discrepancy between the various Contract Documents, it is intended that the more stringent, higher quality, and greater quantity of Work shall apply. All conflicts in the Contract Documents shall be reported to the Project Architect through the Project Manager before proceeding with work affected.

1.2.1.4 ***Division of Plans and Specifications.*** All sections of the specification shall be read and interpreted as constituting a whole and not as an aggregation of individualized parts, and whatever is specified in one section shall be construed as applying to all sections.

1.2.1.5 ***Conformance With Laws.*** Each and every provision of law required by law to be inserted in this Contract shall be deemed to be inserted herein, and the Contract shall be read and enforced as though it were included herein, even if through mistake or otherwise any such provision is not inserted, or is not correctly inserted.

Before commencing any portion of the Work, Contractor shall check and review the Drawings and Specifications for such portion for conformance and compliance with all laws, ordinances, codes, rules and regulations of all governmental authorities and public and municipal utilities affecting the construction and operation of the physical plant of the Project, all quasi-governmental and other regulations affecting the construction and operation of the physical plant of the Project, and other special requirements, if any, designated in the Contract Documents. Such checking shall include Title 21 and Title 24 of the California Code of Regulations, California Building Code, local utility, local water connection, local grading and all other applicable agencies. In the event Contractor observes any violation of any law, ordinance, code, rule or regulation, or inconsistency with the Contract Documents, Contractor shall, within three (3) days, notify Architect, Project Manager, Program Manager and District in writing of same and shall ensure that any such violation or inconsistency shall be corrected in the manner provided hereunder prior to the construction of that portion of the Project.

The Contractor shall bear all expenses of correcting Work done contrary to said laws, ordinances, rules, and regulations if the Contractor performed same (1) without first consulting the Architect for further instructions regarding said Work or (2) disregarded the Architect or Project Manager's instructions regarding said work.

1.2.1.6 ***Ambiguity and Inconsistency.*** Before commencing any portion of the Work, Contractor shall carefully examine all Drawings and Specifications and other information given to Contractor as to materials and

methods of construction and other Project requirements. Contractor shall, within three (3) days, notify Architect, Project Manager, Program Manager and District in writing of any perceived or alleged error, inconsistency, conflict, ambiguity, or lack of detail or explanation in the Drawings and Specifications in the manner provided herein. If the Contractor or its Subcontractors, material or equipment suppliers, or any of their officers, agents, and employees performs, permits, or causes the performance of any Work under the Contract Documents, which it knows or should have known to be in error, inconsistent, or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all costs arising there from including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Price or the time for performance. If Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Contractor shall bear any and all resulting costs, including, without limitation, the cost of correction, without increase to or adjustment in the Contract Price or the time for performance.

1.2.2 Addenda and Deferred Approvals

1.2.2.1 ***Addenda*** are the changes in specifications, drawings, contract documents, and plans which have been prepared by the Architect and authorized in writing by the District and which alter, explain, or clarify the contract documents. Addenda shall govern over all other Contract Documents. Subsequent addenda issued shall govern over prior addenda unless otherwise specified in the addenda.

1.2.2.2 ***Deferred Approvals.*** Contract Documents which require deferred approval items are meant to be for illustration purposes only. Contractor is responsible for all deferred approval requirements set forth in the Contract Documents. Contractor is responsible to comply with all laws, building codes, and regulations necessary to obtain all necessary approvals, including those required from the Division of the State Architect ("DSA") and the State Fire Marshal. Contractor shall not be granted an extension of time for failure to obtain necessary approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations). Contractor shall schedule all deferred approval items in its progress schedule pursuant to Article 3. If Contractor fails to include deferred-approval items in its schedule which results in a critical path delay, then Contractor shall be subject to the assessment of liquidated damages.

1.2.3 Specification Interpretation

1.2.3.1 ***Titles.*** The Specifications are separated into titled sections for convenience only and not to dictate or determine the trade or craft involved.

1.2.3.2 ***As Shown, Etc.*** Where "as shown," "as indicated," "as detailed," or words of similar import are used, reference is made to the Drawings accompanying the Specifications unless otherwise stated. Where "as directed," "as required," "as permitted," "as authorized," "as accepted," "as selected," or words of similar import are used, the direction, requirement, permission, authorization, approval, acceptance, or selection by Architect is intended unless otherwise stated.

1.2.3.3 ***General Conditions.*** The General Conditions, and the Supplemental Conditions if any, are a part of each and every section of the Specifications.

1.2.3.4 ***Abbreviations.*** In the interest of brevity, the Specifications are written in an abbreviated form and may not include complete sentences. Omission of words or phrases such as "Contractor shall," "shall be," etc., are intentional. Nevertheless, the requirements of the Specifications are mandatory. Omitted words or phrases shall be supplied by inference in the same manner as they are when a "note" occurs on the Drawings. In the interest of brevity, the Contract Documents frequently omit modifying words such as "all" and "any" and articles such as "the" and "an," but the fact that a modifier or an article is absent from one statement and appears in another is not intended to affect the interpretation of either statement.

1.2.3.5 ***Plural.*** Words in the singular shall include the plural whenever applicable or the context so indicates.

1.2.3.6 ***Metric.*** The Specifications may indicate metric units of measurement as a supplement to U.S. customary units. When indicated thus: 1" (25 mm), the U. S. customary unit is specific, and the metric unit is nonspecific. When not shown with parentheses, the unit is specific. The metric units correspond to the "International System of Units" (SI) and generally follow ASTM E 380, "Standard for Metric Practice."

1.2.3.7 ***Standard Specifications.*** Any reference to standard specifications of any society, institute, association, or governmental authority is a reference to the organization's standard specifications, which are in effect at the date of the Contractor's proposal unless directed otherwise. If applicable specifications are revised prior to completion of any part of the Work, the Contractor may, if acceptable to Architect and Project Manager, and approved by the District perform such Work in accordance with the revised specifications. The standard specifications, except as modified in the Specifications for the Project, shall have full force and effect as though printed in the Specifications. Architect will furnish, upon request, information as to how copies of the standard specifications referred to may be obtained.

1.2.4 Rules of Document Interpretation

1.2.4.1 Should the Contractor discover any conflicts, omissions, or errors in the Contract Documents, or have any question concerning interpretation or clarification of the Contract Documents, or if it appears that the Work to be done or any matters relative thereto are not sufficiently detailed or explained in the Contract Documents, then before proceeding with the work affected, the Contractor shall within 48 hours notify the Construction Manager in writing and request interpretation, clarification, or additional detailed instructions and/or drawings concerning the work. All such questions shall be resolved and instructions to the Contractor issued by the Project Manager.

Should the Contractor and/or their subcontractors proceed with the work affected before receipt of instructions from the Project Manager it shall remove and replace or adjust any work, which is not in accordance therewith, and it shall be responsible for any resultant damage, defect, or added cost.

1.2.4.2 If any portion of the Contract Documents shall be found to be in conflict with any other portion, the various Documents comprising the Contract Documents shall govern in the following order of precedence: Permits from outside agencies required by law and applicable codes or laws, Modifications; the Owner/Contractor Agreement; addenda; supplemental conditions; General Conditions; other Division 0 and Division 1 documents and Sections; specifications; the drawings. As between figures given on drawings and the scaled measurements, the figures shall govern. As between large scale drawings and small scale drawings, the larger scale shall govern. Cost of the work, Schedule of values.

1.2.4.3 In general, the Drawings will show dimensions, position, and kind of construction; And the Specifications, qualities and methods. Any work called for in the Drawings and not mentioned in the Specifications, or vice versa, shall be performed as though fully set forth in both. Work not particularly detailed, marked, or specified shall be the same as similar parts that are detailed, marked, or specified.

1.2.4.4 In case of conflict between the Drawings and Specifications, the Drawings shall govern in matters of quantity, the Specifications in matters of quality. In case of conflict within the Drawings involving quantities or within the Specifications involving quality, the greater quantity and the higher quality shall be furnished.

1.2.4.5 Should an error appear in the Drawings or Specifications, or in the work done by others affecting this work, the Contractor shall notify the Project Manager at once. In conjunction with the Architect, the Project

Manager will issue instruction as to procedure. If the Contractor proceeds with the work so affected without instructions from the Project Manager, he shall make good any resulting damage or defects.

1.2.4.6 The general character of the detail work is shown on the Contract Drawings. Any work executed before receipt of such details, if not in accordance with same, shall be removed and replaced, or adjusted, as directed, without expense to the Owner. Should any detail submitted later than the Contract Drawings is, in the opinion of the Contractor, more elaborate than the Scale Drawings and the Specifications indicated, written notice thereof shall be given to the Project Manager within three (3) days of receipt of same. The claim will then be considered, and, if justified, said detail drawings will be amended or the extra work authorized. Non receipt of such notice shall relieve the Owner of any claim.

1.2.4.7 Where on any Drawings a portion of the work is drawn out and the remainder is indicated in outline, the drawn out parts shall apply to all other like portions of the work. Where ornament or other detail is indicated starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to other similar parts in the work, unless otherwise indicated.

1.2.4.8 When specified brands or kinds of material are called for they are mentioned merely as standards and the Contractor has the option of using any other brand of equal quality if approved by the Architect. Any materials named in the Specifications, or which may be substituted, must, if so desired by the Architect, be tested by said Architect at the expense of Contractor.

1.2.4.9 Any material specified by reference to the number, symbol, or title of a specified standard such as a Commercial Standard, a Federal Specification, a trade association standard, or other similar standards, shall comply with the requirements in the latest approved revision thereof and any amendments or supplements thereto in effect on the date of Notice to Contractors, except as limited to type, class, or grade, or modified in such reference.

1.2.4.10 The standards referred to, except as modified in the Specifications, shall have full force and effect as though printed in these Specifications. These standards are not furnished to bidders, for the reason that the manufacturers and trades involved are assumed to be familiar with their requirements. The Architect will furnish, upon request, information as to how copies of the standards referred to may be obtained.

1.2.4.11 Where it is required in the Specifications that materials, products, processes, equipment or the like be installed or applied in accordance with manufacturers' instructions, directions, or specifications, it shall be construed to mean that said application or installation shall be in strict accordance with the printed instructions furnished by the manufacturer of the materials considered for use under conditions similar to those at the job site. Eight copies of such instructions shall be furnished to the Project Manager.

1.2.4.12 Where ever an article, device or piece of equipment is referred to in singular number, such reference applies to all such articles shown on Drawings or required to complete the installation.

1.3 OWNERSHIP AND USE OF ARCHITECT'S DRAWINGS, SPECIFICATIONS AND OTHER DOCUMENTS

The Drawings, Specifications, and other contract documents including Contractor shop drawings and submittals for the Project are the property of the District. The Contractor may retain one contract record set. Neither the Contractor nor any Subcontractor, or material or equipment supplier shall own or claim a copyright in the Drawings, Specifications, and other documents prepared by the Architect. All copies except the Contractor's record set, shall be returned or properly accounted for upon completion of the Work. The Drawings, Specifications, and other documents prepared by the Architect, and copies thereof furnished to the Contractor are not to be used by the Contractor or any Subcontractor, Sub-subcontractor, or material or equipment supplier on other projects or for additions to this Project outside the scope of the Work. The District and/or Architect hereby grants the Contractor, Subcontractors, Sub-subcontractors, and material or equipment suppliers a limited license to use applicable portions of the Drawings, Specifications, and other documents prepared for the Project in the execution of their Work under the Contract Documents. Submittal or distribution to meet official regulatory requirements or for other purposes in

connection with this Project is not to be construed as publication in derogation of the District's property interest or other reserved right.

ARTICLE 2

2.1 INFORMATION AND SERVICES REQUIRED OF THE DISTRICT

2.1.1 Site Survey.

The District will furnish, at its expense, a legal description of the Site and a land survey showing the boundaries of the Site. Contractor shall be responsible for all surveys regarding location of construction, grading and site work.

2.1.2 Soils

When required by the scope of the Project, the District will furnish, at its expense, the services of geotechnical engineers or consultants when reasonably required and deemed necessary by the Architect or as required by local or state codes. Such services, with written reports and appropriate written professional recommendations, may include test boring, test pits, soil bearing values, percolation tests, air and water pollution tests, and ground corrosion and resistivity tests, including necessary operations for determining subsoil, air, and water conditions.

The Soils Report recommendations may be less restrictive than the Project specifications. The most stringent shall apply and therefore the Contractor shall construct the earthwork and soil related portion of the Project. The Soils Report is supplementary to the specifications, and is attached as an exhibit for reference and information only. **Contractor must review the "Information Available to Bidders", section 00 50 11 in the Bid Documents and familiarize itself with the contents thereof.**

2.1.3 Contractor Reliance

A soils investigation report has been obtained from test holes at the Site, and such report is available for the Contractor's use in preparing its bid and Work under this Contract. The soils report is available at the Project Manager's office for review, the soils report is for reference only. Any information obtained from such report or any other information given on drawings as to subsurface soil condition or to elevations of existing grades or elevations of underlying rock is approximate only. If, during the course of Work under this Contract, Contractor encounters subsurface conditions which differ materially from those indicated in the soils investigation report, then Contractor shall notify the District, Project Manager and Architect through the Project Manager within three (3) calendar days of discovery of the condition, and changes to the contract price may be made in accordance with Article 7 entitled "Changes in the Work." Contractor agrees that no claim against District will be made by Contractor for damages and hereby waives any rights to damages in the event the Contractor fails to notify District within the three-day period mentioned above. **Contractor must review the "Information Available to Bidders", section 00 50 11 in the Bid Documents and familiarize itself with the contents thereof.**

WARNING: DISTRICT DOES NOT WARRANT THE SOILS AT THE PROJECT SITE. SOILS INVESTIGATION REPORT IS PROVIDED FOR CONTRACTORS INFORMATION ONLY. CONTRACTOR HAS CONDUCTED AN INDEPENDENT INVESTIGATION OF THE PROJECT SITE AND THE SOILS CONDITIONS OF THE SITE. DISTRICT DOES NOT WARRANT THE SOILS CONDITIONS OF THE SITE AND CONTRACTOR IS FULLY RESPONSIBLE TO ASCERTAIN SITE CONDITIONS FOR THE PURPOSES OF DETERMINING CONSTRUCTION MEANS AND METHODS PRIOR TO COMMENCING CONSTRUCTION. THE SOILS INVESTIGATION REPORT IS NOT A CONTRACT DOCUMENT.

2.1.4 Utilities

2.1.4.1 ***Regional Notification Center.*** Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the District has been given the identification number by the Contractor. Any damages arising from failure to make appropriate regional notification shall be at the sole risk of Contractor. Any delays caused by failure to make appropriate regional notification shall be at the sole risk of Contractor and shall not be considered for extension of time pursuant to Article 8.4.

2.1.4.2 ***Utilities - Removal and Restoration.***

The District has endeavored to determine the existence of utilities at the Site of the Work from the records of the District of known utilities in the vicinity of the Work. The positions of these utilities as derived from such records are shown in the Contract Documents.

No excavations were made to verify the locations shown for underground utilities. The service connections to these utilities may not be shown on the plans. It shall be the responsibility of the Contractor to determine the exact location of all service connections. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of service connections, prior to commencing work, which could result in damage to such utilities. The Contractor shall immediately notify the Project Manager as to any utility discovered by Contractor in a different position than shown in the Contract Documents or which is not shown on the Contract Documents.

Contractor shall coordinate its Work with all utilities, including, but not limited to electricity, water, gas and telephone and meet with said utilities prior to the start of any work.

2.1.5 Existing Utility Lines; Removal, Relocation

The contractor has the responsibility to identify, with reasonable accuracy, all utilities necessary to complete their scope of work. The Contractor shall exercise due diligence and shall not be compensated by the District for the actual verified cost of locating, and removing, relocating, protecting or temporarily maintaining existing utility services.

- The District shall furnish an existing utility survey as-built for reference.
- The Contractor shall hire an independent underground utility locator service company to identify and verify existing underground utilities within the scope of work. All cost and fees associated with this work shall be at the Contractor's own expense and included in the base bid.
- Upon completion of the independent under utility locator survey and prior to any excavations, Contractor's project manager, superintendent and subcontractor/excavator are required to conduct an onsite field verification of existing conditions, shall mark-out the utilities, and transfer all information to a working utility as-built. Contractor's utility survey as-built shall be submitted to District.
- In the event an existing utility service is interrupted or damaged the Contactor shall be required to make all necessary repairs within 4hrs. Also, District shall be entitled to recover from the Contractor all damages the District sustains, at its, shall calculate and the damages against the

Contractor for disruption to any Campus Operation(s), including but not limited to, extended loss of utility services resulting in shut down of classes, instructional labs, administrative offices, public safety offices, M&O offices and fire/life/safety services of students and staff. Contactor shall furnish to the District, the Contractor's on-call emergency repair contact list of contacts/companies, consisting of, but not limited to, fiber optics, gas, water, electric and sewer.

- Adjustment of the Contract Amount, Milestones and/or Contract Time will be allowed to the extent the existence of such revealed conditions directly causes an increase in Contractor cost and/or time of performance of the Work shall be subject to the conditions noted above.

- Contractor shall not be entitled to an adjustment in the Contract Amount, Milestones and/or Contract Time if: (1) Contractor was aware of the condition at the time of the bid; and/or (2) the existence of discovery of the condition could have been discovered as a result of any reasonable examination, investigation, exploration, test and/or examination of the Project Site and areas adjoining the Project Site as required by the Bid Documents before Contractor submission of Bid.

If the Contractor believes any subsurface or physical condition uncovered, revealed or otherwise exposed at the project site is of such character and/or nature as to require a change in the Contract Documents; materially different from that shown, indicated or described in the Bid Documents; or an unusual nature materially different from conditions normally encountered and generally recognized as inherent in Work of the character provided for in the Bid Documents, then Contactor shall upon discovery notify the District/Project Manager in writing within (1) one calendar day.

2.1.6 Easements

District shall secure and pay for easements for permanent structures or permanent changes in existing facilities, if any, unless otherwise specified in the Contract Documents.

2.2 DISTRICT'S RIGHT TO CARRY OUT THE WORK

If the Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails (within a (72) Seventy Two hour period after receipt of written notice or a shorter time period expressly stated in the written notice from the District in an emergency situation) to commence and continue correction of such default with diligence and promptness, the District may correct such deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing three-day written notice to Contractor and Surety. If during this three (3) day period, Surety personally delivers notice to District that it intends to perform such work, District shall allow Surety seven (7) days to perform. In an emergency situation, the District may correct such deficiencies without prejudice to other remedies the District may have, including those set forth in Article 14 after providing 48 hours' notice to the Contractor. In either case, the Contractor will be invoiced the cost of correcting such deficiencies, including compensation for additional services and expenses made necessary by such default, or neglect. The invoice amount shall be deducted from the next payment due the Contractor. If payments then or thereafter due the Contractor are not sufficient to cover such amounts, the Contractor shall pay the difference to the District. The District may at exercise their right to carry out the work, in the event the Contractor, and/or anyone performing under and/or through the Contractor, fails to meet the minimum conditions outlined below:

1. Failure to supply adequate workers on the entire Project or any part thereof;
2. Failure to supply a sufficient quantity of materials, products, equipment, apparatus, and the like;
3. Failure to perform any provision of this Contract;
4. Failure to comply with safety requirements, or due to Contractor's creation of, and/or failure to immediately resolve, an unsafe condition;
5. In the case of bona fide emergency;

6. Failure to order materials/products/equipment/apparatus, and the like, in a timely manner;
7. Failure to prepare deferred-approval items or shop drawings in a timely manner;
8. Failure to comply with Contractor's schedule which would result in a delay to any critical path activity; or
9. Failure to comply with the Subletting and Subcontracting Fair Practices, Public Contract Code section 4100, et seq.

2.3 STOP WORK CLAUSE FOR CONSTRUCTION CONTRACT

2.3.1 Archaeological Resources

In the event that archaeological materials or historic-age (i.e., over 50 years old) features are encountered during ground-disturbing construction activities (e.g., grading, trenching, excavating), these activities must be suspended within 100 feet of the find and the Project Archaeologist at ECORP Consulting, Inc. notified. The ECORP archaeologists(s) will then record and evaluate the find for eligibility to the California Register of Historical Resources (CRHR). If evaluated as CRHR- eligible and determined eligible by the San Bernardino Community College District, the site must be avoided and preserved. It that is not feasible, an archaeological data recovery program shall be completed. The appropriate level of work required will be determined by the Project Archaeologist. Work in the vicinity of the find can commence when cleared by the Project Archaeologist.

2.3.2 Human Remains

If bone of any kind is found during construction, work must be suspended within 100 feet of the find and the Project Archaeologist at ECORP consulting, Inc. notified. The ECORP archaeologist will then determine if the bone is human. If it is determined or even suspected that the bone represents human remains, the requirements of CEQA Guidelines Section 150645(e) must be followed and will be implemented by ECORP, in coordination with the San Bernardino Community College District. According to these requirements, all construction activities must cease immediately. The San Bernardino County Coroner will be notified by ECORP. The Coroner will examine the remains and determine the next appropriate action based on his/her findings. If the coroner determines the remains to be of Native American origin, he/she will notify the Native American Heritage Commission (NAHS). The NAHC will then identify the most likely descendants (MLD) to be consulted regarding treatment and/or reburial of the remains. If an MLD cannot be identified or the MLD fails to make a recommendation regarding the treatment of the remains within 48 hours after being granted access to the property, the San Bernardino Community College District shall rebury the Native American human remains and associated grave goods with appropriate dignity on the property in a location a not subject to further subsurface disturbance. Work cannot continue until clearance has been granted by the County Coroner and the College District.

2.3.3 Paleontological Resources

Portions of the project area consist of Pleistocene alluvial sediments that have a high potential to contain significant, nonrenewable paleontological resources. A mitigation program is being developed by ECORP Consulting, Inc. for the project and will require the presence of a qualified vertebrate paleontologist during all ground-disturbing activities in undisturbed Pleistocene sediments. Monitoring may be required during excavation. The monitor will be present during initial excavation in these areas and will determine the appropriated schedule for monitoring based on examination of the exposed soils. The monitor will have the authority to temporarily halt or divert equipment to allow recovery of significant fossils. Work can continue in the area when cleared by the Project Paleontologist.

- If the Work is delayed for any reason for which neither Contractor nor Owner are responsible, Contractor's and Owner's sole and exclusive remedy for such delay will be a non-compensable extension of the Contract Time for the duration of such delay to the critical path as shown by the current approved schedule.

ARTICLE 3

3.1 SUPERVISION AND CONSTRUCTION PROCEDURES

3.1.1 Contractor

The Contractor shall continually supervise and direct the Work using the Contractor's best skill and attention. The Contractor shall be solely responsible for and have control over construction means, methods, techniques, sequences, procedures; and shall coordinate all portions of the Work under the Contract, unless the Contract Documents give other specific instructions concerning these matters. The Contractor shall not perform the Work without utilizing the Contract Documents or, where required, approved shop drawings, product data, or samples for any such portion of the work. If any of the Work is performed by contractors retained directly by the District, Contractor shall be responsible for the coordination and sequencing of the work of those other contractors so as to avoid any impact on the Project schedule pursuant to the requirements of Article 6 and Article 8. Specific duties of the Contractor shall include those set out in section 43 of Title 21 of the California Code of Regulations and section 4-343 of Title 24 of the California Code of Regulations. These duties include, but are not limited to the following:

.1 Responsibilities. It is the duty of the Contractor to complete the Work covered by his or her contract in accordance with the approved Contract Documents. The Contractor in no way is relieved of any responsibility by the activities of the Project Manager, Architect, Engineer, Inspector or DSA in the performance of their duties.

.2 Performance of the Work. The Contractor shall carefully study the approved Contract Documents and shall plan its schedule of operations well ahead of time. If at any time it is discovered that work is being done which is not in accordance with the approved Contract Documents, the Contractor shall correct the work immediately but not without the knowledge of the Districts representative.

(i). All inconsistencies or times, which appear to be in error in the Contract Documents, shall promptly be called to the attention of the Architect or Engineer through the Project Manager for interpretation or correction. Local conditions, which may affect the Work, shall be brought to the Architect's attention at once. In no case, shall the instruction of the Architect be construed to cause work to be done, which is not in conformity with the approved Contract Documents and as required by law.

(ii). The Contractor shall not carry on Work except with the knowledge of the Inspector of Record.

(iii). Verified Reports. The Contractor shall make and submit to the office daily, verified reports as required in section 36 of Title 21 and section 4-366 of Title 24.

(iv). Contractor shall fully comply with any and all reporting requirements of Education Code section 81147 in the manner prescribed by Title 24, as applicable.

3.1.2 Contractor Responsibility

The Contractor shall be responsible to the District for acts and omissions of the Contractor's employees, Subcontractors, material, product, and equipment suppliers, and their agents, employees, invitees, and employees, Subcontractors, material, product, and equipment suppliers, and their agents, employees, invitees, and other persons performing portions of the Work under direct or indirect contract with the Contractor or any of its Subcontractors.

3.1.3 Obligations not Changed by Architect's Actions

The Contractor shall not be relived of obligations to perform the work in accordance with the Contract Documents either by activities or duties of the District, Inspector of Record, Architect or the Project Manager, in the administration of the Contract or tests, inspections, or approvals required or performed by persons other than the Contractor.

3.1.4 Performance of Work With Own Force

Contractor shall be allowed to self-perform any portion of the work provided the Contractor is licensed by the State of California. Contactor shall supervise and direct the work competently and efficiently, devoting such attention thereto and applying such skills as may be necessary to perform the Work in accordance with the Contract Documents.

3.2 SUPERVISION

3.2.1 Full Time Supervision

The Contractor shall staff and retain at all times during its progress of work a competent construction Superintendent satisfactory to the District. The Superintendent shall be present on a full-time basis, shall be dedicated exclusively to the Project and shall not share duties with another project or job. The Superintendent shall not be replaced except with written consent of the District. The Superintendent shall represent the Contractor and shall be fully authorized to receive and fulfill any instruction from the Project Manager, Architect, the Inspector, the Program Manager, the District or any other District representative. No Work shall begin on any day by any Subcontractor or other person on the Project site until the Superintendent has arrived, or shall any Work continue during the day after the Superintendent has departed from the Project site. The Superintendent shall have authority to bind Contractor through the Superintendent's acts. The Superintendent shall represent the Contractor, and communications given to the Superintendent shall be binding on the Contractor. Prior to mobilization the Contractor shall provide written notice to Project Manager containing the name and a Statement of Qualifications of site superintendent. Superintendent shall not be changed except with written consent of District, unless a superintendent proves to be unsatisfactory to Contractor and ceases to be in its employ, in which case, Contractor shall notify District, Project Manager, and Architect in writing. Contractor shall provide a replacement superintendent approved by the District prior to performing additional work.

3.2.2 Staff

Notwithstanding other requirements of the contract documents, the Contractor and each Subcontractor shall: (1) furnish a competent and adequate staff as necessary for the proper administration, coordination, supervision, and superintendence of its portion of the Work; (2) organize the procurement of all materials and equipment so that the materials and equipment will be available at the time they are needed for the Work; and (3) keep an adequate force of skilled and fit workers on the job to complete the Work in accordance with all requirements of the Contract Documents.

3.2.3 Right to Remove

The Contractor shall at all times enforce strict discipline and good order among its employees and shall not employ on the Work any unfit person or anyone not skilled in the assigned task as defined in the contract documents. The Contractor shall remove, or cause a subcontractor to remove from the Project, any incompetent employee, or any employee not skilled for the type of work required as defined in the contract documents. The District and/or Project Manager may, in writing, require the Contractor to remove from the Work any employee with or without cause.

3.3 LABOR, MATERIALS, ETC.

3.3.1 Contractor to Provide

The Contractor shall provide and pay for labor, material, products, equipment, tools, construction equipment and machinery, water, heat, air conditioning, utilities, transportation, and other facilities, services and permits **only as necessary** for proper execution and completion of the Work whether temporary or permanent and whether or not incorporated or to be incorporated in the Work.

3.3.2 Quality

Unless otherwise specified, all materials, products, and equipment to be permanently installed in the Project shall be new and shall be of the highest quality or as specifically stated in the Contract Documents. The Contractor shall, if requested by the District or Project Manager, furnish, within ten (10) days of written request, satisfactory evidence as to kind and quality of materials, products, and equipment along with bona fide copies of invoices for materials, products, equipment, or services provided for the Project. Contractor shall forward information to Project Manager and District. All labor shall be performed by workers skilled in their respective trades, and shall be of the same or higher quality as with the standards of other college construction.

3.3.3 Replacement

Any work, materials, products, or equipment, which do not conform to these requirements or the standards set forth in the Contract Documents, may be disapproved by the District or Project Manager, in which case, they shall be removed and replaced by the Contractor at no additional cost to the District and at with no or extension of time to the Contractor.

3.3.4 Discipline

The Contractor shall enforce strict discipline and good order among the Contractor's and Subcontractor's employees, and other persons carrying out the Contract. The Contractor shall not permit employment of unfit persons or persons not skilled in tasks assigned to them. As used in this subsection, "unfit" includes any person whom the District or Project Manager concludes is improperly skilled for the task assigned to that person, whom fails to comply with the requirements of this article, or whom creates safety hazards which jeopardize other persons and/or property.

3.3.5 Noise, Drugs, Tobacco, and Alcohol

Contractor shall take all steps necessary to insure that employees of Contractor or any of its subcontractors' employees do not use, consume, or work under the influence of any alcohol, tobacco or illegal drugs while on the Project. Contractor shall further prevent any of its employees or its subcontractor employees from playing any recorded music devices or radios or wearing any radio headphone devices for entertainment while working on the Project. Likewise, Contractor shall prevent its employees or subcontractor's employees from bringing any animal onto the Project. Contractors shall not violate any written District or Project Manager policies.

3.3.6 Delivery of Materials, Etc.

Contractor shall place orders for materials, products, and equipment so that the Work may be completed in accordance with the Construction schedule for the Work as set forth in Article 8 of this Agreement. Contractor shall, upon demand from the District or Project Manager, furnish documentary evidence including, but not limited to purchase orders, invoices, bills of materials, work orders, and bills of lading, showing that orders have been placed.

3.3.7 Liens and Other Security Interests of Subcontractors and Material Suppliers

No material, supplies, or equipment for the Work shall be purchased subject to any chattel mortgage or under a conditional sale or other agreement by which an interest therein or in any part thereof is retained by seller or supplier. Contractor warrants good title to all material, supplies, and equipment installed or incorporated in Work and agrees upon completion of all Work to deliver premises, together with all improvements and appurtenances constructed or placed thereon by it, to District free from any claims, security interests, liens, or charges. Contractor further agrees that neither it nor any person, firm, or corporation furnishing any materials or labor for any Work covered by this Contract shall have no right to place a lien upon the premises or any improvement or appurtenance thereof, except that Contractor may install metering devices or other equipment of a utility company or political subdivision, title to which is commonly retained by the utility company or political subdivision. In event of installation of any such metering device or equipment, Contractor shall advise the District through the Project Manager as to its owner within three (3) days of such installation in writing, prior to making the installation.

3.3.8 Title to Materials, Etc.

The title to new materials, products, or equipment for the Work of this Contract, and attendant liability for its protection and safety, shall remain with Contractor until incorporated in the Work of this Contract and accepted by the District, Project Manager and Architect; no part of said materials, products, or equipment shall be removed from its place of storage, and Contractor shall keep an accurate inventory of all said materials, products, and equipment in a manner satisfactory to the District or its authorized representative. If title remains with Contractor for materials, products, and/or equipment until installed, District cannot pay for such stored materials, products or equipment.

3.3.9 Assemblies

For all materials, products, and equipment specified or indicated in the Drawings, the Contractor shall provide all labor, materials, products, equipment, and services necessary for complete assemblies and complete working systems. Incidental items not indicated on the Drawings, nor mentioned in the Specifications, that can legitimately and reasonably be inferred to belong to the Work described, or be necessary in good practice to provide a complete assembly or system, shall be furnished as though itemized in the Contract Documents in every detail. In all instances, materials, products, and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

3.3.10 Noise Control

The Contractor shall be responsible for the installation of noise reducing devices on construction equipment. Contractor shall comply with the requirements of the city and county having jurisdiction with regard to noise ordinances governing construction sites and activities. Construction equipment noise is subject to the control of the Environmental Protection Agency's Noise Control Program (Part 204 of Title 40, Code of Federal Regulations. Contractor shall schedule the performance of all work or make other arrangements so that construction operations do not cause disruption or disturbance to Campus Operations. In no event shall Contractor have a right to receive additional compensation or an extension to the contract time as a result of any such rescheduling or the making of such arrangements.

3.4 WARRANTY

The Contractor warrants to the District and Project Manager that materials, products, and equipment furnished under the Contract will be of the highest quality and new unless otherwise required or permitted by the Contract Documents, that the Work will be free from defects not inherent in the quality required or permitted, and that the Work will conform with the requirements of the Contract Documents. Work not conforming to these requirements, including substitutions not properly approved and authorized, may be considered defective. Contractor's warranty to District includes, but is not limited to the following representations:

(a) *Contractor shall, and hereby does, warranty all Work for a period of (1) year after the date of Notice of Completion. This is in addition to any longer written warranties that may also apply.*

(b) In the event of failure of Contractor to comply with above mentioned conditions within one week after being notified in writing, District is hereby authorized to proceed to have defects repaired and made good at expense of Contractor who hereby agrees to pay costs and charges therefore immediately on demand. If Contractor fails to do so, District may back charge Contractor and/or set off the costs thereof against monies in the Contract and/or held as retention, in addition to any other right and/or remedy District may have.

(c) If, in the opinion of the District, defective Work creates a dangerous condition or requires immediate correction or attention to prevent further loss to the District, the District will attempt to give the notice required by this Article. If the Contractor cannot be contacted or does not comply with the District's requirements for correction within a reasonable time as determined by the District, the District may, notwithstanding the provisions of this article, proceed to make such correction or attention which shall be charged against Contractor who hereby agrees to pay costs and charges therefore immediately on demand. If Contractor fails to do so, District may back charge Contractor and/or set off the costs thereof against monies in the Contract and/or held as retention, in addition to any other right and/or remedy District may have. Such action by the District will not relieve the Contractor of the guarantee provided in this Article or elsewhere in this Contract.

(d) This Article does not in any way limit the guarantee on any items for which a longer warranty is specified or on any items for which a manufacturer gives a guarantee for a longer period. Contractor shall furnish District and Project Manager, all appropriate guarantee or warranty certificates upon completion of the Project.

3.5 TAXES

Contractor will pay all applicable Federal, State, and local taxes on all materials, labor, or services furnished by it, and all taxes arising out of its operations under the Contract Documents. District is exempt from Federal Excise Tax, and a Certificate of Exemption shall be provided upon request.

3.6 PERMITS, FEES AND NOTICES

3.6.1 Payment

The Contractor shall secure all permits and governmental fees, licenses, and inspections necessary for proper execution and completion of the Work which are necessary after execution of the Contract and are legally required by any authority having jurisdiction over the Project, except those required by the Division of the State Architect (DSA). Contractor shall be responsible for payment of specific permits such as OSHA, etc. and shall not be reimbursable by the District. District shall be responsible for all testing and inspection as required by the DSA and Contract Documents.

3.6.2 Compliance

The Contractor shall comply with and give notices required by any law, ordinance, rule, regulation, and lawful order of public authorities bearing on performance of the Work.

3.6.3 Responsibility

The Contractor shall perform all Work in conformance with every law, statute, ordinance, building code, rule or regulation. The Contractor shall assume full responsibility for such Work and shall bear the cost of correction or Project delay.

3.7 CONTRACTOR'S CONSTRUCTION SCHEDULE

3.7.1 Project Schedule:

Project Schedule is provided by the Contractor. Contractor shall be required to supply the Project Manager the following:

No later than twenty-one (21) calendar days after Notice to Proceed, or such other time as may be set forth in the special provisions, and before commencement of work, the Contractor shall furnish to the Project Manager a critical path method (CPM) baseline schedule for the entire Project. Schedule shall include the following as minimum standards:

A. Activities of all trades and subcontractor's that must be completed prior to starting various components of the Work.

B. Long lead procurement requirements.

C. Submittals and shop drawings required for every spec section included in this contract, using the logic required herein.

D. The Contractor's plan for completion of work in sufficient detail to allow observation and monitoring by the Project Manager and the District.

E. Activities shall be broken down by building or area, by trade, subcontractor, and by observable sequence of work. All activities shall be broken down into phases two weeks or less in length.

F. Inspections required to gain approval of all work installed by this Contractor.

The schedule provided must allow for completion within the milestone durations established in the contract documents and overall project duration. It is the Contractor's responsibility to provide adequate labor resources and to sequence its work in a way to meet these contractual durations, and to coordinate with other District Contractors to allow their work to be completed concurrently if the schedule requires. No progress payments will be approved until schedule input has been reviewed and accepted by the Project Manager and the District satisfying all of the criteria listed.

The Contractor shall provide status of its activities monthly and submit the monthly update with the progress payment request.

Short Interval Scheduling (SIS) will be used throughout the on-site construction activity.

In the event of a delay affecting the completion date and/or milestones of the Project, Contractor shall advise the District and Project manager within (48) hours regarding significant distribution of the work sequence. It is not the Owner's responsibility to ensure the Contractor the ability to use "optimal" crew size throughout the Project and no adjustment of the Contract Sum will be made for minor variations in crew size or claimed loss of efficiency or

disruption that result from schedule adjustments. If the Contractor contends that a schedule adjustment will cause a significant disruption of its work sequence or ability to perform work efficiently, it shall notify the District within forty-eight (48) hours of receipt of the adjustment request. Failure to provide timely notice constitutes a waiver by Contractor of any claim for compensation arising out of the schedule adjustment.

Time is of the essence of this agreement. The Contractor shall, to the fullest extent possible, carry on the various classes or parts of the Work concurrently, and shall not defer construction of any portion of the Work in favor of any other portion of the Work. The Contractor shall staff the project to ensure completion of activities within original durations allowed in the approved Baseline Schedule produced by the Contractor and approved by the Project Manager. The Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations, Sundays and holidays as may be necessary to insure the prosecution and completion of the Work in accordance with the Final Baseline schedule. If work on a critical path is seven days or more behind the currently updated schedule the Contractor will implement whatever steps it deems necessary to make up all lost time. If the actions taken are not successful, the Contractor will make further attempts using the following sequence of events:

A. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities.

B. If the above cannot be achieved then;

1. The Contractor shall increase manpower in such quantities and crafts as will substantially eliminate, the backlog of work; or increase the number of working hours, shifts per working day, working days per week or the amount of equipment or any combination of the foregoing sufficiently to substantially eliminate the backlog of work.

2. In addition, the Contractor is required to submit a recovery schedule within ten (10) calendar days to the District and Project Manager demonstrating its program and proposed plan to make up a lag in scheduled progress and to ensure completion of the Work within the Contract Time. If the actions taken by the Contractor are unsatisfactory, the Project Manager may require the Contractor to take any of the actions set forth in the previous Article without additional cost to the District to make up the lag in scheduled progress.

Failure of the Contractor to comply with the requirements of this Section shall be considered grounds for a determination by the Distinct and Project Manager, that the Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified.

The District and the Project Manager will not be responsible for the failure of the Contractor to plan, schedule and execute the Work in accordance with the approved schedule or the failure of the Contractor to meet the Contract milestone/completion dates or the failure of the Contractor to schedule and coordinate the Work of the Contractor's own trades and Subcontractors or to coordinate and cooperate with other District Contractors." Refer to Milestone Schedule Constraints as outlined below:

3.7.2 Sequencing of the scope of work shall be coordinated with the Project Manager and Campus.

SCHEDULE MILESTONES:

A. Standard Work Hours: Regular Construction Work Hours and Construction Site Access are Monday through Friday 6:00a.m. – 4:00pm.

B. Completion Milestones

i. Substantial Completion: (1) calendar day, within duration of NTP.

ii. Punch list: (1) calendar days, within duration of NTP.

iii. Final Completion (1) calendar day, within duration of NTP.

iv. Notice of Completion (1) calendar day, within duration of NTP.

C. Phasing of Work

i. Constraints: See Supplemental Conditions, Section 00 40 01, General Requirements Division 1, Section 01 32 16; Project Construction Schedule.

3.7.3 Failure to Meet Requirements

Failure of the Contractor to provide proper schedules as required by this Article and Article 9 is a material breach of the contract and grounds for termination pursuant to Article 14. The District, at its sole discretion, may choose, instead, to withhold, in whole or in part, any progress payments or retention amounts otherwise payable to the Contractor.

3.8 DOCUMENTS AND SAMPLES AT THE SITE

The Contractor shall maintain at the Site for the District one current copy of the Uniform Building Code, Titles 19, 21 and 24 of the California Code of Regulations and one record copy of the Drawings, Specifications, Addenda, Change Orders, and other Modifications, in good order and marked currently to record changes and selections made during construction. In addition, the Contractor shall maintain at the Site approved Shop Drawings, Product Data, Samples, and similar required submittals. These documents shall be available to the Architect and Project Manager and shall be delivered to the Project Manager for delivery to the District upon completion of the Work.

3.9 SHOP DRAWINGS, PRODUCT DATA AND SAMPLES

3.9.1 Submittals defined

3.9.1.1 ***Shop Drawings.*** The term "shop drawings" as used herein means drawings, diagrams, schedules, and other data, which are prepared by Contractor, Subcontractors, manufacturers, suppliers, or distributors illustrating some portion of the Work, and includes: illustrations; fabrication, erection, layout and setting drawings; manufacturer's standard drawings; schedules; descriptive literature, instructions, catalogs, and brochures; performance and test data including charts; wiring and control diagrams; and all other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, products, equipment, or systems and their position conform to the requirements of the Contract Documents. The Contractor shall obtain and submit with shop drawings all seismic and other calculations and all product data from equipment manufacturers. "Product data" as used herein are illustrations, standard schedules, performance charts, instructions, brochures, diagrams, and other information furnished by the Contractor to illustrate a material, product, or system for some portion of the Work. As used herein, the term "manufactured" applies to standard units usually mass-produced, and "fabricated" means items specifically assembled or made out of selected materials to meet individual design requirements. Shop drawings shall: establish the actual detail of all manufactured or fabricated items, indicate proper relation to adjoining work, amplify design details of mechanical and electrical systems and equipment in proper relation to physical spaces in the structure, and incorporate minor changes of design or construction to suit actual conditions.

3.9.1.2 ***Samples.*** The term "samples" as used herein are physical examples furnished by Contractor to illustrate materials, equipment, or quality and includes natural materials, fabricated items, equipment, devices, appliances, or parts thereof as called for in the Specifications, and any other samples as may be required by the Architect to determine whether the kind, quality, construction, finish, color, and other characteristics of the materials, etc., proposed by the Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

3.9.1.3 ***Schedule for Submission of Shop Drawings.*** Contractor shall obtain and shall submit all required shop drawings, samples, etc., in accordance with the Project Schedule as required in the scheduling portion of the General Conditions at Article 3.7 with such promptness as to cause no delay in its own Work or in that of any other Contractor or subcontractor but in no event later than ninety (90) days after the execution of Notice to Proceed. Contractor shall submit all shop drawings, samples, and manufacturer's descriptive data for the review of the District, Project Manager and Architect. By submitting shop drawings, product data, samples, etc., the Contractor represents that it has determined and verified all materials, field measurements, catalog numbers, related field construction criteria, and other relevant data in connection with each such submission, and that it has checked, verified, and coordinated the information contained within such submittals with the requirements of the Work and Contract Documents. The submission of the shop drawings, product data, samples, etc., shall not deviate from the requirements of the Contract Documents including detailing and design intent which is specifically outlined in Contract Documents except as specifically authorized by the Architect or through an accepted substitution. All deviations from the Contract Documents shall be described, in a narrative format, in a transmittal accompanying the shop drawings. Shop drawings shall not be used as a means of requesting a substitution. Review by District, Project Manager and Architect shall not relieve the Contractor or any Subcontractor from its responsibility in preparing and submitting proper shop drawings in accordance with the Contract Documents. Any submission, which in District's and Project Manager's opinion is incomplete, contains errors, or has been checked superficially, will be returned un-reviewed by the Architect for resubmission by the Contractor. Contractor shall stamp, sign, and date each submittal indicating its representation that the submittal meets all of the requirements of the Contract Documents and evidence Contractor's review through execution of the following stamp to be placed on each shop drawings:

> "The Contractor has reviewed and approved the field dimensions and the construction criteria, and has also made written notation regarding any information in the shop drawings that does not conform to the contract documents. This shop drawing has been coordinated with all other shop drawings received to date by Contractor and this duty of coordination has not been delegated to subcontractors, material suppliers, District, Project Manager, Architect, or the Engineer(s) on this Project.
>
> _____
> **Signature of Contractor and Date**

3.9.1.4 ***Extent of Review.*** In reviewing shop drawings, the District, Architect and Project Manager will not verify dimensions and field conditions. The Architect will review and approve shop drawings, product data, samples, etc., for aesthetics and for conformance with the design concept of the Work and the information in the Contract Documents. The Architect's and Project Manager's review shall neither be construed as a complete check which relieves the Contractor, Subcontractor, manufacturer, fabricator, or supplier from responsibility for any deficiency that may exist or from any departures or deviations from the requirements of the Contract Documents unless the Contractor has, in writing, called the Architect's attention to the deviations at the time of submission. The Architect's and Project Manager's review shall not relieve the Contractor or Subcontractors from responsibility for errors of any sort in shop drawings or schedules, for proper fitting of the Work, coordination of the differing subcontractor trades and shop drawings and Work which is not indicated on the shop drawings at the time of submission of shop drawings. Contractor and Subcontractors shall be solely responsible for any quantities which may be shown on the submittals or Contract Documents.

3.9.2 Drawing and Submission Procedure

3.9.2.1 ***Transmittal Letter and Other Requirements.*** All submittals and shop drawings must be properly identified with the name of the Project, submittal number organized by division, dated, and each lot submitted must be accompanied by a letter of transmittal referring to the name of the Project and to the Specification section number for identification of each item clearly stating in narrative form, as well as "clouding" on the submissions, all qualifications, departures, or deviations from the Contract Documents. Shop drawings, for each section of the Work shall be numbered consecutively by division, and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Contractor. Each drawing shall have a clear space for the stamps of Architect and Contractor.

3.9.2.2 ***Copies Required.*** Each submittal shall include eight (8) reproducible and / or legible prints of each drawing or schedule, table, cut sheet, etc., including fabrication, erection, layout and setting drawings, and such other drawings as required under the various sections of the Specifications, until final acceptance thereof is obtained. Subcontractor shall submit copies, in an amount as requested by the Contractor, of: (1) manufacturers' descriptive data for materials, equipment, and fixtures, including catalog sheets showing dimensions, performance, characteristics, and capacities; (2) wiring diagrams and controls; (3) schedules; (4) all seismic calculations and other calculations; and (5) other pertinent information as required by the District or Architect.

3.9.2.3 ***Corrections.*** The Contractor shall make all corrections required by Architect and shall resubmit within seven (7) calendar days, as required by Architect or Project Manager, corrected copies of shop drawings or new samples until approved. Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the Architect or Project Manager on previous submissions. Professional services required for more than one (1) re-review of required submittals of shop drawings, product data, or samples are subject to charge to the Contractor.

3.9.2.4 ***Approval Before Commencement of Work.*** No portion of the Work requiring a shop drawing or sample submission or other submittal shall be commenced until the submission has been reviewed by Contractor, Project Manager, and Architect, and approved by the Architect, unless specifically directed in writing by the Architect. All such portions of the Work shall be in accordance with approved shop drawings and samples.

3.9.3 Sample Submissions Procedure

3.9.3.1 ***Samples Required.*** In case a considerable range of color, graining, texture, or other characteristics are anticipated in finished products, a sufficient number of samples of the specified materials shall be furnished by the Contractor to indicate the full range of characteristics which will be present in the finished products; and products delivered or erected without submittal and approval of a full range of samples shall be subject to rejection. Except for range samples, and unless otherwise called for in the various sections of the Specifications, samples shall be submitted in **quantities of (8).** All samples shall be marked, tagged, or otherwise properly identified with the name of the submitting party, the name of the Project, the purpose for which the samples are submitted and the date, and shall be accompanied by a letter of transmittal containing similar information, together with the submittal number, and Specification section number. Each tag or sticker shall have clear space for the review stamps of Contractor and Architect.

3.9.3.2 ***Labels and Instructions.*** All samples of materials shall be supplied with the manufacturer's descriptive labels and application instructions.

3.9.3.3 ***Architect's Review.*** The Architect and Project Manager will review and, if appropriate, approve submissions and will return them to the Contractor with the Architect's stamp and signature applied thereto, indicating the timing for review and appropriate action in compliance with the Architect's (or District's) standard procedures.

3.9.3.4 ***Record Drawings and Annotated Specifications.*** The Contractor is responsible for any required as-built record drawings and specifications. The Contractor shall at the time of installation and no less than on a weekly basis, update a master set of as-built reproducible drawings to be maintained in the project office. In addition, an as-built set of blue line drawings should be kept current at the project site and be clearly labeled "As-Built Progress Documents". These shall be made available to for viewing by the District/Project Manager and the Architect at any time. The following information shall be inserted and dimensioned on said drawings and specifications, in RED, by the Contractor: the exact horizontal and vertical location of all installations in their finished condition, including but not limited to changes made by change orders, partial change orders, construction directives, responses to RFI's, ASI's, verbal confirmations, and other modifications described in these Contract Documents: Locations of Work buried under and outside the building, such as plumbing and electrical lines and conduits: Locations of significant Work concealed inside the building whose general locations have been changed from those shown on the Contract Documents: Locations of items, not necessarily concealed, which have been changed with the District/Project Manager or Architect's prior acceptance, from the location shown on the Contract Documents: Locations of main runs of piping, conduit, ductwork, and similar items by dimensions: Locations other items either by dimensions or in relation to spaces within the building: Record deviations from the sizes, locations, and other features of installation shown in the Contract Documents: Establish locations of underground Work by dimension to column lines or walls, locating turns, and by referenced centerline and invert elevations and rates of fall: Give sufficient information to locate Work concealed in the building. Exact dimensioned location of all utilities underground within the construction limit lines.

The Contractor shall update the drawings as work progresses. Failure to comply with the preparation and submission of as-built drawings may result in the District and/or Project Manager withholding the next month's progress payment.

3.9.3.5 ***Equipment Manuals.*** Contractor shall obtain and furnish, in the quantity described in Section: Contract Closeout of the General Requirements; complete sets of manuals containing the manufacturers' instructions for maintenance and operation of each item of equipment and apparatus furnished under the Contract Documents and any additional data specifically requested under the various sections of the Specifications for each division of the Work. The manuals shall be arranged in logical, sequential order, labeled, indexed, and placed in three-ring binders. At the completion of its Work, the Contractor shall certify, by endorsement thereon, that each of the manuals is complete, accurate, and covers all of its Work. Prior to submittal of Contractor's Application for Final Payment, and as a further condition to its approval by the Architect, each Subcontractor shall deliver the manuals, arranged in logical, sequential order, labeled, indexed, endorsed, and placed in three-ring binders, to the Contractor, who shall assemble these manuals for all divisions of the Work, review them for completeness, and submit them to the District through the Project Manager.

3.9.3.6 ***District's Property.*** All shop drawings, computer disks, annotated specifications, samples and other submittals shall become the District's property upon receipt by the District, Project Manager or Architect.

3.9.4 Substitutions

3.9.4.1 ***One Product Specified.*** Whenever the Contract Documents indicate any specific article, device, equipment, product, material, fixture, patented process, form, method, or type of construction or any specific name, make, trade name, or catalog number, with or without the words "or equal," such specification shall be deemed to be used for the purpose of facilitating description of the material, process, or article desired and shall be deemed to be followed by the words "or equal." The Contractor may, unless otherwise stated, offer any material, process, article, etc., which shall be materially equal or better in every respect to that so indicated or specified ("Specified Item") and will completely accomplish the purpose of the Contract Documents.

3.9.4.2 ***Products Specified Which are Commercially Unavailable.*** If the Contractor fails to make a request for substitutions for products and such products subsequently become commercially unavailable, the Contractor may request a substitution for such commercially unavailable item. The decision to grant this request

is solely at the District's discretion. The written approval of the District, consistent with the procedure for Change Orders, shall be required for the use of a proposed substitute material. The District may condition its approval of the substitution upon the delivery to District of an extended warranty or other assurances of adequate performance of the substitution as well as an equitable deduction in the contract price should the substituted item cost less than the Specified Item. All risks of delay due the approval of a requested substitution by the DSA, or any other governmental agency having jurisdiction, shall be on the requesting party. All additional costs, all procurement and construction delays, and all costs for review by the Architect or its consultants shall be the responsibility of the Contractor and deducted via Change Order.

3.9.4.3 ***Substitution Request Form.*** Requests for substitutions of products, materials, or processes in place of the Specified Item must be in writing on the District's Substitution Request Form (refer to Contract Documents)

The Request Form must be accompanied by evidence as to whether the proposed substitution:

1. Is equal in quality/service/ability to the Specified Item;
2. Will entail no changes in detail, construction, and scheduling of related work;
3. Will be acceptable in consideration of the required design and artistic effect;
4. Will provide no cost disadvantage to the District;
5. Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and
6. Will require no change of the construction schedule.

Only one request for substitution will be considered for each product. By completing and submitting the request for substation the Contractor acknowledges that should the request for substitution not be approved by the District that the Contractor shall supply the specified at no addition claim for cost to the District.

Substitution proposals will not be considered before bidding for the award of a contract. All requests for substitutions shall be made within thirty (30) days of the Contractors receipt of Notice to Proceed No. 1 and should be considered priority initial submittals. Failure to meet said time period shall constitute a waiver by the Contractor and an acceptance of the specified materials. Late submittals may be considered only when the Project Manager consents in writing that it is in the District's best interests so require.

The District, Project Manager and the Architect shall evaluate said request, and shall approve, deny, approve with conditions, or initiate the procedure for a Change Order in response to the Contractor's request. If the proposed substitution is rejected, the Contractor shall provide the material originally specified. Such decision shall be final.

Failure by the Contractor to identify all deviations from the Contract Documents in its request for substitution shall render any District action taken thereon null and void. The Contractor shall bear all costs resulting from any error in the request for substitution.

3.9.4.4 ***List of Manufacturers and Products Required.*** The Contractor shall require all Subcontractors to prepare and submit to the Contractor, within thirty (30) days of execution of the Subcontract, comprehensive lists, in quadruplicate, of the manufacturers and products proposed for the Project, including information on materials, equipment, and fixtures required by the Contract Documents, as may be required for the Contractor's or Architect's approval. Approval of such lists of products shall not be construed as a substitute for the shop drawings, manufacturer's descriptive data, and samples, required by the Contract Documents, but rather shall be considered as a base from which more detailed submittals shall be developed for final review by the Contractor, Project Manager, District and the Architect.

3.9.5 Deferred Approvals

Deferred approvals shall be submitted and processed pursuant to the requirements of Division 1 of the Specifications. All deferred approvals shall be prepared by Contractor or Contractor's agent early enough so as to not delay the Project. Contractor is aware that Title 21 California Code of Regulations section 17(g) and Title 24 California Code of Regulations section 4-317 have specific requirements for deferred approval as to governing agencies and as to the Architect and Engineer for the Project. As a result, any delay associated with the time for approval by applicable agencies or by the Architect or Architect's consultants shall be Contractor's.

3.10 INTEGRATION OF WORK

3.10.1 Scope

The Contractor shall be responsible for cutting, fitting, or patching to complete the Work and to make all parts fit together properly. Contractor shall be responsible for ensuring that all subcontractors are coordinated and scheduled so as to ensure the timely and proper execution of the work. When modifying existing work or installing new Work adjacent to existing work, Contractor shall match, as closely as conditions of Site and materials will allow, the finishes, textures, and colors of the original work, refinishing existing work at no additional cost to District. All cost caused by defective or ill-timed work shall be borne by Contractor. Contractor shall be solely responsible for protecting existing work on adjacent properties and shall obtain all required permits for shoring and excavations near property lines.

3.10.2 Structural Members

New or existing structural members and elements, including reinforcing bars and seismic bracing, shall not be cut, bored, or drilled except by written authority of the Architect AND APPROVED BY DSA. Work done contrary to such authority is at the Contractor's risk and subject to replacement at its own expense without reimbursement under the Contract. Schedule delays resulting from Agency approvals for unauthorized work shall be the Contractor's responsibility.

3.10.3 Subsequent Removal

Permission to patch any areas or items of the Work shall not constitute a waiver of the District's or the Architect's right to require complete removal and replacement of the areas of items of the Work if, in the opinion of the Architect, Project Manager or the District, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

3.11 CLEANING UP

3.11.1 Contractor's Responsibility

Contractor at all times shall keep premises free from debris such as waste, dust, excess water, storm water runoffs, rubbish, and excess materials and equipment. Contractor shall not leave debris under, in, or about the premises, but shall promptly remove debris from the premises and dispose of it in a lawful manner. Disposal receipts or dump tickets shall be furnished to the Project Manager daily. Upon completion of Work, Contractor shall clean interior and exterior of buildings, including fixtures, equipment, walls, floors, ceilings, roofs, window sills and ledges, horizontal projections, and any areas where debris has collected, so surfaces are free from foreign material or discoloration; Contractor shall clean and polish all glass, plumbing fixtures, equipment, finish hardware and similar finish surfaces. Upon completion of the Work, Contractor shall also remove temporary utilities, fencing, barricades, planking, sanitary facilities and similar temporary facilities from Site.

Contractor shall remove rubbish and debris resulting from the Work on a daily basis. Contractor shall maintain the structures and Site in a clean and orderly condition at all times until acceptance of the Project by the District. Contractor shall keep its access driveways and adjacent streets, sidewalks, gutters and drains free of rubbish, debris and excess water by cleaning and removal each day.

Final cleanup of the Site and buildings shall be the responsibility of the Contractor.

3.11.1.1 In addition to the general cleaning, the following special cleaning shall be done at the completion of the work in accordance with the specifications including, but not limited to:

(a) Remove putty stains from glazing, then wash and polish glazing.

(b) Remove marks, stains, fingerprints and other soil or dirt from painted, stained or decorated work.

(c) Remove temporary protection and clean and polish floors and waxed surfaces.

(d) Clean and polish hardware and plumbing trim; remove stains, dust, dirt, plaster and paint.

(e) Remove spots, soil, plaster and paint from tile work, and wash tile.

(f) Clean all fixtures and equipment, remove excess lubrication, clean light fixtures and lamps, polish metal surfaces.

(g) Vacuum-clean carpeted surfaces.

(h) Remove debris from roofs, down spout and drainage system.

3.11.2 Failure to Cleanup

The Contractor shall properly clean its work and the Site, and maintain its work area in an orderly manner. The Contractor shall remove all dirt, debris, waste, rubbish, and implements of service from the Project, the adjacent sidewalks and streets, and the working area daily or as directed by the District and/or Project Manager. Debris, waste, or unused construction materials shall not be left under, in, or about the Project, nor allowed to accumulate on the Site or in the working area.

The Contractor, at its sole cost, shall contract with a disposal company to remove all such rubbish, and shall have the refuse containers emptied at frequent enough intervals so that waste does not overflow the containers.

If the Contractor fails to clean up during progress or upon completion of the Work, the District and or Project Manager may, at the Contractor's expense who hereby agrees to pay costs and charges therefore immediately on demand. If Contractor fails to do so, District may back charge Contractor and/or set off the costs thereof against monies in the Contract and/or held as retention, in addition to any other right and/or remedy District may have.

3.12 ACCESS TO WORK

The Contractor shall provide the Project Manager, District, the Architect, Engineers and the Inspector of Record, access to the Work in preparation and progress wherever located. Contractor shall provide safe and proper facilities for such access so that District's representatives may perform their functions.

3.13 ROYALTIES AND PATENTS

3.13.1 Payment and indemnity for Infringement

Contractor shall hold and save the District and its officers, agents, and employees, the Architect, and the Architect's consultants, the Project Manager and its officers, agents and employees harmless from liability of any nature or kind, including cost and expense, for or on account of any patented or unpatented invention, process, article, or appliance manufactured or used in the performance of the contract, including its use by the District, unless otherwise specifically provided in the contract documents, and unless such liability arises from the sole negligence, or active negligence, or willful misconduct of the District, the Architect, or the Architect's consultants.

3.13.2 Review

The review by the Architect and Project Manager of any method of construction, invention, appliance, process, article, device, or material of any kind shall be for its adequacy for the Work and shall not be an approval for the use by the Contractor in violation of any patent or other rights of any person or entity.

3.14 INDEMNIFICATION

3.14.1 Contractor

Contractor shall defend, indemnify and hold harmless District, Project Manager, Architect, Project Manager, Inspector, their officers, employees, agents and independent contractors from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs or expenses of any kind arising from death, personal injury, property damage or other cause based or asserted upon any act, omission, or breach connected with or arising from the progress of Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, Contractor shall protect and defend, at its own expense, District, Architect, Project Manager, Inspector, their officers, employees, agents, and independent contractors, from any legal action including attorney's fees or other proceeding based upon such act, omission, or breach.

Furthermore, Contractor agrees to and does hereby defend, indemnify and hold harmless District, Architect, Project Manager, Inspector, their officers, employees, agents, and independent contractors, from every claim or demand made, and every liability, loss, damage, expense or attorney's fees of any nature whatsoever, which may be incurred by reason of:

(a) Liability for (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage or expense, sustained by any person, firm or corporation or in connection with the Work called for in this Agreement or the Contract Documents, except for liability resulting from the sole or active negligence, or the willful misconduct of the District;

(b) Any bodily injury to or death of persons or damage to property caused by any act, omission or breach of Contractor or any person, firm or corporation employed by Contractor, either directly or by independent contract, including all damages or injury to, loss (including theft), or loss of use of, any property, sustained by any person, firm or corporation, including District, arising out of or in any way connected with Work covered by this Agreement or the Contract Documents, whether said injury or damage occurs either on or off District property, but not for any loss, injury, death or damages caused by the sole or active negligence or willful misconduct of the District;

(c) Any dispute between Contractor and Contractor's subcontractors/ suppliers/ sureties, including, but not limited to, any failure or alleged failure of the Contractor (or any person hired or employed directly or indirectly by the Contractor) to pay any Subcontractor or Material man of any tier or any other person employed in connection with the Work and/or filing of any stop notice or mechanic's lien claims; and/or

(d) Any breach of this Agreement by Contractor, and/or its subcontractors, sub-subcontractors and/or suppliers and/or materialmen.

Contractor, at its own expense, cost, and risk, shall defend any and all claims, actions, suits, or other proceedings that may be brought or instituted against the District, its officers, agents or employees, on any such claim or liability, and shall pay or satisfy any judgment that may be rendered against the District, its officers, agents or employees in any action, suit or other proceedings as a result thereof. Contractor hereby agrees to pay costs and charges therefore immediately on demand. If Contractor fails to do so, District may back charge Contractor and/or set off the costs thereof against monies in the Contract and/or held as retention, in addition to any other right and/or remedy District may have.

Contractor shall ensure that its contract with each of its subcontractors contains provisions requiring the subcontractors to defend, indemnify and hold harmless the District, Architect, Project Manager and Inspector to a minimum level as set forth in this Article.

The Contractor's and Subcontractors' obligation to defend, indemnify and hold harmless the District, Architect, Project Manager, Inspector, and their officers, employees, agents and independent contractors hereunder shall include, without limitation, any and all claims, damages, and costs for the following: (1) any damages or injury to or death of any person, and damage or injury to, loss (including theft), or loss of use of, any property; (2) breach of any warranty, express or implied; (3) failure of the Contractor or Subcontractors to comply with any applicable governmental law, rule, regulation, or other requirement; and (4) products installed in or used in connection with the Work.

3.15 DAILY REPORTS

The Contractor shall submit Daily Report to Project Manager daily. Submission of Contractor daily report is a condition precedent for the processing of Contractors progress payments.

3.16 RECORD DRAWINGS

3.16.1 General

The Contractor shall maintain a record set of full-size project drawings upon which all field changes are recorded on a daily basis as described in the General Conditions and as required herein. As a condition of final acceptance of the project, this record set of project drawings with as-built changes shall be signed by the Contractor, shall be delivered to the District and Project Manager and shall be considered the property of the District.

Original data that is superseded shall be lined out and still remain legible. Original figures shall not be eradicated, nor corrections made over an item.

The contractor shall record any changes, deletions, additive, rerouting, stubouts, offsets or any other deviation from the plans on the as-built drawings. All underground and concealed work shall be recorded with exact location by dimension and elevation as detailed below, even when installed in conformance to original drawings.

Elevations shall refer to MLLW datum.

Dimensions shall be shown from permanent installations rather than from fencing or other temporary locations that are subject to change.

Two reference dimensions shall be given for each underground or concealed installation.

Trenches for underground lines shall not be backfilled, nor shall concealed work be covered until elevations and dimensions are recorded complete on as-built drawings and a check has been made of lines versus recorded data by Engineer. If backfill is placed without approval, the works shall be uncovered so that a proper check can be performed. Original data that is superseded shall be lined out and still remain legible. Original figures shall not be eradicated, nor corrections made over an item.

The Contractor is responsible for any required as-built record drawings. The Contractor shall at the time of installation and no less than on a weekly basis, update a master set of as-built reproducible drawings to be maintained in the project office. In addition, an as-built set of blue line drawings should be kept current at the project site and be clearly labeled "As-Built Progress Documents". These shall be made available to for viewing by the District/Program and Project Manager, and the Architect at any time. The following information shall be inserted and dimensioned on said drawings and specifications, in RED, by the Contractor: the exact horizontal and vertical location of all installations in their finished condition, including but not limited to changes made by change orders, partial change orders, responses to RFI's, ASI's, construction directives, verbal confirmations, and other modifications described in these Contract Documents: Locations of Work buried under and outside the building, such as plumbing and electrical lines and conduits: Locations of significant Work concealed inside the building whose general locations have been changed from those shown on the Contract Documents: Locations of items, not necessarily concealed, which have been changed with the District/program and Project Manager or Architect's prior acceptance, from the location shown on the Contract Documents: Locations of main runs of piping, conduit, ductwork, and similar items by dimensions: Locations other items either by dimensions or in relation to spaces within the building: Record deviations from the sizes, locations, and other features of installation shown in the Contract Documents: Establish locations of underground Work by dimension to column lines or walls, locating turns, and by referenced centerline and invert elevations and rates of fall: Give sufficient information to locate Work concealed in the building. Provide exact dimensioned location of all utilities underground within the construction limit lines.

The Contractor shall update the drawings as work progresses. Failure to comply with the preparation and submission of as-built may result in the District and/or Program and Project Manager withholding the next month's progress payment.

ARTICLE 4 (DOES NOT APPLY)

4.1 ARCHITECT

4.1.1 Replacement of Architect

In the case of the termination of the Architect, the District may appoint another architect or another construction professional or may perform such functions with its own licensed professional personnel. The status of the replacement Architect under the Contract Documents shall be the same as that of the former architect.

4.2 ARCHITECT'S ADMINISTRATION OF THE CONTRACT

4.2.1 Status

Pursuant to Titles 24 and 21 of the California Code of Regulations and as required pursuant to the Field Act, Education Code 81130.3 et seq. the Architect will provide administration of the Contract Documents and the Work during construction, as well as during the one (1) year period following the commencement of any warranties. The Architect will have authority to act on behalf of the District only to the extent provided in the Contract Documents and permitted by California Community Colleges Chancellor's Office.

4.2.2 Site Visits

The Architect will visit the Site at intervals necessary in the judgment of the Architect to become generally familiar with the progress and quality of the Work and to determine in general if the Work is being performed in accordance with the Contract Documents. The Architect will attend all Weekly Owner – Contractor Meetings.

4.2.3 Limitations of Construction Responsibility

The Architect, District and Project Manager shall not have control over, charge of, or be responsible for construction means, methods, techniques, schedules, sequences or procedures, fabrication, procurement, shipment, delivery, receipt, installation, or for safety precautions and programs in connection with the Work, since these are solely the Contractor's responsibility under the Contract Documents. The Architect, District and Project Manager shall not be responsible for the Contractor's, Subcontractors', material or equipment suppliers', or any other person's schedules, or failure to carry out the Work in accordance with the Contract Documents. The Architect, District and Project Manager shall not have control over or charge of acts or omissions of the Contractor, Subcontractors, their agents or employees, or any other persons or entities performing or supplying portions of the Work. The Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the Architect, District or Project Manager in administration of the Contract Documents, or by tests, inspections, or approvals required or performed by persons other than the Contractor.

4.2.4 Communications Facilitating Contract Administration

Except as otherwise provided in the Contract Documents or when direct communications are warranted by special circumstances, the District and the Contractor shall communicate through the Project Manager. The Project Manager shall be promptly informed, and shall receive copies of all written communications. Contractor shall not rely upon any communication from the District that is not from the District's Vice Chancellor for Fiscal Services. Communications by and with the Architect's consultants shall be through the Project Manager. Communications by and with Subcontractors and material or equipment suppliers shall be through the Contractor.

4.2.5 Payment Applications

The Project Manager will review and make recommendations to the District regarding the amounts due the Contractor on the Certificates for Payment pursuant to Article 9 and subject to the Inspector's approval and Architect, and Project Manager's observation.

4.2.6 Rejection of Work

In addition to the rights, duties, and obligations of the Inspector under this Article, the Architect or Project Manager, may recommend to the District that the District reject Work which does not conform to the Contract Documents. Whenever the Architect or Project Manager considers it necessary or advisable to achieve the intent of the Contract Documents, the Architect or Project Manager may, recommend to the District that the District require additional inspection or testing of the Work, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Architect or Project Manager nor a decision made in good faith either to

exercise or not to exercise such authority shall give rise to a duty or responsibility of the Architect or Project Manager to the Contractor, Subcontractors, material and equipment suppliers, their agents or employees, or other persons performing portions of the Work.

4.2.7 Warranties Upon Completion

The Architect and Project Manager, in conjunction with the Inspector will conduct field reviews of the Work to determine the date of completion, shall receive and forward to the District for the District's review and records written warranties and related documents required by the Contract and assembled by the Contractor, and will issue a final Certificate for Payment when the Architect and Project Manager believe the Work has been completed in compliance with the requirements of the Contract Documents. The handling by the Architect or Project Manager of such warranties, maintenance manuals, or similar documents shall not diminish or transfer to the Architect or Project Manager any responsibilities or liabilities required by the Contract Documents of the Contractor or other entities, parties, or persons performing or supplying the Work.

The Architect and Project Manager will conduct a field review of the Contractor's comprehensive list of items to be corrected (final punch list) upon receipt of such list. Within seven days of receipt of such list, Architect and Project Manager shall also add to that list any items that it/they determine (supplemented final punch list) should be on said list. At the same time, the Architect and Project Manager will also provide a cost estimate to complete and/or correct each item on the final punch list and supplemental final punch list and provide same to the Contractor and the District's Vice Chancellor for Fiscal Services. The Architect and Project Manager will conduct as many follow-up field reviews as needed to insure timely completion of both lists. If more than two follow up field reviews are required by the Architect and/or Project Manager, the cost incurred by the District for further field reviews, and/or the preparation of further punch lists by the Architect or Project Manager, shall be invoiced to the Contractor who hereby agrees to pay costs and charges therefore immediately on demand. If Contractor fails to do so, District may back charge Contractor and/or set off the costs thereof against monies in the Contract and/or held as retention, in addition to any other right and/or remedy District may have.

4.2.8 Interpretation

The Architect will interpret and decide matters concerning performance and requirements of the Contract Documents.

4.2.9 Additional Instructions

4.2.9.1 ***Typical Parts and Sections.*** Whenever typical parts or sections of the Work are completely detailed on the Drawings, and other parts or sections which are essentially of the same construction are shown in outline only, the complete details shall apply to the Work which is shown in outline.

4.2.9.2 ***Dimensions.*** Dimensions of Work shall not be determined by scale or rule. Figured dimensions shall be followed at all times. If figured dimensions are lacking on Drawings, Architect shall supply them on request. The District's decisions on matters relating to aesthetic effect will be final.

4.3 INSPECTOR OF RECORD

4.3.1 General

One or more Project inspectors employed by the District and approved by the Division of the State Architect will be assigned to the Work in accordance with the requirements of Title 24 of the California Code of Regulations. The Inspector(s) duties are as specifically defined in Title 24.

4.3.2 Inspector's Duties

All Work shall be under the observation of the Inspector. The Inspector shall have free access to any or all parts of the Work at any time. The Contractor shall furnish the Inspector such information as may be necessary to keep the Inspector fully informed regarding progress and manner of Work and character of materials. Such observations shall not, in any way, relieve the Contractor from responsibility for full compliance with all terms and conditions of the Contract, or be construed to lessen to any degree the Contractor's responsibility for providing efficient and capable superintendence. The Inspector is not authorized to make changes in the drawings or specifications nor shall the Inspector's approval of the Work and methods relieve the Contractor of responsibility for the correction of subsequently discovered defects, or from its obligation to comply with the Contract Documents.

4.3.3 Inspector's Authority to Reject or Stop Work

The Inspector shall have the authority to reject Work in writing noting specific deficiencies whenever provisions of the Contract Documents are not being complied with, and Contractor shall instruct its Subcontractors and employees accordingly. In addition, the Inspector, District, or Project Manager may stop any Work that poses a probable risk of harm to persons or property. The Contractor shall instruct its employees, Subcontractors, material and equipment suppliers, etc., accordingly. The absences of any Stop Work order or rejection of any portion of the Work shall not relieve the Contractor from any of its obligations pursuant to the Contract Documents. The District will not be responsible financially for work stoppages that are the responsibility of the Contractor.

4.3.4 Inspector's Facilities

The Inspector will provide temporary facilities as required.

4.3.5 Testing Times

The District will provide inspection and testing at its cost during the normal eight (8) hour day Monday through Friday (except holidays). Work by the Contractor outside of the normal eight (8) hour day shall constitute an authorization from the Contractor to the District to provide inspection and testing as required outside of the normal eight (8) hour day. Contractor shall reimburse District for any additional costs associated with inspection and testing (including re-inspection and re-testing) outside the normal eight-hour day and for any retests caused by the Contractor.

4.4 RESPONSIBILITY FOR ADDITIONAL CHARGES INCURRED BY THE DISTRICT FOR PROFESSIONAL SERVICES

At any time during the project, if District is required to provide or secure additional professional services for any reason by any acts of Contractor or its Subcontractors, Contractor may be responsible for the cost and expense thereof. Upon notice to Contractor, District shall retain and provide additional professional services and may by assessment, recover all incurred costs for any additional professional services. Additional services shall include, but not be limited to:

(a) Services made necessary by the default of the Contractor.

(b) Services made necessary due to the defects or deficiencies in the Work of the Contractor.

(c) Services required by failure of the Contractor to perform according to any provision of the Contract Documents.

(d) Services in connection with evaluating substitutions of products, materials, equipment, Subcontractors' proposed by the Contractor, and making subsequent revisions to drawings, specifications, and providing other documentation required (except for the situation where the specified item is no longer manufactured or available).

(e) Services for evaluating and processing claims submitted by the Contractor in connection with the Work outside the established change order and/or dispute resolution process.

(f) Services required by the failure of the Contractor to prosecute the Work in a timely manner in compliance within the specified time of completion.

(g) Services in conjunction with the testing, adjusting, balancing and start-up of equipment other than the normal amount customarily associated for the type of Work involved.

(h) Services in conjunction with more than one (1) re-review of submittals of shop drawings, product data, samples, etc.

4.5 DISPUTES & CLAIMS

The District and Contractor agree that Article 7, in its entirety, must be followed as a condition precedent to proceeding under Articles 4.5 through 4.5.10 below. Together, Article 7 and Articles 4.5 through 4.5.10 establish the exclusive procedures for resolving disagreements, "Disputes" and "Claims" between the Contractor and the District regarding this Agreement, except as may be expressly exempted elsewhere in this Agreement.

Disagreements, "Disputes" and "Claims" relate to time, money, the scope of work required by this Agreement, deleted and/or extra work that is requested by the District, change order requests from the Contractor, unforeseen underground conditions, non-conforming conditions not caused by the Contractor and/or others working under the Contractor, and/or all or some of the foregoing. They are only distinguished by where in the claims resolution process they may be at a given point in time.

Another intent of this exclusive resolution procedure is that if the process set forth in Article 7, in its entirety, does not resolve a purported add or deduct to the Contract, in whole or in part, then both the Contractor and District agree to resolve each "Dispute" or "Claim" as close as possible to the conclusion of the event(s) and /or circumstance(s) giving rise to the "Dispute" or "Claim". In this way, the information and documentation available to both parties will be as fresh as possible and permit the best informed resolution to occur. Both parties acknowledge that their failure and/or refusal to follow this exclusive process will irreparably prejudice the other party and as such, should a party to this Agreement fail or refuse to comply with this exclusive process, any "Dispute" or "Claim" they may have shall be waived and forfeited.

This exclusive process set forth below, following both parties initially complying with Article 7, in its entirety, shall apply equally to the District as it does to the Contractor.

4.5.1 Disputes - Decision of Architect

A Dispute between the District and Contractor involving money or time, including those alleging an error or omission by the Architect, shall be referred initially to the Architect, through the Project Manager, for action as provided in Article 4.5.2. The Dispute shall be submitted within five (5) days of the Article 7 process not resolving a party's sought after relief. The Dispute shall contain a detailed narrative of the Dispute together with detailed estimates and/or calculations regarding costs and/or time, and all supporting information and documentation to prove entitlement to the relief sought by the Party submitting the Dispute.

4.5.2 Architect's Review

The Architect will review the Dispute and take one or more of the following actions in writing within ten (10) days of receipt of a Dispute: (1) request additional supporting data from the claimant; (2) recommend the rejection of the Dispute in whole or in part, stating reasons for rejection; (3) recommend approval of the Dispute in whole or in part, stating reasons for approval; or (4) suggest a compromise. Once the Architect takes action under Article 4.5.2 (2) and/or 4.5.2 (3), the parties shall, within five (5) days of the Architect's action notify each other in writing whether the Architect's recommended proposal is acceptable.

4.5.3 Documentation if Resolved

If a Dispute has been resolved pursuant to Article 4.5.2 (3) and/or 4.5.2 (4), by both parties agreeing to do so in writing, the Architect and/or Project Manager will prepare or obtain appropriate documentation in the form of either: a change order; partial change order; constructive directive; and/or compromise. If within the Vice Chancellor for Fiscal Services' limits of delegated authority, the Vice Chancellor for Fiscal Services will sign the documentation and have the documentation processed.

4.5.4 Actions if Not Resolved

If a Dispute has not been resolved pursuant to Article 4.5.2 (3) and/or 4.5.2 (4), the party submitting the Dispute shall, within five (5) days after a rejection of the Architect's written decision by either party, submit the Dispute as a Claim to the District's Vice Chancellor for Fiscal Services or the Contractor's President, as applicable, pursuant to Article 4.5.5, with a copy to the Architect and Project Manager.

4.5.5 Claims Resolution Process – Submission Of Claim

4.5.5.1 First Step

.1 Once a Claim has been submitted to the District's Vice Chancellor for Fiscal Services or the Contractor's President, as applicable, the Contractor and the District shall to try to resolve same amicably as follows.

.2 The Claim submitted shall contain all of the information and documentation required under Article 4.5.1.

.3 Within thirty (30) days of submission of the Claim, the other party shall prepare and send back to the Claim proponent a detailed written explanation either agreeing with, in whole or in part, and/or disputing, in whole or in part, the Claim.

.4 Within ten (10) days of this response, the District's Vice Chancellor for Fiscal Services and the President/owner of the Contractor shall meet face to face to try and resolve the Claim. If they agree to resolve the Claim in its entirety at the meeting, a change order, construction directive, and/or compromise, will be prepared. If within the Vice Chancellor for Fiscal Services' limits of delegated authority, the Vice Chancellor for Fiscal Services will sign the documentation and have the documentation processed. If the resolution exceeds the delegated authority of the Vice Chancellor for Fiscal Services, District Staff will place the matter on the Board of Education's agenda for consideration and action. If the Board agrees to resolve the Claim as presented, the Board will approve same and the documentation will be processed. If however the Board agrees to resolve only part of the Claim presented, a partial change order, construction directive and/or compromise will be prepared and the documentation processed. If only part of the Claim presented to the Board is approved, the proponent of the Claim is then required to take action under Article 4.5.5.2. or the remainder of the Claim is forever waived and forfeited. If the Board does not

agree at all, the proponent of the Claim is then required to take action under Article 4.5.5.2. or the remainder of the Claim is waived and forfeited.

4.5.5.2 Second Step

.1 If the meeting between the District's Vice Chancellor for Fiscal Services and the President/owner of the Contractor does not resolve the Claim at all, or resolves only part of the Claim, and

if the proponent of the Claim wishes to pursue the remainder, then the proponent of the Claim must send a written demand for mediation to the other party as required below.

.2 Such mediation shall take place within thirty (30) days of the proponent requesting it in writing. The costs thereof shall be shared equally by the parties.

.3 A Mediator must have substantial experience mediating, arbitrating and/or litigation public works K-14 construction matters.

.4 The proponent of the mediation must send out written demand for mediation within five (5) days of the meeting between the District's Vice Chancellor for Fiscal Services and the President/owner of the Contractor concluding. With the written demand for mediation, the party demanding mediation must include therein the names of six (6) such mediators. The opponent shall within five (days) of receipt of the written demand for mediation either select one, or provide the names of six (6) other such mediators. If the opponent fails to do so, then the proponent shall immediately identify the mediator to be used. If the party demanding mediation fails to identify in its demand six (6) such mediators, then the other party shall select such a mediator.

.5 If the proponent of the Claim fails to invoke the mediation required by this Article within the time required, then the Claim, or remaining portion thereof, is forever waived and forfeited.

.6 If mediation resolves the Claim, in whole or in part, a change order, partial change order, constructive directive, and/or compromise will be prepared. If within the Vice Chancellor for Fiscal Services' limits of delegated authority, the Vice Chancellor for Fiscal Services will sign the documentation and have the documentation processed. If the resolution exceeds the delegated authority of the Vice Chancellor for Fiscal Services, District Staff will place the matter on the Board of Education's agenda for consideration and action. If the Board agrees to resolve the Claim as presented, the Board will approve same and the documentation will be processed. If however the Board agrees to resolve only part of the Claim presented, a partial change order, construction directive and/or compromise will be prepared and the documentation processed. If only part of the Claim presented to the Board is approved, the proponent of the Claim is then required to take action under Article 4.5.5.3. or the remainder of the Claim is forever waived and forfeited. If the Board does not agree at all, the proponent of the Claim is then required to take action under Article 4.5.5.3. or the remainder of the Claim is forever waived and forfeited.

4.5.5.3 -The Exclusive Resolution Process is a Condition Precedent to Arbitration

.1 If mediation fails to resolve the Claim within thirty (30) days of the demand for mediation, or such additional period of time as both parties agree to in writing, then if a party wishes not to forfeit a Claim, or part thereof, a party must file a demand for arbitration. The process set forth in Article 4.5 is a condition precedent to the filing of any demand for arbitration between District and the Contractor.

.2 If the Claim is not resolved through the process outlined in Article 4.5 above, then the

proponent of a Claim shall within five (5) days from the conclusion of the Mediation, send a written notice and demand for binding arbitration to either: the American Arbitration Association, JAMS Dispute Resolution, or ADR, with a copy to the DISTRICT and the Project Manager. All supporting documents and data in support of the Claim shall accompany the written notice and demand for arbitration with copies of all supporting documents and data thereof simultaneously sent to: the arbitration company selected; the District; and the Project Manager. The hearing locale for any arbitration shall be in Riverside County or Los Angeles County, California, unless otherwise agreed by the parties in writing. If both parties agree in

writing, they may elect to use an independent arbitrator or an arbitrator from another alternative dispute resolution provider.

.3 The arbitration shall be held before a single arbitrator who has arbitrated more than 15 California public works construction disputes and must be mutually agreed to by both parties. The Arbitration must be held and concluded within sixty (60) days of the written demand for Arbitration, unless the Contractor and District agree otherwise in writing.

.4 The Arbitrator has no power to fashion a remedy that is solely "related to the Contract." Rather, each of the Arbitrator's decisions and award(s), interim and/or final, shall be in writing, shall set forth statements of fact and conclusions of law explaining how and why the each item of the decision/award was reached, shall be supported by substantial evidence, shall be supported by applicable law, and shall otherwise comply with the requirements of Code of Civil Procedure Section 1296.

.5 The fees of the Arbitrator and the administrative costs of the arbitration shall be shared equally between the parties, and the arbitrator has no power whatsoever to alter that sharing arrangement.

.6 Provided the Arbitrator has issued an award in compliance with the requirements of Articles 4.5.5.3.1 through 4.5.5.3.7, the Final Award is binding and all appellate rights are waived. Any judicial review of such an award is limited to the circumstances described herein for the Arbitrator's non-compliance with these requirements.

.7 The Arbitrator's Final Award shall be reflected in an additive or deductive Change Order and/or Partial Change Order, or, in the DISTRICT'S discretion, payment will be made as a Compromise as a claim on the Contract pursuant to the DISTRICT'S authority under Public Contract Code Section 9201. The CONTRACTOR'S performance bond surety shall participate any binding arbitration subject to the requirement of these Articles as a party thereto, and shall be bound by the Arbitrator's Final Award, just as the District and Contractor shall be bound thereto.

4.5.5.4 The Exclusive Resolution Process – Non-Applicability:

The procedures set forth in Article 4.5 shall not usurp District's authority, and do not apply to:

.1 determine what work is constructed, will be constructed, or whether the work complies with the Contract for purposes of accepting the work;

.2 the rights and obligations the District has as a public entity, such as, but without limitation, the revocation of pre-qualification status, barring a bidder from District contracts, and, without limitation, the imposition of penalties or forfeitures prescribed by statute or regulation and imposed by a governmental body upon a Contractor. However, penalties/interest/fees imposed against a governmental body, such as the District, or the Contractor, as applicable, by statutes such as Public Contract Code Sections 20104.50 or 7107, are encompassed by the mandatory dispute resolution provisions of this Contract;

.3 personal injury, wrongful death, or property damage, claims;

.4 latent defect, breach of warranty, or breach of guarantee to repair claims;

.5 stop notices; or

.6 District's rights and remedies as set forth elsewhere in this Contract and/or under applicable law.

4.5.6 Continuing Contract Performance

Pending final resolution of a Claim, including, negotiation, mediation, or litigation, the Contractor shall proceed diligently with performance of the Contract, and the District shall continue to make any undisputed payments in accordance with the Contract. If the dispute is not resolved, Contractor agrees it will neither rescind the contract nor stop the progress of the work

4.5.7 Claims for Concealed or Unknown Conditions

If conditions are encountered at the Site which are subsurface or otherwise concealed physical conditions, which differ materially from those indicated in the Contract, or unknown physical conditions of an unusual nature, which differ materially from those ordinarily found to exist and generally recognized as inherent in construction activities of the character provided for in the Contract, then notice by the observing party shall be given to the other party promptly before conditions are disturbed and in no event later than ten (10) calendar days after first observance of the conditions. The Architect will promptly investigate such conditions, and if they differ materially and cause an increase or decrease in the Contractor's cost of, time required for, or performance of any part of the Work, will recommend an equitable adjustment in the Contract Sum, Contract Time, or both. If the Architect determines that the conditions at the Site are not materially different from those indicated in the Contract and that no change in the terms of the Contract is justified, the Architect shall so notify the District and Project Manager in writing, stating the reasons. The Project Manager shall notify the Contractor in writing of the Architect of Record's determination. Claims by either party in opposition to such determination must be made within ten (10) days after the Architect has given notice of the decision pursuant to Article 4.5.5. If the District and the Contractor cannot agree on an adjustment in the Contract Sum or the Contract Time, the adjustment shall be referred to the Architect for initial determination, subject to other proceedings pursuant to Article 4.5.10.

4.5.8 Claims for Additional Cost

If the Contractor wishes to make Claim for an increase in the Contract Sum, written notice as provided herein shall be given before proceeding to execute the Work. Each Claim for additional cost must include any claim for additional time and its associated costs. Prior notice is not required for claims relating to an emergency endangering life or property arising under Article 10.4.1. If the Contractor believes additional cost is involved for reasons, including, but not limited to the following: a written interpretation from the Architect, an order by the District to stop the Work where the Contractor was not at fault, a written order for a minor change in the Work issued by the Architect, failure of payment by the District, termination of the Contract by the District, the District's suspension of the Work, or other reasonable grounds, a claim shall be filed in accordance with the procedure established herein.

4.5.9 Claims for Extension of Time

If Contractor and District cannot agree upon an extension of time, whether compensable or not, then Contractor must have first completed the procedures set forth in Article 8.4. Upon completion of the procedures set forth under Article 8.4, Contractor must then comply with the requirements of Article 4.5.5.

4.5.10 No Limitation on District's Rights and Remedies as a Public Entity

The exclusive resolution process set forth in Articles 4.5 through 4.5.9 shall not in any way impair the rights and remedies set forth elsewhere for a party in this Agreement. Nor shall it in any way impair the rights and remedies of the District as a public entity such as, but without limitation, to withhold money pursuant to a stop notice, a labor code violation, withholding of retention, withholding of monies against progress payments, etc., all such rights and remedies being controlled by statute and/or applicable law.

ARTICLE 5

5.1 SUBCONTRACTORS

5.1.1 Sub-contractual Relations

By appropriate agreement, written where legally required for validity, the Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Contractor by terms of the Contract Documents, and to assume toward the Contractor all the same obligations and responsibilities, assumed by Contractor pursuant to the Contract Documents. Each subcontract agreement shall preserve and protect the rights of the District and the Architect under the Contract Documents with respect to the Work to be performed by the Subcontractor so that subcontracting thereof will not prejudice such rights. Where appropriate, the Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Contractor shall make available to each proposed Subcontractor, prior to the execution of the subcontract agreement, copies of the Contract Documents to which the Subcontractor will be bound, including without limitation, the General Conditions, Supplemental Conditions, and portions of the Technical Specifications applicable to the Subcontractor's work and/or sub-subcontractor's work. The Contractor shall ensure that all Subcontractor's and sub-subcontractor's are all bound to the dispute resolution provisions found in Articles 4.5 through 4.5.10 of these General Conditions. Subcontractor the terms and conditions of the proposed subcontract agreement, which may be at variance with the Contract Documents. Subcontractors shall similarly make copies of applicable portions of such documents available to their respective proposed Sub-subcontractors.

5.1.2 Subcontractor Licenses

All subcontractors shall be properly licensed by the California State Licensing Board.

5.1.3 Substitution of Subcontract

Substitution of Subcontractors shall be permitted only as authorized under Public Contract Code sections 4107 et. seq. Any substitutions of Subcontractors shall not result in any increase in the Contract Price or result in the granting of any extension of time for the completion of the Project.

5.1.4 Contingent Assignment of Subcontracts and Other Contracts

Each subcontract and other contract or agreement for any portion of the Work is hereby assigned by the Contractor to the District provided that:

(a) Such assignment is effective only after termination of this contract with the Contractor by the District as provided herein and only for those subcontracts and other contracts and agreements that the District accepts by notifying the Subcontractor or Material man (as may be applicable) in writing; and

(b) Such assignment is subject to the prior rights of the Surety(ies) obligated under the Payment Bond and Performance Bond.

The Contractor shall include adequate provisions for this contingent assignment of subcontracts and other contracts and agreements in each such document.

ARTICLE 6

6.1 DISTRICT'S RIGHT TO PERFORM CONSTRUCTION AND TO AWARD SEPARATE CONTRACTS

6.1.1 Separate Contracts

(a) District reserves the right to let other contracts in connection with this Work. Contractor shall afford other contractors reasonable opportunity for (1) introduction and storage of their materials; (2) access to the Work; and (3) execution of their work. Contractor shall properly connect and coordinate its work with that of other Contractors.

(b) If any part of Contractor's Work depends on proper execution or results of any other Contractor, the Contractor shall inspect and within twenty-four hours or less, report to Project Manager, in writing, any defects in such work that render it unsuitable for proper execution of Contractor's work. Contractor will be held accountable for damages to District for that work which it failed to inspect or should have inspected. Contractor's failure to inspect and report shall constitute its acceptance of other contractors' work as fit and proper for reception of its work, except as to defects, which may develop in other contractors' work after execution of Contractor's work.

(c) To ensure proper execution of its subsequent Work, Contractor shall measure and inspect Work already in place and shall at once report to the Project Manager in writing any discrepancy between executed Work as built and the Contract Documents.

(d) Contractor shall ascertain to its own satisfaction the scope of the Project and nature of any other contracts that have been or may be awarded by District in prosecution of the Project and the potential impact of such work on Contractor's schedule.

(e) Nothing herein contained shall be interpreted as granting to Contractor the exclusive occupancy at the site of Project. Contractor shall not cause any unnecessary hindrance or delay to any other Contractor working on the Project Site. If execution of any contract by the District is likely to cause interference with Contractor's performance of its contract, District shall decide which Contractor shall cease work temporarily and which contractor shall continue, or whether work can be coordinated so that contractors may proceed simultaneously.

(f) District shall not be responsible for any damages suffered or extra costs incurred by Contractor resulting directly or indirectly from award or performance or attempted performance of any other contract or contracts at the Project, or caused by any decision or omission of District respecting the order of precedence in performance of contracts.

(g) Should Contractor, and/or any one performing under the Contractor fail to prosecute the work promptly, competently and/or as directed by a Construction Directive, District has the right and remedy to use its own forces and/or a third party contractor to remedy the Contractor's breach as declared in writing by the District without terminating this Contract. Upon the performance of such Work by its own forces and/or a third party contractor, District shall back charge the Contractor and/or set off from monies in the Contract and/or held as retention for the costs thereof. Should Contractor dispute the cost thereof, Contractor shall proceed by way of the the dispute resolution provisions found in Articles 4.5 through 4.5.10 of these General Conditions.

(h) If any delays should arise from another Contractor working onsite under a different phase, Contractor's sole remedy for damages shall be against the contractor who caused such damage and not the District. Contractor shall provide access to other contractors for other phases as necessary to prevent delays and damages to other contractors working on other phases of construction.

6.1.2 Designation as Contractor

When separate contracts are awarded to contractors on the Campus, the term "Contractor" shall be the person, firm, corporation or entity with whom the District has entered into a Contract.

6.1.3 Contractor Duties

The Contractor shall have overall responsibility to coordinate and schedule Contractor's activities with the activities of the District's own forces and District's other Contractors. Additionally, Contractor shall coordinate with the Project Manager, Architect and District inspector to ensure timely and proper progress of work.

6.2 CONSTRUCTIVE OWNERSHIP OF MATERIAL

Upon commencement of Work, the Contractor becomes the constructive owner of the improvements, material and equipment on its specific portion of the Project site. Contractor must ensure proper safety and storage of all materials and assumes responsibility of that portion of the Project site. All risk of loss or damage shall be borne by Contractor during the Work until the date of Completion. Contractor must carry adequate insurance in case of calamity and is not entitled to rely on the insurance requirements as set forth in this agreement as being adequate coverage in case of calamity.

ARTICLE 7

7.1 CHANGES

7.1.1 No Changes Without Authorization

There shall be no change whatsoever in the drawings, specifications, or in the Work, without an executed Change Order, Partial Change Order, Construction Directive, Compromise, or order by the Architect for a minor change in the Work as herein provided. District shall not be liable for the cost of any extra work or any substitutions, changes, additions, omissions, or deviations from the Drawings and Specifications unless the District has authorized same and the cost thereof approved in writing by a signed Change Order, signed Partial Change Order, signed Construction Directive, or signed Compromise. No extension of time for performance of the Work shall be allowed hereunder unless claim for such extension is made at the time changes in the Work are ordered, and such time duly adjusted in writing in a signed Change Order, signed Partial Change Order, signed Construction Directive, and/or signed Compromise. The provisions of the Contract Documents shall apply to all such changes, additions, and omissions with the same effect as if originally embodied in the Drawings and Specifications. Notwithstanding anything to the contrary in this Article 7, all Change Orders, Partial Change Orders, Construction Directives, and/or Compromises, shall be prepared and issued by the Project Manager, and approved by the Architect and Inspector of Record, and signed by the District's Vice Chancellor for Fiscal Services (if within the delegated authority) or the Board if the amount is in excess of the Vice Chancellor for Fiscal Services delegated authority. Contractor waives any claim of additional compensation for such additional work performed and/or additional time that is not in compliance with this Article.

Should any Change Order, Partial Change Order, Construction Directive, and/or Compromise result in an increase in the Contract Price, the cost of such Change Order, Partial Change Order, Construction Directive, and/or Compromise shall be agreed to, in writing, in advance by Contractor and District. In the event that Contractor proceeds with any change in Work without first notifying District and obtaining the District's written approval of a

Change Order, Partial Change Order, Construction Directive, and/or Compromise, Contractor waives any claim of additional compensation and/or additional time for such alleged additional work.

Contractor understands, acknowledges, and agrees that the reason for this notice requirement is so that District may have an opportunity to analyze the work and decide whether the District shall proceed with the change or alter the Project so that such change in the Work becomes unnecessary.

7.2 CHANGE ORDERS ("CO") & PARTIAL CHANGE ORDERS ("PCO")

A CO is a written instrument prepared by the Project Manager with input from the Architect and signed by the District (either the Vice Chancellor for Fiscal Services or the District's Governing Board), the Contractor, the Architect, and the DSA stating their complete agreement upon all of the following:

(a) A description of a change in the Work;
(b) The amount of the adjustment in the Contract Sum, if any; and
(c) The extent of the adjustment in the Contract Time, if any.

A PCO is a written instrument prepared by the Project Manager with input from the Architect and signed by the District (either the Vice Chancellor for Fiscal Services or the District's Governing Board), the Contractor, the Architect, and the DSA stating their agreement in part upon any of the following:

(a) A description of a change in the Work;
(b) The amount of the adjustment in the Contract Sum, if any; and
(c) The extent of the adjustment in the Contract Time, if any.

7.3 CONSTRUCTION DIRECTIVES & COMPROMISES

7.3.1 Definition

A Construction Directive and/or Compromise is a written order prepared by the Project Manager and signed by the District's Vice Chancellor for Fiscal Services, Contractor and the Architect, directing a change in the Work and stating a proposed basis for adjustment, if any, in the Contract Sum or Contract Time, or both. The District may so order, without invalidating the Contract, changes in the Work within the general scope of the Contract consisting of additions, deletions, or other revisions within. If applicable, the Contract Sum and Contract Time will be adjusted accordingly. A Constructive Directive may also be issued that states that no change in price or time is warranted. Contractor shall immediately comply with such a directive. However, if Contractor believes such directive does warrant a change in price and/or time, Contractor agrees to pursue relief via the change order and partial change order provisions of this Article and if still unresolved, then to pursue relief pursuant to Article 4.5 through 4. 5.10 of these General Conditions. In the case of a Construction Directive being issued, Contractor must commence Work immediately or delays from failure to perform pursuant to the Construction Directive shall be the responsibility of the Contractor.

7.3.2 Used to Direct Contractor

A Construction Directive shall be used in the absence of agreement on the terms of a CO, PCO or Compromise. A copy of a proposed form is provided at the end of this Article.

7.4 REQUEST FOR INFORMATION ("RFI")

7.4.1 Definition

An RFI is a written request prepared by the Contractor requesting the Architect to provide additional information necessary to clarify or amplify an item that the Contractor believes is not clearly shown or called for in the drawings or specifications, or to address problems that have arisen under field conditions.

7.4.2 Scope

The RFI shall reference all the applicable Contract Documents including specification section, detail, page numbers, drawing numbers, and sheet numbers, etc. The Contractor shall make suggestions on how to resolve, and interpretations of the issue raised, by the RFI. An RFI cannot modify the Contract Cost, Contract Time, or the Contract Documents.

7.4.3 Response Time

The Contractor must submit and RFI sufficiently in advance of when the Work related thereto is scheduled to begin in order to provide the District and the Architect with sufficient time to respond to the RFI after receiving the RFI and before such Work is then currently scheduled to be performed. If the Architect's response results in a change in the Work, then such change shall be effectuated by a written CO, PCO, or Construction Directive, if appropriate. If the Architect cannot respond to an RFI within a reasonable time, the Contractor, upon receiving a Construction Directive from the Project Manager, must commence Work immediately or the delays and costs related to failure to perform shall be the responsibility of the Contractor. Costs and/or time related to this work will be resolved initially pursuant to Section 7.7, and if not resolved thereby, then by the dispute resolution process set forth in these General Conditions. If the Architect cannot respond to the RFI within a reasonable time, not to exceed ten (10) working days, the Architect shall notify the Contractor, with a copy to the Inspector and the District, of the amount of time that will be required to respond as defined in Division 1, General Requirements.

7.4.4 Costs Incurred

The Contractor shall be responsible for any costs incurred for professional services, which shall be deducted from the next progress payment, if an RFI requests an interpretation or decision of a matter where the information sought is equally available to the party making such request. District, at its sole discretion, shall invoice Contractor for all such professional services arising from this Article and Contractor shall immediately pay same to the District. If not immediately paid, the District will back charge and/or off set against any monies in the Contract and/or held as retention the cost thereof.

7.5 REQUEST FOR PROPOSAL ("RFP")

7.5.1 Definition

An RFP is a written request prepared by the Project Manager requesting the Contractor to submit to the District, Project Manager and the Architect an estimate of the effect of a proposed change to the Contract Price and/or the Contract Time.

7.5.2 Scope

An RFP shall contain adequate information, including any necessary drawings and specifications, to enable Contractor to provide the cost breakdowns required by Article 7.7. The Contractor shall not be entitled to any additional compensation for preparing a response to an RFP, whether ultimately accepted or not.

7.6 CHANGE ORDER REQUEST ("COR")

7.6.1 Definition

A COR is a written request prepared by the Contractor requesting that the District and the Architect issue a CO based upon a proposed change called for in an RFP.

7.6.2 Changes in Price

A COR shall include breakdowns per Article 7.7 to validate any change in Contract Price due to proposed change.

7.6.3 Changes in Time

A COR shall also include any additional time required to complete the Project. Any additional time requested shall not be the number of days to make the proposed change, but must be based upon the impact to the Project Schedule as defined in 3.7.1, Contractors Construction Schedule, Requirements of the General Contract. Any changes in time will be granted only if there is an impact to a critical path activity. If Contractor fails to request a time extension in a COR, then the Contractor is thereafter precluded from requesting or claiming a delay.

7.7 COST OF CHANGE ORDERS ("CO"), PARTIAL CHANGE ORDERS ("PCO") AND/OR COMPROMISES

7.7.1 Scope

Within ten (10) days after a request is made for a change that impacts the Contract Sum as defined in Contract Documents, the critical path, or the Contract Time, the Contractor shall provide the District, Project Manager and the Architect, with a written estimate of the effect of the proposed change order upon the Contract Sum and the actual cost of construction, which shall include a complete itemized cost breakdown of all labor and material showing actual quantities, hours, unit prices, and wage rates required for the change, and the effect upon the Contract Time of such proposed change order. Changes may be made by District by an appropriate written CO, PCO, Compromise, or, at the District's option, such changes shall be implemented immediately upon the Contractor's receipt of an appropriate written Construction Directive.

Where the District and the Contractor cannot agree in full on a Change Order Request, but agree in part, the Project Manager shall prepare a PCO reflecting the extent of the Contractor's and District's agreement and the Contractor shall then proceed with the change as reflected therein. There is no need for the Contractor to reserve any rights to the balance of the proposed change order request not agreed to as the Contractor's sole remedy in that event is to immediately proceed with the filing of a Dispute/Claim under Article 4.5

District may, as provided by law and without affecting the validity of this Agreement, order changes, modification, deletions and extra work by issuance of written CO, PCO, Compromise, or Construction Directive from time to time during the progress of the Project, contract sum and/or time being adjusted accordingly. All such work shall be executed under conditions of the original Agreement except that any extension of time caused thereby shall be adjusted at time of ordering such change. District has discretion to order changes on a "time and material" basis with adjustments to time made after Contractor has justified through documentation the impact on a critical path of the Project.

7.7.2 Determination of Cost

The amount of the increase or decrease in the Contract Price from a CO, PCO, Compromise, or Construction Directive, if any, shall be determined in one or more of the following ways as applicable to a specific situation:

A. If the change in or addition to the Work will result in an increase in the contract sum, the Project Manager shall have the right to require the performance thereof in any of the following ways, at their sole election:

1. By agreed unit prices, if unit prices are required by the District's bid form and provided with Contractor's bid;
2. By proposal and acceptance of an agreed upon itemized lump sum;
3. On a time and materials basis; or
4. Project Manager's estimate of the value of the change.

B. If the District and/or Project Manager elects to have the change in the Work performed on a lump sum basis, such election will be based on a lump sum proposal that shall be submitted by the Contractor within five (5) days of the Project Manager's request therefore. Request for a lump sum proposal shall not be deemed an election to have the Work performed on a lump sum basis. The Contractor's proposal shall be completely itemized and segregate the cost of work by labor, materials for the various components of the change, taxes, and equipment (no aggregate or lump sum total will be acceptable on any of the above) and shall be accompanied by like kind signed proposals of any subcontractors which will perform any portion of the change, and of any persons who will furnish materials or equipment for incorporation therein. The proposal shall also include the Contractor's estimate of the time required to perform said changes or additional work. Costs of preparing the proposal shall not be compensable.

C. The term "extra work" as used shall mean actual costs incurred by the Contractor and each Subcontractor regardless of tier involved, and shall be limited to the following (to the extent the Contractor demonstrates that they were actually incurred):

1. Actual straight-time wages of salaries for employees employed at the Project site, or at fabrication sites off Project site, in the direct performance of the extra work. Wages shall be based on verified prevailing wage rates for the area and job classification or verified collective bargaining agreements for the area.
2. Actual Fringe Benefits and Payroll Taxes for employees employed at the Project site, or at fabrication site off the Project site, in the direct performance of the extra work. Benefits and Taxes shall be based on verified prevailing wage rates for area and job classification or verified collective bargaining agreements for area.
3. Actual Overtime wages or salaries specifically authorized in writing by the District or Project Manager, for employees employed at the Project site, or at fabrication sites off Project site, in the direct performance of the extra work. Wages shall be based on verified prevailing wage rates for area and job classification or verified collective bargaining agreements for area.
4. Actual Overtime Fringe Benefits and Payroll Taxes specifically authorized in writing by the District or Project Manager, for employees employed at the Project site, or at fabrication sites off Project site, in the direct performance of the extra work. Wages shall be based on verified prevailing wage rates for area and job classification or verified collective bargaining agreements for area.
5. Itemized costs of Materials and consumable items, which are furnished and incorporated into the extra work, as approved by the District or Project Manager. Such costs shall be charged at the lowest price available to the Contractor or its subcontractors. In no event shall such costs exceed verified competitive costs obtainable from other contractors, subcontractors, suppliers, manufacturers, and/or distributors in the area of the project site. All discounts, rebates, and refunds and all returns from sale of surplus, materials and consumable items shall accrue to the Project Manager and Contractor shall make provisions so that they may be obtained.
6. Sales taxes on the costs of materials and consumable items, which are incorporated into and used in the performance of the Extra Work. In no case shall the sales taxes exceed the amount required by the Project location.
7. Rental charges for necessary machinery and equipment, whether owned or hired, as authorized in writing by the District or Project Manager, exclusive of hand tools, used directly in the

performance of the Extra Work. Such rental charges shall in no case exceed the current California Department of Transportation's published equipment rental rates for the area of the Project. The charges for the equipment shall be for the actual time of use and shall not be subjected to minimum hourly charges without the approval of the Project Manager.

8. Actual additional costs of royalties and permits if required due to the performance of the Extra Work.

9. The cost of for all insurances required, including but not limited to general liability, professional liability, auto, and workers compensation, and Bonds shall not exceed one percent (1%).

E. The term Contractor Fee shall mean the full amount of compensation, both direct and indirect (including without limitation all overhead and profit), to be paid to the Contractor for its own Work and the Work of all Subcontractors, for all expenses not included in the Cost of Extra Work, whether or not such costs and expenses are specifically referred to in D above. The Contractor Fee shall not be compounded. The Fee shall be calculated on pre marked up costs. The Contractor Fee shall be computed as follows:

1. Fifteen percent (15%) of the cost of that portion of the Extra Work to be performed by the Contractor with its own forces.

2. Fifteen percent (15%) of the cost of that portion of the Work to be performed by a subcontractor with its own forces, plus five percent (5%) for the Contractor.

3. Total combined Contractor and Subcontractor Fee shall not exceed twenty percent (20%) regardless of how many tiers of Subcontractors may be involved. If more than one tier of Subcontractors are involved, than the Subcontractor Fifteen percent (15%) shall be divided between all such Subcontractor tiers as the Contractor deems appropriate.

F. For work to be deleted, the reduction of the Contract sum shall be computed on the basis of one of the following:

1. By agreed unit prices, if unit prices are required by the District's bid form and provided with Contractor's bid;
2. By proposal and acceptance of an agreed upon itemized lump sum; or
3. On a time and materials basis; or
4. Project Manager's estimate of the value of the change.

G. In the event any one Change involves both Extra Work and Deleted Work in the same portion of the Work, the Contractor Fee will not be allowed if the deductive cost exceeds the additive cost. If the additive cost exceeds the deductive cost, the Contractor Fee will be allowed only on the difference between the two.

H. If the District and/or the Project Manager elects to have the change in the Work performed on a time and material basis, the same shall be performed, whether by the Contractor's forces or the forces of any of its subcontractors or sub-subcontractors, at actual costs to the entity or entities performing the change in the Work (without any charge for administration, clerical expense, supervision or superintendence of any nature whatsoever, including foremen, or the costs of use or rental of tools or plant). No other mark-ups shall be allowed hereunder. The Contractor shall submit to the Project Manager verified daily detailed and accurate records itemizing each element of cost and shall provide substantiating records and documentation, including time cards and paid invoices. Tickets, to include the identification number assigned to the change in the Work, the location and description of the change in the Work, the classification of labor employed (and names and social security numbers), the material used, the equipment rented (not tools) and such other evidence of cost as the Project Manager may require. The District and/or Project Manager may require authentication of all time and material tickets and invoices by persons designated by the Project Manager for such purpose. The failure of the Contractor to secure any required authentication shall, if the District and/ Project Manager elects to treat it as such, constitute a waiver by the Contractor of any claim for the cost of that portion of the change in the Work covered by a non-authenticated ticket or invoice; provided, however, that the authentication of any such ticket or invoice by the District shall not constitute an acknowledgment by

the District that the items thereon were reasonably required for the change in the Work. Such records and documentation shall be submitted to the Project Manager on a daily basis.

I. No overhead and profit will be paid by the District on account of a change in the Work except as specifically provided in this section. Overhead and Profit shall be deemed to include all costs and expenses, including site overhead and home office overhead, which the Contractor or any of its subcontractors may incur in the performance of the change in the Work and which are not otherwise specifically recoverable by them pursuant to this Article.

7.7.3 Format for Proposed Cost Change

The following requirements format shall be used as applicable by the District and the Contractor to communicate proposed additions and deductions to the Contract.

- Material (attach itemized quantity and unit cost plus sales tax)
- Labor (attach itemized hours and rates)
- Equipment (attach invoices)
- If Subcontractor performed Work overhead and profit not to exceed fifteen percent (15%).
- General Contractor's Overhead and Profit: Not to exceed fifteen percent (15%) for Contractor self-performed work. Not to exceed five percent (5%) mark-up for work performed by Subcontractor. If work was performed by Contractor and Subcontractors, cumulative mark-up shall not exceed a cumulative total of twenty percent (20%).
- Liability and Property Damage Insurance, Worker's, Compensation Insurance, Social Security, and Unemployment Taxes, not to exceed as follows: FICA @ **6.2%**- with a wage ceiling of $84,900; Medicare @ **1.45%**- no wage ceiling; FUTA @ **.8%**- with a wage ceiling of $7,000; ETT and SUI @ **2.3%**- with a wage ceiling of $7,000; Workers' Compensation @ **5.94%**; Liability and Property Damage @ **2.5%**. {With OCIP, only offsite Worker's Compensation and liability is allowable and Contractor's personal property}**Total not-to-exceed is 19.19%.** (*Note: Modifications to these percentages will be evaluated and possibly modified only on a case-by-case basis and only after proper proof of alternate percentages are documented and approved in advance. In addition, as wage ceilings are met, those corresponding percentages must drop from the "burden" calculations).*
- Bond not to exceed one percent (1%)

- **Schedule Impact (Time)**

The undersigned Contractor approves the foregoing Change Order, Partial Change Order, Compromise, or Construction Directive as to the changes, if any, and the contract price specified for each item and as to the extension of time allowed, if any, for completion of the entire work on account of said Change Order, Partial Change Order, Compromise, or Construction Directive, and agrees to furnish all labor, materials and service and perform all work necessary to complete any additional work specified therein, for the consideration stated herein. It is understood that said Change Order, Partial Change Order, Compromise, or Construction Directive, shall be effective only when approved as stated in these General Conditions.

It is expressly understood that the value of such extra Work or changes, as determined by any of the aforementioned methods, expressly includes any and all of the Contractor's costs and expenses, both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project which shall exclude Contractor and their subcontractor's cost of insurance. Any costs, expenses, damages or time extensions not included are deemed waived.

The Contractor expressly acknowledges and agrees that any change in the Work performed shall not be deemed to constitute a delay or other basis for claiming additional compensation based on theories including, but not limited to, acceleration, suspension or disruption to the Project.

Time and Material Added Work. Notwithstanding the failure of the District and the Contractor to agree as to the cost of the proposed change order, the Contractor, upon written order from the District, shall proceed immediately with the changed work. A Construction Directive (CD) signed by the District shall be used for this written order. At the start of each day's work on the change, the Contractor shall notify the Project Manager and Inspector of Record in writing as to the size of the labor force to be used for the changed work and its location. Failure to so notify may result in the non-acceptance of the costs for that day. At the completion of each day's

work, the Contractor shall furnish to the Project Manager a detailed summary of all labor, materials, products, equipment, apparatus, and the like, employed in the changed work. The Project Manager will compare his/her records with Contractor's daily summary and may make any necessary adjustments to the summary. After the Project Manager and the Contractor agree upon and sign the daily summary, the summary shall become the basis for determining costs for the additional work. The sum of these costs when added to an appropriate mark-up will constitute the payment for the changed work. The District, however, may make subsequent adjustments, based on later audits. When changed work is performed at locations away from the job site, the Contractor shall furnish in lieu of the daily summary, a summary submitted at the completion of the work containing a detailed statement of labor, materials, products, equipment, apparatus, and the like, used in the work. This latter summary shall be signed by the Contractor who shall certify thereon under penalty of perjury that the information is true, and the costs are as covered in the Contract Documents. If changed work is to be paid on the basis of time and materials, a credit for deleted contract work shall be included and deducted from the total cost of the work before mark ups are added. Mark-up shall be as covered in the Contract Documents.

The Contractor shall maintain and furnish, on demand of the District, itemized statements of cost from all vendors and subcontractors who perform changed work or furnished materials and equipment for such work. The vendors and the subcontractors must sign all statements.

7.7.4 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to Contract Documents. Contractor will be allowed a maximum of 5% total profit and overhead. If subcontractor work is involved, subcontractors shall be

entitled to a maximum of 5% profit and overhead on the deducted work. Any deviation from this Article shall not be allowed.

7.7.5 Discounts, Rebates, and Refunds

For purposes of determining the cost, if any, of any change, addition, or omission to the Work hereunder, all trade discounts, rebates, refunds, and all returns from the sale of surplus materials, products, equipment, apparatus, and the like, shall accrue and be credited to the Contractor, and the Contractor shall make provisions so that such discounts, rebates, refunds, and returns may be secured, and the amount thereof shall be allowed as a reduction of the Contractor's cost in determining the actual cost of construction for purposes of any change, addition, or omissions in the Work as provided herein.

7.7.6 Accounting Records

With respect to portions of the Work performed by Change Order, Partial Change Order, Compromise, or Construction Directive, on a time-and-materials, unit-cost, or similar basis, the Contractor shall keep and maintain cost-accounting records satisfactory to the District, which shall be available to the District on the same terms as any other books and records the Contractor is required to maintain under the Contract Documents. Any Contractor or Contractor's Subcontractor MUST notify the Project Manager before each day of time and material commencement and again at the completion. All time and material tickets must be presented to the Project Manager daily for signature for verification of work performed and time. Project Manager MUST verify all time and material work and will not sign the time and material ticket if the Contractor or their Subcontractor has not properly notified the Project Manager, as stated above. All claims shall follow the same procedure, as noted above.

7.7.7 Notice Required

If the Contractor desires to make a claim for an increase in the Contract Price, or any extension in the Contract Time for completion, it shall notify the District pursuant to the Contract Documents and this Article. No claim shall be considered unless first made in accordance with this subArticle. Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. A Change Order, Partial Change Order, Compromise, or Construction Directive shall authorize any change in the Contract Price or extension of the Contract Time resulting from such claim.

7.7.8 Applicability to Subcontractors

Any requirements under this Article 7 shall be equally applicable to any Change Order, Partial Change Order, Compromise, or Construction Directive, issued to Subcontractors by the Contractor to the same extent required by the Contractor.

7.7.9 Alteration to Change Order, Partial Change Order, Compromise, or Construction Directive Change Order Language

Contractor shall not alter or reserve time in a Change Order, Partial Change Order, Compromise, or Construction Directive, as all rights are reserved and subject to the dispute resolution process set forth in Articles 4.5 through 4.5.10. Contractor shall execute all agreed to Change Orders, and/or execute all Partial Change Orders, Compromises, or Construction Directives, to the extent Contractor agrees therewith, and then proceed under Article 4.5 with proper notice. If Contractor intends to reserve time, without an approved CPM schedule prepared pursuant to the Contract Documents then Contractor may be prosecuted pursuant to the False Claim Act.

[Forms are found on the following pages]

CONSTRUCTION DIRECTIVE

No. 00

Project:	Date:
Owner:	Project No.:
Project Manager:	DSA File No.:
	SBCCD File No.:
Architect:	

DESCRIPTION OF WORK TO BE PERFORMED:

Narrative:

Attachment(s):
Reason:
Code Legend:
Initiated By:

ACTION TO BE TAKEN:

☐ **Action 1.:** Make the described change in work at no change in the contract sum and no change in the contract time of completion.

☐ **Action 2.:** Promptly advise the Architect as to the credit or cost proposed for the described change. This is not an authorization to proceed with the change.

☐ **Action 3.:** In order to expedite the work and avoid or minimize delays in the work, which may affect Contract Sum or Contract Time, the Contract Documents are hereby amended as described above. Proceed with this work promptly, on a time and material basis, not to exceed **$___ dollars and 00/100** Refer to Articles 7 and 7.7.6 of the General Conditions.

☐ **Action 4.:** In order to expedite the work and avoid or minimize delays in the work, which may affect Contract Sum or Contract Time, the Contract Documents are hereby amended as described above. Proceed with this work promptly. Submit costs for the work involved and change in contract time (if any). Work shall be carried out in accordance with Article 7 of the General Conditions unless noted otherwise.

☐ **Action 5.:** The Contract Time is proposed to (be adjusted) (remain unchanged). The proposed adjustment, if any, is an increase of N/A days) (a decrease of N/A days).

APPROVALS:

Architect:

By: Date:

Project Manager:

By: Date:

Owner:

By: Date:

Contractor:

By: Date:

SAN BERNARDINO COMMUNITY COLLEGE DISTRICT
Capital Facilities Program Management

Project Number

CHANGE ORDER/PARTIAL CHANGE ORDER

Original Contract Amount:	**$0.00**
Amount of Previous Contract Amendments:	**$0.00**
Amount of Previous Change Orders:	**$0.00**

School Name: _____ Date: _____

Project Description: _____ Contract No.: _____

To (Contractor): _____ Attn: _____

You are hereby directed to make the following changes in the above reference contract for:

Item No.: **Refer to attachments** Reference RFP No.: **Refer to attachments**

Description of Work:

Refer to attached Project Memo No.
Contract Change Order No. : Item 1.1 - 1.9.

TOTAL COST of CONTRACT CHANGE ORDER : **$0.00**

Reason for Change:

Site Cost, Unforeseen Field Condition
Site Cost, Error And/or Omission
Building Cost, District Added or Deleted/Reduced Scope

Initiator of Change:

Contractor Request for Information

The original Base Contract Sum was:	**$0.00**
Net change by previous authorized Contract Amendment(s):	**$0.00**
The contract AMOUNT due to **C.O. No.** will be **increased** by:	**$0.00**
The revised BASE Contract Sum:	**$0.00**
Net change by previous authorized Change Order(s):	**$0.00**
The Contract Sum including previous authorized Change Orders:	**$0.00**
The revised Contract Amount, including this Contract Change Order is, therefore:	**$0.00**
The contract TIME due to **C.O. No.** will be **increased** by:	**0** calendar days.
The revised Contract Completion Date, including this Contract Change Order is, therefore	

SBCCD Change Order No. _____ includes Item Number(s): **1.1 through 1.9**

This Contract Change Order is not valid until signed by both the Architect and the District Representative (on behalf of the San Bernardino Community College District Board of Education)

Contractor's signature indicates agreement herewith, including any adjustment in the contract amount or contract time.

I have reviewed the figures submitted by the Contractor and they have been reviewed by the District, I believe this request is valid and recommend your approval for acceptance.

	Signature	Name (printed)	Date
Architect:		Project Architect	
.:		Project Manager	
District:		Vice Chancellor Fiscal Services	
Contractor:		Project Manager *Printed Name/Title*	

State of California - Division of the State Architect DSA Application No. _____ File No. _____

Approved _____ per Principal Structural Engineer: _____

San Bernardino Community College

ALLOWANCE DISBURSEMENT AUTHORIZATION

School Name:		Date:	
Project Name:		Allowance Disbursement No.:	
To: (PM/CM)		Project Number:	
From: (Contractor)		Contract Number:	

Descption of Item to be changed to Contract allowance is as follows:

Provide information on desciption and dollar values in this area

A. Original Contract Allowance	$ -
B. Net Allowance Disbursement previously authorized	$ -
C. Charges to Contract Allowance as a result of this authorization	$ -
D. Current Contract Allowance Balance Remaining	$ -

Project Manager Signature	Name (Printed)	Date
Contractor Signature	Name (Printed)	Date
Architect Signature	Name (Printed)	Date
District Signature	Name (Printed)	Date
Program Manager	Name (Printed)	Date

ARTICLE 8

8.1 DEFINITIONS

8.1.1 Contract Time

Contractor shall perform and complete all Work under this Contract within the time period specified in the Agreement Form. Moreover, Contractor shall perform its Work in strict accordance with any completion schedule, construction schedule or Project milestones developed pursuant to the provisions of the Contract including, but not limited to the Project Schedule set forth in the Specifications, if applicable.

8.1.2 Notice to Proceed

District may give a notice to proceed within three (3) months of the award of the bid by District. Once Contractor has received the notice to proceed, Contractor shall complete the Work in the period of time referenced in the Contract Documents.

In the event that District desires to postpone the giving of the notice to proceed beyond this three-month period, it is expressly understood that with reasonable notice to the Contractor, the giving of the date to proceed may be postponed by District. It is further expressly understood by Contractor, that Contractor shall not be entitled to any claim of additional compensation as a result of the postponement of the giving of the notice to proceed

If the Contractor believes that a postponement will cause a hardship to Contractor, Contractor may terminate the contract with written notice to District within 10 days after receipt by Contractor of District's notice of postponement. It is further understood by Contractor that in the event that Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Contractor for the Work that Contractor had performed at the time of notification of postponement. Should Contractor terminate the contract as a result of a notice of postponement, District shall have the authority to award the contract to the next lowest responsible bidder.

8.1.3 Computation of Time

The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

The Contractor will only be allowed a time extension for unusually severe weather if it results in precipitation or other conditions, which in the amount, frequency, or duration is in excess of the norm at the location and time of year in question as established by NOAA weather data. No less than 22 calendar days will be allotted for in the Contractor's schedule. The weather days shall be shown on the schedule and if not used will become float for the Project's use. If the weather is unusually severe in excess of the NOAA data norm and prevents the Contractor from beginning work at the usual daily starting time, or prevents the Contractor from proceeding with seventy-five (75%) of the work force for the critical path activities for a period longer than four hours. Based on the approved baseline schedule contractor shall document workforce, schedule activities, weather report and daily reports, submit to Project Manager for approval. Upon completion of review and approval by the Project Manager/District, will designate such time as unavoidable delay and grant one (1) calendar-day extension. Weather delay will only grant time extension, no additional cost. Normal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures and/or precipitation to ensure completion of all work within the Contract Time. Time extensions for unusually severe weather: This provision specifies the procedure for determination of time extensions for unusually severe weather. The listing below defines the monthly anticipated adverse weather in work days to be used for the Contract Period.

Monthly anticipated adverse weather days:

January	7
February	7
March	7
April	5
May	3
June	1
July	0
August	1
September	1
October	3
November	4
December	5

The above schedule of anticipated adverse weather will constitute the base line for monthly weather evaluations. Upon acknowledgment of the Notice to Proceed, and continuing throughout the Contract, actual adverse weather days will be recorded on a work day basis and compared to the monthly anticipated adverse weather days listed above.

The number of actual adverse weather delays shall be calculated chronologically from the Notice to Proceed date for 365 calendar days. The term "actual adverse weather days" means the Work, critical to the timely completion of the Project, is prevented for 60% or more of the Contractor's work day. The Project Manager will convert any qualifying delays to calendar days on an annual basis. If the number of actual adverse weather days, for each year or portion thereof, exceeds the number of anticipated adverse weather days, an equitable adjustment in calendar days to the Contract performance period will be made.

8.2 HOURS OF WORK

8.2.1 Sufficient Forces

Contractors and Subcontractors shall continuously furnish sufficient forces to ensure the prosecution of the Work in accordance with the Construction Schedule.

8.2.2 Performance During Working Hours

Work shall be performed during regular working hours as permitted by the appropriate governmental agency except that in the event of an emergency, or when required to complete the Work in accordance with job progress, Work may be performed outside of regular working hours with the advance written consent of the District and approval of any required governmental agencies.

8.2.3 Costs for After Hours Inspections:

If the Work done after hours is required by the Contract Documents and the required work is to be done outside the Inspector's regular working hours of Monday through Friday 7:00am – 4:00pm, the costs of any after hour inspections, shall be borne by the Contractor. If the District allows the Contractor to do Work outside regular working hours for the Contractor's convenience, the costs of any inspections required outside regular working hours

shall be invoiced to the Contractor by the District and deducted via Change Order, Partial Change Order, Compromise, or Construction Directive.

If the Contractor elects to perform Work outside the Inspector's regular working hours, costs of any inspections required outside regular working hours shall be invoiced to the Contractor by the District and deducted via Change Order, Partial Change Order, Compromise, or Construction Directive.

8.3 PROGRESS AND COMPLETION

8.3.1 Time of the Essence

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Contractor confirms that the Contract Time is a reasonable period for performing the Work. The Contractor shall, to the fullest extent possible, carry on the various classes or parts of the Work concurrently, and shall not defer construction of any portion of the Work in favor of any other portion of the Work. The Contractor shall staff the project as directed by the District and/or Project Manager to ensure completion of activities within original durations allowed in the Final Baseline Schedule produced by the Contractor.

8.3.2 No Commencement without Insurance

The Contractor shall not commence operations on the Project or elsewhere before the effective date of insurance and bonds required by Article 11. The date of commencement of the Work shall not be changed by the effective date of such insurance. If Contractor commences Work without insurance and bonds, all Work is performed at Contractor's peril and shall not be compensable until and unless Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

8.3.3 Expeditious Completion

The Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within the Contract Time, time being of the essence under this Contract. The Contractor shall furnish such manpower, materials, products, facilities, equipment, apparatus, utilities, transportation, and the like, and shall work such hours, including night shifts, overtime operations, Sundays and holidays as may be necessary to insure the prosecution and completion of the Work in accordance with the Final Baseline schedule. If work on a critical path is seven days or more behind the currently updated schedule, and it becomes apparent from the current schedule that the Work will not be completed within the Contract Time, the Contractor will implement whatever steps it deems necessary to make up all lost time. If the actions take are not successful, the Contractors will make further attempts using the following sequence of events:

A. Reschedule activities to achieve maximum practical concurrence of accomplishment of activities.

B. If the above cannot be achieved then;

1. The Contractor shall increase manpower in such quantities and crafts as will substantially eliminate, In the judgment of the District/Project Manager, the backlog of work; or increase the number of working hours, shifts per working day, working days per week or the amount of equipment or any combination of the foregoing sufficiently to substantially eliminate in the judgment of the District/Project Manager the backlog of work.

2. In addition, the District/Project Manager may require the Contractor to submit a recovery schedule demonstrating its program and proposed plan to make up a lag in scheduled progress and to ensure completion of the Work within the Contract Time. If the actions taken by the Contractor are unsatisfactory, the Project Manager may require the Contractor to take any of the actions set forth in the

previous Article without additional cost to the Project Manager and/or District to make up the lag in scheduled progress.

Failure of the Contractor to comply with the requirements of this Section shall be considered grounds for a determination by the District/Project Manager that the Contractor is failing to prosecute the Work with such diligence as will ensure its completion within the time specified.

8.4 EXTENSIONS OF TIME – LIQUIDATED DAMAGES

8.4.1 Liquidated Damages: Not applicable unless set forth in the Supplemental Conditions.

8.4.2 Excusable Delay:

Contractor shall not be charged damages because of any delays in completion of Work that are not the fault or negligence of Contractor or its subcontractors, including acts of God, as defined in Public Contract Code section7102, acts of enemy, epidemics and quarantine restrictions. Contractor shall within three (3) calendar days of beginning of any such delay notify District in writing of causes of delay; thereupon District shall ascertain the facts and extent of delay and grant extension of time for completing Work when, in its judgment, the findings of fact justify such an extension. Extensions of time shall apply only to that portion of Work affected by delay, and shall not apply to other portions of Work not so affected. An extension of time may only be granted after proper compliance with Article 3.7 requiring preparation and submission of a properly prepared CPM schedule.

No extended overhead, general conditions costs, impact costs, out-of-sequence costs or any other type of compensation, by any name or characterization, shall be paid to the Contractor for any delay to any activity not designated as a critical path item on the latest approved Project schedule.

The Contractor shall notify the Project Manager in writing of any anticipated delay and its cause, in order that immediate steps may be taken to prevent, if possible, the occurrence or continuance of delay, and may determine whether the delay is to be considered avoidable or unavoidable, how long it continues, and to what extent the prosecution and completion of the Work might be delayed thereby.

In the event the Contractor requests an extension of Contract time for unavoidable delay, such request shall be submitted in accordance with the provisions in the Contract Documents governing changes in work. When requesting time, i.e., extensions, for proposed Change Order, Partial Change Order, Compromise, or Construction Directive, they must be submitted with the proposed change order with full justification and documentation. If the Contractor fails to submit justification with the proposed change order it waives its right to a time extension at a later date. Such justification must be based on the official Contract schedule as updated at the time of occurrence of the delay or execution of Work related to any changes to the scope of work. The justification must include, but is not limited to, the following information:

(a) The duration of the activity relating to the changes in the Work and the resources (manpower, equipment, material, etc.) required to perform these activities within the stated duration.

(b) Logical ties to the project schedule for the proposed changes and/or delay showing the activity/activities in the schedule whose start or completion dates are affected by the change and/or delay. (A fragment of any delay of over ten (10) days must be provided.)

The Contractor and District understand and expressly agree that insofar as Public Contract Code Section 7102 may apply to changes in the Work or delays under this contract, the actual delays and damages, if any, and time extensions are intended to, and shall provide, the exclusive and full method of compensation for changes in the Work and construction delays.

8.4.3 Notice by Contractor Required

The Contractor shall within three (3) calendar days of beginning of any such delay notify the District in writing of causes of delay with justification and supporting documentation. District will then ascertain the facts and extent of the delay and grant an extension of time for completing the Work when, in its judgment, the findings of fact justify such an extension. Extensions of time shall apply only to that portion of the Work affected by the delay and shall not apply to other portions of the Work not so affected. The sole remedy of Contractor for extensions of time under Article 8.4.2 shall be an extension of the Contract Time at no cost to the District.

Claims relating to time extensions shall be made in accordance with applicable provisions of Article 7 and then Articles 4.5 through 4.5.10.

8.4.4 No Additional Compensation for Delays within Contractor's Control

Contractor is aware that governmental agencies, such as the department of general services, gas companies, electrical utility companies, water districts and other agencies may have to approve Contractor prepared drawings or approve a proposed installation. Contractor has included delays and damages which may be caused by such agencies in Contractor's bid. Thus, Contractor is not entitled to make claim upon the District for damages or delays arising from the delays caused by such agencies. Furthermore, the Project has been scheduled for such delays and is not entitled to an extension of time for delays caused by governmental agencies which Contractor must obtain approvals from and, thus, Contractor is not entitled to an extension of time.

Contractor shall only be entitled to compensation for delay when the following conditions are met: (1) the District is responsible for the delay; (2) the delay is unreasonable under the circumstances involved; and (3) the delay was not within the contemplation of District and Contractor.

ARTICLE 9

9.1 CONTRACT SUM

The Contract Sum is stated in the Agreement and, including authorized adjustments, is the total amount payable by the District to the Contractor for performance of the Work under the Contract Documents.

9.2 COST BREAKDOWN

9.2.1 Required Information

On forms approved by the Project Manager, the Contractor shall furnish the following:

(a) Within ten (10) calendar days of the award of the Contract, a detailed breakdown of the Contract Price (hereinafter "Schedule of Values"). The Schedule of Values to conform to the following format:

Site: (if applicable) – No single line item shall exceed 10% of the total contract value.
Specification Section
Material

Labor

Building: (if applicable) No single line item shall exceed 10% of the total contract value.
Specification Section (by floor)
Material
Labor

Submittals: 5%

Punchlist: 5%

Closeout: 5%

(b) Within ten (10) calendar days of the award of the Contract, a schedule of estimated monthly payment requests due the Contractor showing the values and construction time of the various portions of the Work to be performed by it and by its Subcontractors or material and equipment suppliers containing such supporting evidence as to its correctness as the District may require;

(c) Within ten (10) days of the award of the Contract, the name, address, telephone number, telecopier number, email address, California State Contractors License number, classification, and monetary value of all Subcontracts for parties furnishing labor, material, or equipment for completion of the Project.

9.2.2 Approval Required

The Project Manager and the Architect shall review all submissions received pursuant to Article 9.2.1 in a timely manner. The Project Manager and the Architect must approve all submissions before becoming the basis of any payment.

9.3 PROGRESS PAYMENTS

9.3.1 Payments to Contractor

Unless the District has designated this Project as "Substantially Complex" by a finding of the Governing Board which is set forth in the Supplemental Conditions for this Project, Contractor shall be paid a sum equal to ninety-five percent (95%) of the value of the Work performed (as certified by Architect and Inspector, reviewed by the Project Manager, and verified by Contractor) up to the last day of the previous month, less the aggregate of previous payments. The value of the Work completed shall be Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Contractor, or any surety upon any bond, from damages arising from such Work, or from the District's enforcement of each and every provision of this Contract, and the District shall have the right subsequently to correct any error made in any estimate for payment or payment made pursuant thereto.

If Contractor refuses or fails to proceed as directed by the District concerning the Work, or any portion thereof, the District shall back charge the Contractor or withhold from the Contractor's progress payment (and if none remain, then from the Retention) an amount sufficient to protect the District from any and all costs associated therewith. Contractor shall be entitled to receive any remaining amount due on such a progress payment, if any, that has been properly submitted and supported. If the District intends to back charge the Contractor or withhold from the Contractor's progress payment (and if none remain, then from the Retention) an amount sufficient to protect the District from any and all costs associated with Contractor's refusal or failure to proceed as directed by the District concerning the Work, then the District shall, at the time of such withhold and/or back charge provide to the Contractor written notification of doing so. The District's notice shall state the reasons why the withhold and/or

back charge is being made, shall state the amount to be withheld and/or back charged, and shall also contain a calculation showing the Contractor how the District has arrived at the amount of the withhold and/or back charge.

Notwithstanding anything to the contrary stated above, the Contractor may include in its Request for Payment the value of any structural steel, mail order materials, G.F.R.C. panels and other such custom-made materials prepared specifically for the Project and unique to the Project so long as all of the following requirements are satisfied:

(a) The aggregate cost of materials stored off-site shall not exceed Contractor's actual costs less profit at any time without the written approval of the District to be given or withheld in the District's sole discretion;

(b) Title to such materials shall be vested in the District as evidenced by documentation satisfactory in form and substance to the District, including, without limitation, recorded financing statements, UCC filings and UCC searches;

(c) With Contractor Request for Payment, the Contractor shall submit to the District a written list identifying each location where materials are stored off-site (which must be a bonded warehouse) and the value of the materials at each location. The Contractor shall be responsible for the Owner Controlled Insurance Program (OCIP) deductible to cover losses for property stored on or off-site. Contractor is responsible for all costs of materials stored on or off-site in the amount not covered by the OCIP (Refer to Article 11).

(d) The consent of any Surety shall be obtained to the extent required prior to payment for any materials stored off-site;

(e) Representatives of the District shall have the right to make inspections of the storage areas at any time; and

(f) Such materials shall be (1) protected from diversion, destruction, theft and damage to the reasonable satisfaction of the District; (2) specifically marked for use on the Project; and (3) segregated from other materials at the storage facility.

9.3.2 Purchase of Materials and Equipment

The Contractor is required to order, obtain, and store materials and equipment sufficiently in advance of its Work, at no additional cost or advance payment from District, to assure that there will be no delays to the Work.

9.3.3 No Waiver

No payment by District hereunder shall be interpreted so as to imply that District has inspected, approved, or accepted any part of the Work. Notwithstanding any payment, the District may enforce each and every provision of this Contract. The District may correct any error subsequent to any payment.

9.3.4 Issuance of Certificate of Payment

The Architect and Project Manager shall, within seven (7) days after receipt of the Contractor's Application for Payment, either approve such payment or notify the Contractor in writing of the reasons for withholding approval in whole or in part as provided in Article 9.6. The review of the Contractor's Application for Payment by the Architect and Project Manager is based on the observations at the Site and the data comprising the Application for Payment that the Work has progressed to the point indicated and that, to the best of the Architect's and Project Manager's knowledge, information, and belief, the quality of the Work is in accordance with the Contract

Documents. The foregoing representations are subject to (1) an evaluation of the Work for conformance with the Contract Documents, (2) results of subsequent tests and inspections, (3) minor deviations from the Contract Documents correctable prior to completion, and (4) specific qualifications expressed by the Architect and Project Manager. The issuance of a Certificate for Payment will further constitute a representation that the Contractor is entitled to payment in the amount certified.

If the Architect and Project Manager intend to deny any progress payment, in whole or in part, then within seven (7) days after receipt of the Contractor's Application for Payment, the Architect and Project Manager must notify the Contractor in writing of the reasons for the withholding as provided in Article 9.6; and the notice shall state the reasons why each portion of the Application for Payment is being denied so that the Contractor is expressly informed what it needs to do to properly support the Application for Payment. Subject to any back charges and/or with holds, all properly supported portions of a Contractor's Application for Payment will be paid within thirty (30) days of receipt thereof.

9.4 APPLICATIONS FOR PROGRESS PAYMENTS

9.4.1 Procedure for Submitting Applications for Payment

On or before the 25th of each calendar month, during the progress of the portion of the Work for which payment is being requested, the Contractor will forward a draft billing for the Project Manager's approval indicating the percentages representative of the work installed with all backup and supporting documents, such back up and support shall include, but not be limited to: all documents that support all labor, materials, products, equipment, apparatus, and the like; a list of all subcontractors, sub-subcontractors, and suppliers that have furnished labor, materials, products, equipment, apparatus, and the like, to the Project during the period of time reflected in the Application for payment; all required construction schedules and updates thereto, any required schedules of values and updates thereto; and as otherwise set forth below.

Upon receipt of the Contractor's draft billing (Application for Payment), the Project Manager shall affix comments and/or initials and return draft billing to the Contractor for review. Material invoices, evidence of equipment purchases and rentals, along with other support and details of cost, may be required to be submitted to the Owner from time to time when requested. Draft billings not returned to the Contractor will be assumed "correct as noted". The Contractor will then forward a formal billing (Application for Payment) to the Project Manager. The formal billing (Application for Payment), with applicable releases and other required documentation attached, and containing wet signatures, shall be returned to the Project Manager. The Application for Payment will then be collectively forwarded to the District for processing. Failure to return the billing or applicable attachments within the time frames specified by the Project Manager will result in a delay to the processing and payment of such Applications.

9.4.1.1 District, Architect or Project Manager has the discretion to require from Contractor any of the following information with any Application for Payment:

(a) Electronic copies of Certified Payroll(s) for the Project;

(b) Unconditional waivers and releases from all subcontractor/ suppliers for which payment was requested under the previous application for payment; and/or

(c) Material invoices evidence of equipment purchases, rentals and other support and details of costs

9.4.2 Prerequisites for Progress Payments

9.4.2.1 ***First Payment Request.*** The first payment request may not be processed by the District, and/or an appropriate amount of money may be withheld by the District, unless the following items, if applicable, are completed by the Contractor:

(a) Receipt by Architect of submittals;

(b) Installation of field office;

(c) Submission of documents listed in the Article 9.2 relating to Cost Breakdown;

(d) Schedule of unit prices, if applicable;

(e) Copies of necessary permits;

(f) Copies of authorizations and licenses from governing authorities;

(g) Copy of plans to be used as "As-Builts"

(h) Written acceptance of District's survey of rough grading, if applicable;

(i) List of all subcontractors, with names, license numbers, telephone numbers, and scope of work;

(j) All bonds and insurance endorsements; and

(k) Resumes of Contractor's key personnel as determined by District, and if applicable, job site Secretary, Record Documents Recorder, and job site Superintendent.

(M) First 60 days Initial Preliminary Baseline Schedule of work.

(N) Contractor Labor Force "Local Hire" Demographics Reporting Form (Monthly)

9.4.2.2 ***Second Payment Request.*** The second payment request may not be processed by the District, and/or an appropriate amount of money may be withheld by the District, until all submittals and shop drawings have been sent by the Contractor for review by the Architect.

9.4.2.3 ***All Payment Requests.*** Any payment request may not be processed by the District, and/or an appropriate amount of money may be withheld by the District, if the Contractor has failed to submit copies of the Certified Payroll records for the Work which correlates to the payment request, a proper CPM schedule, and any of the other requirements of this Contract regarding progress payments.

9.4.2.4 Any payments made to Contractor where criteria set forth in Article 9.4.2.1 or 9.4.2.2 have not been met shall not constitute a waiver of said criteria by District. Instead, such payment shall be construed as a good faith effort by District to resolve differences so Contractor may pay its Subcontractors and suppliers and that Contractor agrees that failure to submit such items may constitute a breach of contract by Contractor and may subject Contractor to termination.

9.5 WARRANTY OF TITLE

The Contractor warrants title to all work. The Contractor further warrants that all work is free and clear of liens, claims, security interests, or encumbrances in favor of the Contractor, Subcontractors, material and equipment

suppliers, or other persons or entities making a claim by reason of having provided labor, materials, and equipment relating to the Work. Failure to keep work free of liens, claims, security interests or encumbrances is grounds to make a claim against Contractor's payment and performance bond to immediately remedy and defend.

If a lien or stop notice of any nature should at any time be filed against the Work or any District property, by any entity which has supplied material or services at the request of the Contractor, Contractor and Contractor's surety shall promptly, on demand by District and at Contractor's and surety's own expense, take any and all action necessary to cause any such lien or stop notice to be released or discharged immediately therefrom.

If the Contractor fails to furnish to the District within ten (10) calendar days after demand by the District, satisfactory evidence that a lien or stop notice has been so released, discharged, or secured, then District may either discharge such indebtedness and deduct the amount required therefor, together with any and all losses, costs, damages, and attorney's fees and expense incurred or suffered by District from any sum payable to Contractor under the Contract; or require the Contractor to post a Stop Notice Release Bond. If District sends written notice to the Contractor to post a Stop Notice Release Bond, Contractor shall have such a bond delivered to the District within five (5) calendar days of such written notice. See also Article 15.2.

9.6 DECISIONS TO WITHHOLD PAYMENT

9.6.1 Reasons to Withhold Payment

It is the District's intention to pay all properly submitted and supported progress payment applications submitted by the Contractor within thirty (30) days of receipt. However, the District may withhold payment in whole, or in part, to the extent reasonably necessary to protect the District if, in the District's opinion, such action is necessary. The District may withhold payment, in whole, or in part, to such extent as may be necessary to protect the District from loss because of, but not limited to:

(a) Defective Work not remedied;

(b) Stop Notices served upon the District;

(c) Liquidated and/or actual delay damages assessed against the Contractor;

(d) The cost of completion of the Contract if there exists reasonable doubt that the Work can be completed for the unpaid balance of any Contract Price or by the completion date;

(e) Damage to the District or other Contractor;

(f) Unsatisfactory prosecution of the Work by the Contractor;

(g) Failure to store and properly secure materials;

(h) Failure of the Contractor to submit on a timely basis, proper and sufficient documentation required by the Contract Documents, including, without limitation, acceptable monthly progress schedules, shop drawings, submittal schedules, schedule of values, product data and samples, proposed product lists, executed Change Orders, Construction Change Directives, and verified reports;

(i) Failure of the Contractor to maintain record drawings;

(j) Erroneous estimates by the Contractor of the value of the Work performed, or other false statements in an Application for Payment;

(k) Unauthorized deviations from the Contract Documents;

(l) Failure of the Contractor to prosecute the Work in a timely manner in compliance with established progress schedules and completion dates.

(m) Failure to properly pay prevailing wages as defined in Labor Code section 1720, et seq.;

(n) Failure to properly maintain or clean up the Site;

(o) Payments to indemnify, defend, or hold harmless the District;

(p) Any payments due to the District including but not limited to payments for failed tests, or utilities changes or permits;

(q) Failure to submit an acceptable schedule in accordance with Article 3.8;

(r) Failure to pay Subcontractor or suppliers as required by Article 9.8.1; or

(s) Failure to provide releases from material suppliers or subcontractors when requested to do so.

(t) Failure of the Contractor to comply with any lawful or proper direction concerning t the Work given by any District representative authorized to have given such instruction;

(u) Claims and/or penalties which State law assesses against the Contractor for violation of such law;

(v) Any claim or penalty asserted against the District and/or Project Manager by virtue of the Contractor's failure to comply with the provisions of all governing laws, ordinances, regulations, rules, and orders;

(w) Any reason specified elsewhere in the Contract Documents, or by applicable law, that would require and/or entitle the District to a with hold, back charge and/or set off.

9.6.2 Reallocation of Withheld Amounts

District may, in its sole discretion, apply any withheld amount to payment of outstanding claims or obligations as defined in Articles 9.6.1 and 9.5. In so doing, District shall make such payments on behalf of Contractor. If any payment is so made by District, then such amount shall be considered as a payment made under Contract by District to Contractor and District shall not be liable to Contractor for such payments made in good faith. Such payments may be made without prior judicial determination of claim or obligation. District will render Contractor an accounting of such funds disbursed on behalf of Contractor.

If Contractor defaults or neglects to carry out the Work in accordance with the contract documents or fails to perform any provision thereof, District may, after ten (10) calendar days written notice to the Contractor and without prejudice to any other remedy make good such deficiencies. The District shall adjust the total Contract price by reducing the amount thereof by the cost of making good such deficiencies. If District deems it inexpedient to correct Work that is damaged, defective, or not done in accordance with Contract provisions, an equitable reduction in the Contract price (of at least 150% of the estimated reasonable value of the nonconforming work) shall be made therefor.

9.6.3 Payment After Cure

When the grounds for declining approval are removed, payment shall be made for amounts withheld because of them. No interest shall be paid on any retainage or amounts withheld due to the failure of the Contractor to perform in accordance with the terms and conditions of the Contract Documents.

9.7 NONCONFORMING WORK

Contractor shall promptly remove from premises all Work identified by District as failing to conform to the Contract whether incorporated or not. Contractor shall promptly replace and re-execute its own Work to comply with the Contract without additional expense to District and shall bear the expense of making good all work of other contractors destroyed or damaged by such removal or replacement.

If Contractor does not remove such Work which has been identified by District as failing to conform to the Contract Documents within a reasonable time, fixed by written notice, District may remove it and may store the material at Contractor's expense. If Contractor does not pay expenses of such removal within ten (10) calendar days' time thereafter, District may, upon ten (10) calendar days' written notice, sell such materials at auction or at private sale and shall account for net proceeds thereof, after deducting all costs and expenses that should have been borne by Contractor.

9.8 SUBCONTRACTOR PAYMENTS

9.8.1 Payments to Subcontractors

No later than ten (10) days after receipt, or pursuant to Business and Professions Code section 7108.5 and Public Contract Code section 7107, the Contractor shall pay to each Subcontractor, out of the amount paid to the Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Contractor shall, by appropriate agreement with each Subcontractor, require each Subcontractor to make payments to Sub-subcontractors in a similar manner.

9.8.2 No Obligation of District for Subcontractor Payment

The District shall have no obligation to pay, or to see to the payment of, money to a Subcontractor except as may otherwise be required by law.

9.8.3 Payment Not Constituting Approval or Acceptance

An approved Application for Payment, a progress payment, or partial or entire use or occupancy of the Project by the District shall not constitute acceptance of Work not in accordance with the Contract Documents.

9.8.4 Joint Checks

District shall have the right, if necessary for the protection of the District, to issue joint checks made payable to the Contractor and Subcontractors and material or equipment suppliers. The joint check payees shall be responsible for the allocation and disbursement of funds included as part of any such joint payment. In no event shall any joint check payment be construed to create any contract between the District and a Subcontractor of any tier, any obligation from the District to such Subcontractor, or rights in such Subcontractor against the District.

9.9 COMPLETION OF THE WORK

9.9.1 Close-Out Procedures

9.9.1.1 ***Punch List Items***. Unless defined differently in the Supplemental Conditions for this Project, "Substantial Completion of the Work" means, that point in the progress of the Work where the Work is completed according to the requirements of the Contract Documents so that the District can occupy, have beneficial use of, and enjoy, the entire Project for its intended purpose; and where only minor and/or trivial defects in the Work remain that do not preclude the District occupying, having beneficial use of, or enjoying the entire Project for its intended purpose.

(i) When the Contractor considers the Project to have reached Substantial Completion of the Work, the Contractor shall prepare and submit to the Architect and Project Manager a comprehensive list of minor and/or trivial defect items to be completed or corrected (hereinafter "Proposed Final Punch List").

(ii) The Architect and Project Manager will then review the Proposed Final Punch List. If in their collective opinion:

(a) the Contractor has achieved Substantial Completion of the Work, and if the Architect and Project Manager agree with the Proposed Final Punch List as submitted by the Contractor, the Architect and Project Manager shall promptly calculate and place an estimated value on each item on the Proposed Final Punch List and promptly send it out to the Contractor and the District as the "Final Punch List". The Contractor shall then proceed to correct and/or complete all remaining items on the Final Punch List pursuant to the Scheduling Specifications for the Project.

(b) the Contractor has achieved Substantial Completion of the Work, but either the Architect and Project Manager disagree with the Proposed Final Punch List as submitted by the Contractor, the Architect and/or the Project Manager shall promptly add any additional items to the Proposed Final Punch List and calculate and place an estimated value on all items on the Proposed Final Punch List and promptly send it out to the Contractor and the District as the "Final Punch List". The Contractor shall then proceed to correct and/or complete all remaining items on the Final Punch List pursuant to the Scheduling Specifications for the Project.

(iii) Conversely, if in the opinion of the Architect and/or the Project Manager, the Contractor has not achieved Substantial Completion of the Work, the Architect and Project Manager shall promptly notify the Contractor and District in writing stating all reasons why Substantial Completion of the Work has not then been achieved and what remains to be done to achieve Substantial Completion of the Work. The Proposed Final Punch List will be returned to the Contractor, with a copy to the District accompanied by the written reasons of the Architect and/or Project Manager. The Contractor will then immediately proceed to correct and/or complete all remaining Work identified by the Architect and/or Project Manager that has been identified to achieve Substantial Completion of the Work. When those items are completed, the Contractor shall submit a Proposed Final Punch List. If the Architect and Project Manager collectively agree that Substantial Completion of the Work has now been achieved, the process identified in Articles 9.9.1.1. (i) and/or (ii) (a) and/or (b) shall be followed.

(iv) Failure to include an item on a Final Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents. If Contractor fails to complete and/or correct any item on the list, the District shall withhold 150% thereof and cause such work to be completed by others, deducting the actual costs thereof from any monies remaining in the

contract, retention and/or recover shall from the performance bind surety, at the District's sole discretion and option.

(v) Warranties required by the Contract Documents shall commence on the date of the Contractor completing all of its obligations under the Contract Documents and the District's Governing Board acceptance of the Project**.**

9.9.1.2 ***Close-Out Requirements*****.**

(a) **Draft Submittal** Contractor shall submit during product submittal review a draft close-out submittal package for format and content approval.

(b) **Utility Connections** Buildings shall be connected to water, gas, sewer, and electric services, complete and ready for use. Service connections shall be made and existing services reconnected.

(c) **Record Drawings**

1. The intent of this procedure is to obtain an exact "as built" record of the Work upon completion of the Project. The following information shall be carefully and correctly drawn on the prints and all items shall be accurately located and dimensioned from finished surfaces of building walls on all record drawings.

a. Any Work not installed as originally indicated on drawings.

b. The exact location and elevations of all covered utilities, including valves, cleanouts, etc.

2. Contractor is liable and responsible for inaccuracies in as-built drawings, even though they become evident at some future date.

3. Upon completion of the Work and as a condition precedent to approval of final payment, Contractor shall obtain the Project Manager, Architect of Record and Inspector's approval of the corrected prints and employ a competent draftsman to transfer the "as-built" information to the most current set of reproducible bond paper drawings. When completed, Contractor shall deliver corrected reproducible drawings to the Project Manager.

(d) **Maintenance Manuals.** At least thirty (30) days prior to final inspection, three (3) copies of complete operations and maintenance manuals, repair parts lists, service instructions for all electrical and mechanical equipment, and equipment warranties shall be submitted. All installation, operating, and maintenance information and drawings shall be bound in 8-1/2" X 11 " binders. Provide a table of contents in front and all items shall be indexed with tabs. Each manual shall also contain a list of subcontractors, with their addresses and the names of persons to contact in cases of emergency. Identifying labels shall provide names of manufactures, their addresses, ratings, and capacities of equipment and machinery.

(e) **Inspection Requirements**

1. Before calling for final inspection, Contractor shall determine, as appropriate, that the following Work has been performed:

a. The Work has been completed.

b. All life safety items are completed and in working order.

c. Mechanical and electrical Work complete, fixtures in place, connected and ready for tryout and test.

d. Electrical circuits scheduled in panels and disconnect switches labeled.

e. Painting and special finishes complete.

f. Doors complete with hardware, cleaned of protective film relieved of sticking or binding and in working order.

g. Tops and bottoms of doors sealed.

h. Floors waxed and polished as specified.

i. Broken glass replaced and glass cleaned.

j. Grounds cleared of Contractor's equipment, raked clean of debris, and trash removed from Site.

k. Work cleaned, free of stains, scratches, and other foreign matter, replacement of damaged and broken material.

l. Finished and decorative work shall have marks, dirt and superfluous labels removed.

m. Final cleanup.

9.9.2 Costs of Multiple Inspections

More than two (2) requests of the District to make inspections required under the Contract Documents shall be considered an additional service of Architect, and all subsequent costs will be invoiced to Contractor and if funds are available, withheld from remaining payments.

9.10 PARTIAL OCCUPANCY OR USE

9.10.1 District's Rights

The District may occupy or use any completed or partially completed portion of the Work at any stage. The District and the Contractor shall agree in writing to the responsibilities assigned to each of them for payments, security, maintenance, heat, utilities, damage to the Work, insurance, the period for correction of the Work, and the commencement of warranties required by the Contract Documents. If District and Contractor cannot agree as to responsibilities such disagreement shall be resolved pursuant to Article 4.5.1. When the Contractor considers a portion complete, the Contractor shall prepare and submit a Punch List to the District as provided under Article 9.9.1.

9.10.2 Inspection Prior to Occupancy or Use

Immediately prior to such partial occupancy or use, the District and Project Manager, the Contractor, and the Architect shall jointly inspect the area to be occupied or portion of the Work to be used in order to determine and record the condition of the Work.

9.10.3 No Waiver

Unless otherwise agreed upon, partial occupancy or use of a portion or portions of the Work shall not constitute acceptance of the Work not complying with the requirements of the Contract Documents.

9.11 COMPLETION AND FINAL PAYMENT

9.11.1 Final Inspection

Contractor shall comply with Punch List procedures under Article 9.9.1.1, and maintain the presence of Project superintendent and Project foremen until the Final Punch List is complete to ensure proper and timely completion of the Final Punch List. Under no circumstances shall Contractor demobilize its forces before completion of the Final Punch List. Upon receipt of Contractor's written notice that all of the Final Punch List items have been fully completed and the Work is ready for final inspection and acceptance, Architect and Project Manager shall inspect the Work and shall submit to Contractor and District a final inspection report noting the work, if any, required in order to complete in accordance with the Contract Documents. Absent unusual circumstances, this report shall consist of the Final Punch List items not yet satisfactorily completed.

Upon completion of the Work contained in the final inspection report, the Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect, Project Manager and the District find the Work contained in such final inspection report acceptable under the Contract Documents and, therefore, the Work fully completed, Project Manager shall notify Contractor, who shall then submit to the Project Manager its final Application for Payment.

Upon receipt and approval of such final Application for Payment, the Architect shall issue a final Certificate of Payment stating that to the best of its knowledge, information, and belief, and on the basis of its observations, inspections, and all other data accumulated or received by the Architect in connection with the Work, such Work has been completed in accordance with the Contract Documents. The District shall thereupon inspect such Work and either accept the Work as complete or notify the Architect, Project Manager and the Contractor in writing of reasons why the Work is not complete. Upon acceptance of the Work of the Contractor as fully complete (which, absent unusual circumstances, will occur all Final Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder. Upon receipt of the final payment from the District, the Contractor shall pay the amounts due all Subcontractors.

9.11.2 Release Of Undisputed Retention & Withholding of Disputed Retention

All disputed retention will be identified to the Contractor by the District when Substantial Completion of the Work has been achieved as defined in Article 9.9.1.1 and/or as required by Public Contract Code section 7107. Retention that is disputed may include, but is certainly not limited to, all amounts of money for all items remaining on the Final Punch List as of the date of its issuance, any back charges and/or off sets to be made by the District against the Contract Price as permitted by the Contract Documents and/or applicable law, any deductive credits owed to the District, any amounts of money the District is required to with hold from the Contractor as a matter of law (such as, but without limitation, for labor with holds, stop notices, safety violations, etc.); and any such other items and amounts identified by the District in its "Notice to Hold Disputed Retention and Release of Undisputed Retention". The Notice to Hold Disputed Retention and Release of Undisputed Retention will be issued to the Contractor by the District within seven (7) calendar days after the Substantial Completion of the Work has been achieved. Following issuance of the Notice to Hold Disputed Retention and Release of Undisputed Retention, said Notice may be revised deleting and/or adding other items, and appropriate disputed amounts, as they become known to the District.

9.11.3 Procedures for Application for Final Payment.

9.11.3.1 ***Prerequisites for Final Payment.*** The following conditions must be fulfilled before the District's obligation to make the Final Payment matures:

(a) A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Contractor, including a release of Stop Notice in recordable form, together with (to the extent permitted by law) a copy of the full and final release of all Stop Notice rights.

(b) The Contractor shall have made all corrections to the Work which are required to remedy any defects therein, to obtain compliance with the Contract Documents or any requirements of applicable codes and ordinances, or to fulfill any of the orders or directions of District required under the Contract Documents.

(c) Each Subcontractor shall have delivered to the Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.

(d) Contractor must have completed all requirements set forth in Article 9.9.1.2.

(e) Architect and Project Manager shall have issued a Final Certificate of Payment.

(f) The Contractor shall have delivered to the District all manuals and materials required by the Contract Documents.

(g) The Contractor shall have completed final clean up as required by Article 3.12.

9.12 SUBSTITUTION OF SECURITIES

The District will permit the substitution of securities in accordance with the provisions of Public Contract Code section 22300. The Escrow Agreement Form is found in section 00 50 04. Use of this form is mandatory.

ARTICLE 10

10.1 SAFETY PRECAUTIONS AND PROGRAMS

.1 Contractor Responsibility

The Contractor shall be responsible for all damages to persons or property that occur as a result of its fault or negligence in connection with the prosecution of this Contract and shall take all necessary measures and be responsible for the proper care and protection of all materials delivered and work performed until completion and final acceptance by the District. All work shall be solely at the Contractor's risk, with the exception of damage to the work caused by "acts of God" as defined in Public Contract Code section 7105(b)(2).

Contractor shall take, and require subcontractor to take, all necessary precautions for safety of workers on the Work and shall comply with all applicable federal, state, local and other safety laws, standards, orders, rules, regulations, and building codes to prevent accidents or injury to persons on, about, or adjacent to premises where Work is being performed and to provide a safe and healthful place of employment. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes, Contractor shall furnish, erect and properly maintain at all times, as directed by District, Project Manager or Architect or required by conditions and progress of work, all necessary safety devices, safeguards, construction canopies, signs, audible devices for protection of the blind, safety rails, belts and nets, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created by such features in the course of construction. Contractor shall designate a

responsible member of its organization on the Work, whose duty shall be to post information regarding protection and obligations of workers and other notices required under occupational safety and health laws, to comply with reporting and other occupational safety requirements, and to protect the life, safety and health of workers. The name and position of person so designated shall be reported to District by Contractor. Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. The Contractor shall conduct on-site, weekly safety meetings and provide those meeting reports to the Project Manager. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, such violation shall be corrected promptly.

The Contractor shall be responsible for initiating, maintaining and supervising all safety precautions and programs in connection with the Work. Also, in no case shall the District, the Project Manager, the Architect, the Inspector, or their agents, employees or representatives, have either direct or indirect responsibility for the means, methods, techniques, sequences or procedures utilized by the Contractor, or for safety precautions and programs in connection with the Work.

Certain work may be ongoing at the time school is in session; therefore, each Contractor shall take precautions to prevent injury and access to students, the public and staff. Material storage and vehicle access and parking shall be subject to District and/or Project Manager's approval.

The Contractor shall designate a responsible member of its organization at the site whose duty shall be the prevention of accidents. This person shall be the Contractor's superintendent unless otherwise designated by the Contractor in writing to the District, Project Manager and District Inspector.

.2 Subcontractor Responsibility

Contractor shall require that Subcontractors participate in, and enforce, the safety and loss prevention programs established by the Contractor for the Project, which will cover all Work performed by the Contractor and its Subcontractors. Each Subcontractor shall designate a responsible member of its organization whose duties shall include loss and accident prevention, and who shall have the responsibility and full authority to enforce the program. This person shall attend meetings with the representatives of the various Subcontractors employed to ensure that all employees understand and comply with the programs.

.3 Cooperation

All Subcontractors and material or equipment suppliers shall cooperate fully with Contractor, the District, and all insurance carriers and loss prevention engineers.

.4 Accident Reports

Subcontractors shall immediately, within two (2) days, report in writing to the Contractor all accidents whatsoever arising out of, or in connection with, the performance of the Work, whether on or off the Site, which caused death, personal injury, or property damage, giving full details and statements of witnesses. In addition, if death or serious injuries or serious damages are caused, the accident shall be reported immediately by telephone or messenger. Contractor shall thereafter immediately, within two (2) days, report the facts in writing to the District, Project Manager and the Architect giving full details of the accident.

.5 First-Aid Supplies at Site

The Contractor will provide and maintain at the Site first-aid supplies, which complies with the current Occupational Safety and Health Regulations.

.6 Material Safety Data Sheets and Compliance with Proposition 65

(a) Contractor is required to have material safety data sheets available in a readily accessible place at the job site for any material requiring a material safety data sheet per the Federal "hazard communication" standard, or employees' "right-to-know law". Copies of the data sheets shall be submitted to the Project Manager. The Contractor is also required to properly label any substance brought into the job site, and require that any person working with the material, or within the general area of the material, is informed of the hazards of the substance and follows proper handling and protection procedures.

Contractor is required to comply with the provisions of California Health and Safety Code section 25249, et seq., which requires the posting and giving of notice to persons who may be exposed to any chemical known to the State of California to cause cancer. The Contractor agrees to familiarize itself with the provisions of this section, and to comply fully with its requirements.

.7 Non-Utilization of Asbestos Material

NO ASBESTOS OR ASBESTOS-CONTAINING PRODUCTS SHALL BE USED IN THIS CONSTRUCTION OR IN ANY TOOLS, DEVICES, CLOTHING, OR EQUIPMENT USED TO EFFECT THIS CONSTRUCTION.

Asbestos and/or asbestos-containing products shall be defined as all items containing, but not limited to, chrysotile, amosite, anthophyllite, tremolite, and antinolite.

Any or all material containing greater than one-tenth of one percent (>.1%) asbestos shall be defined as asbestos-containing material.

All Work or materials found to contain asbestos or Work or material installed with asbestos-containing equipment will be immediately rejected and this Work will be removed at no additional cost to the District.

Decontamination and removal of Work found to contain asbestos or Work installed with asbestos-containing equipment shall be done only under supervision of a qualified consultant, knowledgeable in the field of asbestos abatement and accredited by the Environmental Protection Agency.

The asbestos removal Contractor shall be an EPA accredited contractor qualified in the removal of asbestos and shall be chosen and approved by the asbestos consultant, who shall have sole discretion and final determination in this matter.

The asbestos consultant shall be chosen and approved by the District, who shall have sole discretion and final determination in this matter.

The Work will not be accepted until asbestos contamination is reduced to levels deemed acceptable by the asbestos consultant.

Interface of Work under this Contract with work containing asbestos shall be executed by the Contractor at his risk and at his discretion, with full knowledge of the currently accepted standards, hazards, risks, and liabilities associated with asbestos work and asbestos-containing products. By execution of this Contract, the Contractor acknowledges the above and agrees to hold harmless District and its assigns for all asbestos liability which may be associated with this work and agrees to instruct his employees with respect to the above-mentioned standards, hazards, risks, and liabilities.

10.2 <u>SAFETY OF PERSONS AND PROPERTY</u>

.1 The Contractor

The Contractor shall take reasonable precautions for the safety of, and shall provide reasonable protection to prevent damage, injury, or loss to:

(a) Employees on the Work and other persons who may be affected thereby;

(b) The Work, material, and equipment to be incorporated therein, whether in storage on or off the Site, under the care, custody, or control of the Contractor or the Contractor's Subcontractors or Sub-subcontractors; and

(c) Other property at the Site or adjacent thereto such as trees, shrubs, lawns, walks, pavement, roadways, structures, and utilities not designated for removal, relocation, or replacement in the course of construction.

Contractor is constructive owner of Project site as more fully discussed in Article 6.2.

.2 Contractor Notices

The Contractor shall give notices and comply with applicable laws, ordinances, rules, regulations, and lawful orders of public authorities bearing on the safety of persons or property or their protection from damage, injury, or loss.

.3 Safety Barriers and Safeguards

The Contractor shall erect and maintain, as required by existing conditions and performance of the Contract, reasonable safeguards for safety and protection, including posting danger signs and other warnings against hazards, promulgating safety regulations, and notifying owners and users of adjacent sites and utilities.

.4 Use or Storage of Hazardous Material

When use or storage of explosives, other hazardous materials or equipment, or unusual methods are necessary for execution of the Work, the Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Contractor shall notify the District and Project Manager any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the District, Project Manager and local fire authorities.

.5 Protection of Work

The Contractor and Subcontractors shall continuously protect the Work, the District's property, and the property of others, from damage, injury, or loss arising in connection with operations under the Contract Documents. The Contractor and Subcontractors, at their own expense, shall make good any such damage, injury, or loss, except such as may be solely due to, or caused by, agents or employees of the District.

The Contractor, at Contractor's expense, will remove all mud, water, or other elements as may be required for the proper protection and prosecution of its Work.

Contractor shall take adequate precautions to protect existing roads, sidewalks, curbs, pavements, utilities, adjoining property and structures (including, without limitation, protection from settlement or loss of lateral support), and to avoid damage thereto, and repair any damage thereto caused by construction operations. All permits, licenses, or inspection fees required for such repair Work shall be obtained and paid for by Contractor.

.6 Requirements for Existing Sites

Contractor shall (unless waived by the District in writing):

(a) When performing construction on existing sites, become informed and take into specific account the maturity of the students on the Site; and perform Work before or after college hours, enclose working area(s) with a substantial barricade(s), and arrange Work to cause a minimum amount of inconvenience and danger to students and faculty in their regular activities, the college routine, and Campus Operations. The Contractor shall comply with specifications and directives of the District regarding the timing of certain construction activities in order to avoid unnecessary interference with the functioning of the College at the Project site and in order to avoid unnecessary interference with all Campus Operations.

(b) Provide substantial barricades around any shrubs or trees indicated to be preserved.

(c) If Contractor's work disrupts Campus Operations and requires temporary re-routing of campus personnel or students, any and all site improvements will be accommodated by the Contractor.

(d) Deliver materials to building area over route designated by Architect.

(e) Take preventive measures to eliminate objectionable dust, noise, or other disturbances.

(f) Confine apparatus, the storage of materials, and the operations of workers to limits indicated by law, ordinances, permits or directions of Architect; and not interfere with the Work or unreasonably encumber premises or overload any structure with materials; and enforce all instructions of District, Project Manager and Architect regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on the Project site.

(g) Take care to prevent disturbing or covering any survey markers, monuments, or other devices marking property boundaries or corners. If such markers are disturbed by accident, they shall be replaced by an approved land surveyor or civil engineer and all maps and records required there from shall be filed with county and local authorities, at no cost to the District. All filing and plan check fees shall be paid by Contractor.

(h) Contractor shall provide District with Contractor's written safety program and safety plan for each site.

(i) All of the foregoing is to be done at no cost to the District.

.7 Shoring and Structural Loading

The Contractor shall not impose structural loading upon any part of the Work under construction or upon existing construction on or adjacent to the Site in excess of safe limits, or loading such as to result in damage to the structural, architectural, mechanical, electrical, or other components of the Work. The design of all temporary construction equipment and appliances used in construction of the Work and not a permanent part thereof, including, without limitation, hoisting equipment, cribbing, shoring, and temporary bracing of structural steel, is the sole responsibility of the Contractor. All such items shall conform with the requirements of governing codes and all laws, ordinances, rules, regulations, and orders of all authorities having jurisdiction. The Contractor shall take special precautions, such as shoring of masonry walls and temporary tie bracing of structural steel work, to prevent possible wind damage during construction of the Work. The installation of such bracing or shoring shall not damage the Work in place or the Work installed by others. Any damage which does occur shall be promptly repaired by the Contractor at no cost to the District.

.8 Conformance Within Established Limits

The Contractor and Subcontractors shall confine their construction equipment, the storage of materials, and the operations of workers to the limits indicated by laws, ordinances, permits, and the limits established by the Project Manager and District, and shall not unreasonably encumber the premises with construction equipment or materials.

.9 Subcontractor Enforcement of Rules

Subcontractors shall enforce the District's and the Project Manager's instructions, laws, and regulations regarding signs, advertisements, fires, smoking, the presence of liquor, and the presence of firearms by any person at the Site.

.10 Site Access

The Contractor and the Subcontractors shall use only those ingress and egress routes designated by Project Manager, observe the boundaries of the Site designated by the Project Manager, park only in those areas designated by the Project Manager, which areas may be on or off the Site, and comply with any parking control program established by the District, such as furnishing license plate information and purchasing parking identifying stickers on vehicles.

.11 Security Services

The Contractor shall be responsible for providing security services for the work as needed for the protection of the work and as determined in the District's sole discretion.

10.3 EMERGENCIES

.1 Emergency Action

In an emergency affecting the safety of persons or property, the Contractor shall take any action necessary, at the Contractor's discretion, to prevent threatened damage, injury, or loss. Additional compensation or extension of time claimed by the Contractor on account of an emergency shall be determined as provided in Article 7.

.2 Accident Reports

The Contractor shall promptly report in writing to the Project Manager all accidents arising out of or in connection with the Work, which caused death, personal injury, or property damage, giving full details and statements of any witnesses in conformance with Article 10.1.4. In addition, if death, serious personal injuries, or serious property damages are caused, the accident shall be reported in accordance with Article 10.1.4, immediately by telephone or messenger to the District, and Project Manager.

10.4 HAZARDOUS MATERIALS

.1 Discovery of Hazardous Materials

In the event the Contractor encounters or suspects the presence on the job site of material reasonably believed to be asbestos, polychlorinated biphenyl (PCB), or any other material defined as being hazardous in accordance with the California Health and Safety Code, which has not been rendered harmless, the Contractor shall immediately stop Work in the area affected and report the condition to the District, Project Manager and the

Architect in writing, whether or not such material was generated by the Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Contractor, if in fact the material is asbestos, polychlorinated biphenyl (PCB), or other hazardous material, and has not been rendered harmless. The Work in the affected area shall be resumed only in the absence of asbestos, polychlorinated biphenyl (PCB), or other hazardous material, or when it has been rendered harmless by written agreement of the District and the Contractor.

.2 Hazardous Material Work Limitations

In the event that the presence of hazardous materials is suspected or discovered on the Site, the District shall retain an independent testing laboratory to determine the nature of the material encountered and whether corrective measures or remedial action is required. The Contractor shall not be required pursuant to Article 7 to perform without consent any Work in the affected area of the Site relating to asbestos, polychlorinated biphenyl (PCB), or other hazardous material, until any known or suspected hazardous material has been removed, or rendered harmless, or determined to be harmless by District, as certified by an independent testing laboratory and approved by the appropriate government agency.

.3 Indemnification for Hazardous Material Caused by Contractor

In the event the hazardous materials on the Project Site is caused by the Contractor, the Contractor shall pay for all costs of testing and remediation, if any, and shall compensate the District for any additional costs incurred as a result of Contractor's generation of hazardous material on the Project Site. In addition, the Contractor shall defend, indemnify and hold harmless District and Project Manager and their agents, officers, and employees from and against any and all claims, damages, losses, costs and expenses incurred in connection with, arising out of, or relating to, the presence of hazardous material on the Project Site.

.4 Terms of Hazardous Material Provision

The terms of this Hazardous Material provision shall survive the completion of the Work and/or any termination of this Contract.

ARTICLE 11

11.1 OWNER CONTROLLED INSURANCE PROGRAM (OCIP)

See Section 00 50 05 for the OCIP Information, Terms and Conditions, Forms, etc. required for this Project.

ARTICLE 12

12.1 UNCOVERING OF WORK

.1 Uncovering Work for Required Inspections

If a portion of the Work is covered without Inspector, Project Manager or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the Inspector, Project Manager or the Architect, be uncovered for the Inspector's or the Architect's observation and be replaced at the Contractor's expense without change in the Contract Sum or Time.

.2 Costs for Inspections not Required

If a portion of the Work has been covered which the Inspector, Project Manager or the Architect has not specifically requested to observe prior to its being covered, the Inspector, Project Manager or the Architect may request to see such Work, and it shall be uncovered by the Contractor. If such Work is in accordance with the Contract Documents, costs of uncover and replacement shall, by appropriate Change Order, be charged to the District. If such Work is not in accordance with Contract Documents, the Contractor shall pay such costs unless the condition was caused by the District or a separate Contractor, in which event the District shall be responsible for payment of such costs to the Contractor.

12.2 CORRECTION OF WORK

.1 Correction of Rejected Work

The Contractor shall promptly correct the Work rejected by the Inspector or the District upon recommendation of the Architect as failing to conform to the requirements of the Contract Documents, whether observed before or after Completion and whether or not fabricated, installed, or completed. The Contractor shall bear costs of correcting the rejected Work, including additional testing, inspections, and compensation for the Inspector's or the Architect's services and expenses made necessary thereby.

.2 Warranty Corrections

If, within one (1) year after the date of Notice of Completion of the Work or a designated portion thereof, or after the date for commencement of warranties established under Article 9.9.1, or by the terms of an applicable special warranty required by the Contract Documents, any of the Work is found to be not in accordance with the requirements of the Contract Documents, the Contractor shall correct it promptly after receipt of written notice from the District to do so unless the District has previously given the Contractor a written acceptance of such condition. This period of one (1) year shall be extended with respect to portions of the Work first performed after Completion by the period of time between Completion and the actual performance of the Work. This obligation under this Article 12.2.2 shall survive acceptance of the Work under the Contract and termination of the Contract. The District shall give such notice promptly after discovery of the condition.

.3 District's Rights if Contractor Fails to Correct

If the Contractor fails to correct nonconforming Work within a reasonable time, the District may correct it. If in the judgment of the District, it is undesirable or impracticable to replace any defective or nonconforming Work, the compensation to be paid to the Contractor shall be reduced by Contract Change Order by such amount as in the judgment of the District and its authorized representative shall deem equitable.

ARTICLE 13

13.1 GOVERNING LAW

The Contract shall be governed by the law of the place where the Project is located.

13.2 SUCCESSORS AND ASSIGNS

The District and the Contractor respectively bind themselves, their partners, successors, assigns, and legal representatives to the other party hereto and to partners, successors, assigns, and legal representatives of such other party in respect to covenants, agreements, and obligations contained in the Contract Documents. Neither party to the Contract shall assign the Contract as a whole without written consent of the other. If either party attempts to

make such an assignment without such consent, that party shall nevertheless remain legally responsible for all obligations under the Contract.

13.3 WRITTEN NOTICE

In the absence of specific notice requirements in the Contract Documents, written notice shall be deemed to have been duly served if delivered in person to the individual, member of the firm or entity, or to an officer of the corporation for which it was intended, or if delivered at or sent by registered or certified mail to the last business address known to the party giving notice.

13.4 RIGHTS AND REMEDIES

.1 Duties and Obligations Cumulative

Duties and obligations imposed by the Contract Documents and rights and remedies available thereunder shall be in addition to and not a limitation of duties, obligations, rights, and remedies otherwise imposed or available by law.

.2 No Waiver

No action or failure to act by the Inspector, the District, Project Manager, or the Architect shall constitute a waiver of a right or duty afforded them under the Contract Documents, nor shall such action or failure to act constitute approval of or acquiescence in a breach thereunder, except as may be specifically agreed in writing.

13.5 TEST AND INSPECTIONS

.1 Compliance

Tests, inspections, and approvals of portions of the Work required by the Contract Documents will comply with Title 24, and with all other laws, ordinances, rules, regulations, or orders of public authorities having jurisdiction.

.2 Independent Testing Laboratory

The District will select and pay an independent testing laboratory to conduct all tests and inspections. Selection of the materials required to be tested shall be made by the laboratory or the District's representative and not by the Contractor. Any costs or expenses of inspection or testing incurred outside of a fifty (50) mile radius from the Project Site or not located in a contiguous county to the Site, whichever distance is greater, shall be paid for by the District, invoiced by the District to the Contractor, and deducted from the Contractor's next Progress Payment.

.3 Advance Notice to Inspector

The Contractor shall notify the Inspector within no less than seventy-two (72) hours in advance of its readiness for required observation or inspection so that the Inspector may arrange for same. The Contractor shall notify the Inspector a sufficient time in advance but in no case less than seventy-two (72) hours of the manufacture of material to be supplied under the Contract Documents which must, by terms of the Contract Documents, be tested in order that the Inspector may arrange for the testing of the material at the source of supply.

.4 Testing Off-Site

Any material shipped by the Contractor from the source of supply, prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said Inspector that such testing and inspection will not be required, shall not be incorporated in the Work.

.5 Additional Testing or Inspection

If the Inspector, the Architect, the District, Project Manager or public authority having jurisdiction determines that portions of the Work require additional testing, inspection, or approval not included under Article 13.5.1, the Inspector will, upon written authorization from the District, make arrangements for such additional testing, inspection, or approval. The District shall bear such costs except as provided in Article 13.5.7.

.6 Costs for Retesting

If such procedures for testing, inspection, or approval under Articles 13.5.1 and 13.5.2 reveal failure of the portions of the Work to comply with requirements established by the Contract Documents, the Contractor shall bear all costs arising from such failure, including those of re-testing, re-inspection, or re-approval, including, but not limited to, compensation for the Architect's and Project Manager's services and expenses. Any such costs shall be paid by the District, invoiced to the Contractor, and deducted from the Contractor's via Change Order.

.7 Costs for Premature Test

In the event the Contractor requests any test or inspection for the Project and is not completely ready for the inspection, the Contractor shall be invoiced by the District for all costs and expenses resulting from that testing or inspection, including, but not limited to, the Inspector's Project Manager's and Architect's fees and expenses, and the amount of the invoice of shall be deducted from the Contractor's via Change Order.

13.6 <u>TRENCH EXCAVATION</u>

.1 Trenches Greater Than Five Feet

Pursuant to Labor Code section 6705, if the Contract Price exceeds $25,000 and involves the excavation of any trench or trenches five (5) feet or more in depth, the Contractor shall, in advance of excavation, submit to the District, Project Manager or a registered civil or structural engineer identified by the District or Architect, a detailed plan showing the design of shoring for protection from the hazard of caving ground during the excavation of such trench or trenches.

.2 Excavation Safety

If such plan varies from the Shoring System Standards established by the Construction Safety Orders, the plan shall be prepared by a registered civil or structural engineer, but in no case shall such plan be less effective than that required by the Construction Safety Orders. No excavation of such trench or trenches shall be commenced until said plan has been accepted by the District or by the person to whom authority to accept has been delegated by the District.

.3 No Tort Liability of District

Pursuant to Labor Code section 6705, nothing in this Article shall impose tort liability upon the District or any of its employees.

.4 No Excavation Without Permits

The Contractor shall not commence any excavation Work until it has secured all necessary permits including the required CAL OSHA excavation/shoring permit. Any permits shall be prominently displayed on the Site prior to the commencement of any excavation.

13.7 WAGE RATES, TRAVEL AND SUBSISTENCE

.1 Wage Rates

Pursuant to the provisions of Article 2 (commencing at § 1720), Chapter 1, Part 7, Division 2, of the Labor Code, the District has obtained the general prevailing rate of per diem wages and the general prevailing rate for holiday and overtime work in the locality in which this public works project is to be performed for each craft, classification, or type of worker needed for this Project from the Director of the Department of Industrial Relations ("Director"). These rates are on file at the administrative office of the DISTRICT and are also available from the Director of the Department of Industrial Relations. Copies will be made available to any interested party on request. The Contractor shall post a copy of such wage rates at appropriate, conspicuous, weatherproof points at the Site.

Any worker employed to perform work on the Project, but such work is not covered by any classification listed in the published general prevailing wage rate determinations or per diem wages determined by the Director of the Department of Industrial Relations, shall be paid not less than the minimum rate of wages specified therein for the classification which most nearly corresponds to the employment of such person in such classification.

.2 Holiday and Overtime Pay

Holiday and overtime work, when permitted by law, shall be paid for at the rate set forth in the prevailing wage rate determinations issued by the Director of the Department of Industrial Relations or at least one and one-half (1½) times the specified basic rate of per diem wages, plus employer payments, unless otherwise specified in the contract documents or authorized by law.

.3 Wage Rates Not Affected by Subcontracts

The Contractor shall pay and shall cause to be paid each worker engaged in the execution of the Work on the Project not less than the general prevailing rate of per diem wages determined by the Director, regardless of any contractual relationship which may be alleged to exist between the Contractor or any Subcontractor and such workers.

.4 Per Diem Wages

The Contractor shall pay and shall cause to be paid to each worker needed to execute the Work on the Project per diem wages including, but not limited to, employer payments for health and welfare, pensions, vacation, travel time and subsistence pay as provided for in Labor Code §1773.1.

.5 Forfeiture and Payments

Pursuant to Labor Code §1775 the Contractor shall forfeit to the District, not more than dollar required by law for each calendar day, or portion thereof, for each worker paid less than the prevailing wages rates as determined by the Director of the Department of Industrial Relations, for the work or craft in which the worker is employed for any Work done under the Agreement by the Contractor or by any Subcontractor under it. The amount of the penalty shall be determined by the Labor Commissioner and shall be based on consideration of: (1) whether the Contractor or Subcontractor's failure to pay the correct rate of per diem wages was a good faith mistake and, if so, the error was promptly and voluntarily correct upon being brought to the attention of the Contractor or

Subcontractor; and (2) whether the Contractor or Subcontractor has a prior record of failing to meet its prevailing wage obligations. Further details regarding the enforcement of paying prevailing wage rates, reporting violations, withholding contract payments, forfeitures and hearing to review withholding of contract payments can be reviewed on the Department of Industrial Relations' website.

13.8 RECORD OF WAGES PAID: INSPECTION

.1 Payroll Records

Pursuant to section 1776 of the Labor Code:

(a) Each Contractor and Subcontractor shall keep an accurate payroll record showing the name, address, social security number, work classification and straight time and overtime hours worked each day and week, and the actual per diem wages paid to each journeyman, apprentice, worker or other employee employed by him or her in connection with the Project.

(b) All payroll records shall be certified and submitted to the District with each application for payment, but shall not be submitted less than once per month. All payroll records shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

(1) A certified copy of an employee's payroll record shall be made available for inspection or furnished to the employee or his or her authorized representative on request.

(2) A certified copy of all payroll records shall be made available for inspection or furnished upon request to a representative of District, the Division of Labor Standards Enforcement or the Division of Apprenticeship Standards of the Department of Industrial Relations.

(3) A certified copy of all payroll records shall be made available upon request by the public for inspection or for copies thereof. However, a request by the public shall be made through the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to Article (2) above, the requesting party shall, prior to being provided the records, reimburse the costs, according to law for the preparation by the Contractor, Subcontractor(s), and the entity through which the request was made. The public shall not be given access to such records at the principal office of the Contractor.

(c) The certified payroll records shall be on forms provided by the Division of Labor Standards Enforcement or shall contain the same information as the forms provided by the Division of Labor Standards Enforcement.

(d) The Contractor or Subcontractor(s) shall file a certified copy of all payroll records with the entity that requested such records within 10 calendar days after receipt of a written request.

(e) Any copy of records made available for inspection as copies and furnished upon request to the public or any public agency by the District, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or the Subcontractor(s) performing the Contract shall not be marked or obliterated. Any copy of records made available for inspection by, or furnished to, a joint labor-management committee established pursuant to the federal Labor Management Cooperation Act of 1978 (Section 175a of Title 29 of the United States Code) shall be marked or obliterated only to prevent disclosure of an individual's name and social security number.

(f) The Contractor shall inform the District of the location of all payroll records, including the street address, city and county, and shall, within five working days, provide a notice of a change of location and address.

(g) The Contractor or Subcontractor(s) shall have 10 calendar days in which to comply subsequent to receipt of a written notice requesting payroll records. In the event that the Contractor or Subcontractor(s) fails to comply within the 10-day period, the Contractor or Subcontractor(s) shall, as a penalty to the District, forfeit Twenty-Five Dollars ($25.00) for each calendar day, or portion thereof, for each worker, until strict compliance is effectuated. Upon the request of the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement, these penalties shall be withheld from progress payments then due.

The responsibility for compliance with this Article and the District's Labor Compliance Program shall rest upon the Contractor.

.2 Withholding of Contract Payments & Penalties.

The District may withhold or delay contract payments to the Contractor and/or any Subcontractor if:

(a) The required prevailing rate of per diem wages determined by the Director of the Department of Industrial Relations is not paid to all workers employed on the Project; or

(b) The Contractor or Subcontractor(s) fail to submit all required certified payroll records with each application for payment, but not less than once per month; or

(c) The Contractor or Subcontractor(s) submit incomplete or inadequate payroll records; or

(d) The Contractor or Subcontractor(s) fail to comply with the Labor Code requirements concerning apprentices; or

(e) The Contractor or Subcontractor(s) fail to comply with the District's Labor Compliance Program; or

(f) The Contractor or Subcontractor(s) fail to comply with any applicable state laws governing workers on public works projects.

Any withholding of contract payments and penalties are set forth in the District's Labor Compliance Program.

13.9 APPRENTICES

.1 Apprentice Wages and Definitions

All apprentices employed by the Contractor to perform services under the Contract shall be paid the standard wage paid to apprentices under the regulations of the craft or trade for which he or she is employed, and as determined by the Director of the Department of Industrial Relations, and shall be employed only at the craft or trade to which he or she is registered. Only apprentices, as defined in §3077 of the Labor Code, who are in training under apprenticeship standards that have been approved by the Chief of the Division of Apprenticeship Standards and who are parties to written apprenticeship agreements under Chapter 4 (commencing with §3070) of Division 3, are eligible to be employed under this Contract. The employment and training of each apprentice shall be in accordance with the apprenticeship standards and apprentice agreements under which he or she is training, or in accordance with the rules and regulations of the California Apprenticeship Council.

.2 Employment of Apprentices

Contractor agrees to comply with the requirements of Labor Code §1777.5. The Contractor awarded the Project, or any Subcontractor under him or her, when performing any of the Work under the Contract or subcontract, employs workers in any apprenticeable craft or trade, the Contractor and Subcontractor shall employ apprentices in the ratio set forth in Labor Code §1777.5. The Contractor or any Subcontractor must apply to any apprenticeship program in the craft or trade that can provide apprentices to the Project site for a certificate approving the contractor or subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. However, the decision of the apprenticeship program to approve or deny a certificate shall be subject to review by the Administrator of Apprenticeship. The apprenticeship program or programs, upon approving the Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Contractor or Subcontractor upon the Contractor's or Subcontractor's request. "Apprenticeable craft or trade" as used in this Article means a craft or trade determined as an apprenticeable occupation in accordance with the rules and regulations prescribed by the California Apprenticeship Council. The ratio of work performed by apprentices to journeyman employed in a particular craft or trade on the Project shall be in accordance with Labor Code §1777.5.

.3 Submission of Contract Information

Before starting commencing work on the Project, the Contractor and Subcontractors shall submit contract award information to the applicable apprenticeship program(s) that can supply apprentices to the Project and make the request for the dispatch of apprentices in accordance with the Labor Code. The information submitted shall include an estimate of journeyman hours to be performed under the Contact, the number of apprentices proposed to be employed, and the approximate dates the apprentices would be employed. A copy of this information shall also be submitted to the District if requested. Within 60 days after concluding work on the Project, the Contractor and Subcontractors shall submit to the District, if requested, and to the apprenticeship program a verified statement of the journeyman and apprentice hours performed on the Project.

.4 Apprentice Fund

The Contractor or any Subcontractor under him or her, who, in performing any of the Work under the Contract, employs journeymen or apprentices in any apprenticeable craft or trade shall contribute to the California Apprenticeship Council the same amount that the Director determines is the prevailing amount of apprenticeship training contributions in the area of the Project. The Contractor and Subcontractors may take as a credit for payments to the California Apprenticeship Council any amounts paid by the Contractor or Subcontractor to an approved apprenticeship program that can supply apprentices to the Project. The Contractor and Subcontractors may add the amount of the contributions in computing his or her bid for the Contract.

.5 Contractor Compliance

The responsibility of compliance with Article 13 and §1777.5 of the Labor Code for all apprenticeable occupations is with the Contractor. Any Contractor or Subcontractor that knowingly violates the provisions of this Article or Labor Code §1777.5 shall be subject to the penalties set forth in Labor Code §1777.7 and the District's Labor Compliance Program.

13.10 <u>ASSIGNMENT OF ANTITRUST CLAIMS</u>

.1 Application

Pursuant to Government Code section 4551, in entering into a public works contract or a subcontract to supply goods, services, or materials pursuant to a public works contract, the Contractor or Subcontractor offers and agrees to assign to the District all rights, title, and interest in and to all causes of action it may have under section 4 of the Clayton Act, (15 U.S.C. §15) or under the Cartwright Act (Chapter 2 [commencing with §16700] of Part 2 of

Division 7 of the Business and Professions Code), arising from the purchase of goods, services, or materials pursuant to the public works contract or the subcontract. This assignment shall be made and become effective at the time the awarding body tenders final payment to the Contractor, without further acknowledgment by the parties. If the District receives, either through judgment or settlement, a monetary recovery for a cause of action assigned under Chapter 11 (commencing with § 4550) of Division 5 of Title 1 of the Government Code, the assignor shall be entitled to receive reimbursement for actual legal costs incurred and may, upon demand, recover from the District any portion of the recovery, including treble damages, attributable to overcharges that were paid by the assignor but were not paid by the District as part of the bid price, less the expenses incurred in obtaining that portion of the recovery.

.2 Assignment of Claim

Upon demand in writing by the assignor, the District shall, within one (1) year from such demand, reassign the cause of action assigned pursuant to this Article if the assignor has been or may have been injured by the violation of law for which the cause of action arose and the District has not been injured thereby or the District declines to file a court action for the cause of action.

13.11 STATE AUDIT

Pursuant to and in accordance with the provisions of Title 29, Part 516 of the Code of Federal Regulations, or any amendments thereto, all books, records, and files of the District, the Contractor, or any Subcontractor connected with the performance of this Contract involving the expenditure of state funds in excess of Ten Thousand Dollars ($10,000.00), including, but not limited to, the administration thereof, shall be subject to the examination and audit of the Office of the Auditor General of the State of California for a period of three (3) years after final payment is made under this Contract. Contractor shall preserve and cause to be preserved such books, records, and files for the audit period.

13.12 PERFORMANCE AND PAYMENT BONDS

.1 Bond Requirements

Before starting any portion of the Work, the Contractor shall furnish separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and 100% payment of all obligations arising under the Contract Documents and/or guaranteeing the payment in full of all claims for labor performed and materials supplied for the Work. All bonds shall be provided by a corporate surety authorized and admitted to transact business in California as sureties. To the extent, if any, that the Contract Price is increased in accordance with the Contract Documents, the Contractor shall, upon request of the District, cause the amount of the bonds to be increased accordingly and shall promptly deliver satisfactory evidence of such increase to the District. To the extent available, the bonds shall further provide that no change or alteration of the Contract Documents (including, without limitation, an increase in the Contract Price, as referred to above), extensions of time, or modifications of the time, terms, or conditions of payment to the Contractor will release the surety. If the Contractor fails to furnish the required bonds, the District may terminate the Contract for cause. The Performance Bond form in section 00 50 02 is a mandatory form. The Payment Bond form in section 00 50 01 is a mandatory form.

.2 Surety Qualification

Only bonds executed by admitted Surety insurers as defined in Code of Civil Procedure section 995.120 shall be accepted. Surety must be a California-admitted surety and listed by the U.S. Treasury with a bonding capacity in excess of the Project cost.

.3 Alternate Surety Qualifications

If a California-admitted surety insurer issuing bonds does not meet these requirements, the insurer will be considered qualified if it is in conformance with section 995.660 of the California Code of Civil Procedure and proof of such is provided to the District.

.4 Stop Notice Release Bond Surety Different from Payment and Performance Bond Surety

Any stop notice release bond posted with the District for this Project must be issued from a surety that is not the surety that issued the payment bond or performance bond for this Project.

ARTICLE 14

14.1 TERMINATION BY THE CONTRACTOR FOR CAUSE

14.1.1 Grounds for Termination

The Contractor may terminate the Contract if the Work is stopped for a period of thirty (30) consecutive days through no act or fault of the Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons performing portions of the Work for whom the Contractor is contractually responsible, for only the following reasons:

(a) Issuance of an order of a court or other public authority having jurisdiction; or

(b) An act of government, such as a declaration of national emergency.

14.1.2 Notice of Termination

If one of the above reasons exists, the Contractor may, upon written notice of seven (7) additional days to the District, terminate the Contract and recover from the District payment for Work executed and for reasonable costs verified by the District and Project Manager with respect to materials, equipment, tools, construction equipment, and machinery, including reasonable overhead, profit, and damages.

14.2 TERMINATION BY THE DISTRICT FOR CAUSE

14.2.1 Grounds for Termination

The District may terminate the Contractor and or this Contract for the following reasons:

(a) Persistently or repeatedly refuses or fails to supply enough properly skilled workers or proper materials;

(b) Persistently or repeatedly is absent, without excuse, from the job site;

(c) Fails to make payment to Subcontractors;

(d) Persistently disregards laws, ordinances, rules, regulations, or orders of a public authority having jurisdiction; or

(e) Otherwise is in substantial breach of a provision of the Contract Documents.

14.2.2 Notification of Termination

When any of the above reasons exist, the District may, without prejudice to any other rights or remedies of the District and after giving the Contractor and the Contractor's surety, if any, written notice of seven (7) days, terminate the Contractor and/or this Contract and may, subject to any prior rights of the surety:

(a) Take possession of the Project and of all material, equipment, tools, and construction equipment and machinery thereon owned by the Contractor;

(b) Accept assignment of Subcontracts. Contractor acknowledges and agrees that if the District (in its sole and absolute discretion) decides to take over completion of the Project, the Contractor agrees to immediately assign all Subcontracts to the District which the District has chosen to accept; and

(c) Complete the Work by any reasonable method the District may deem expedient, including contracting with a replacement contractor or contractors.

14.2.3 Payments Withheld

If the District terminates the Contract for one of the reasons stated in Article 14.2.1, the Contractor shall not be entitled to receive further payment until the Work is complete. All costs associated with the termination and completion of the Project shall be the responsibility of the Contractor and/or its surety.

14.2.4 Payments Upon Completion

If the unpaid balance of the Contract Sum exceeds costs of completing the Work, including compensation for professional services and expenses made necessary thereby, such excess shall be paid to the Contractor. If such costs exceed the unpaid balance, the Contractor shall pay the difference to the District. The amount to be paid to the Contractor, or District, as the case may be, shall be certified by the Architect upon application. This payment obligation shall survive completion of the Contract.

14.3 TERMINATION OF CONTRACT BY DISTRICT (CONTRACTOR NOT AT FAULT)

14.3.1 Termination for Convenience

District may terminate the Contract upon fifteen (15) calendar days of written notice to the Contractor and use any reasonable method the District deems expedient to complete the project, including contracting with replacement contractor or contractors, if it is found that reasons beyond the control of either the District or Contractor make it impossible or against the District's interest to complete the work. In such a case, the Contractor shall have no claims against the District except: (1) the actual cost for labor, materials, and services performed which may be documented through timesheets, invoices, receipts, or otherwise, and (2) ten percent (10%) profit and overhead, and (3) five percent (5%) termination cost of the total of items (1) and (2). Contractor acknowledges and agrees that if the District (in its sole and absolute discretion) decides to take over completion of the Project, the Contractor agrees to immediately assign all Subcontracts to the District which the District has chosen to accept. Contractor also agrees and acknowledges that the compensation payable by this article 14.3.1 shall be the sole and exclusive compensation, damages and amount of money recoverable by Contractor for the District's termination of pursuant to this article 14.3.1.

14.3.2 Non-Appropriation of Funds/ Insufficient Funds

In the event that sufficient funds are not appropriated to complete the Project or the DISTRICT determines that sufficient funds are not available to complete the Project, DISTRICT may terminate or suspend the completion of the Project at any time by giving written notice to the Contractor. In the event that the DISTRICT exercises this

option, the DISTRICT shall pay for any and all work and materials completed or delivered onto the site for which value is received, and the value of any and all work then in progress and orders actually placed which cannot be canceled up to the date of notice of termination. The value of work and materials paid for shall include a factor of fifteen percent (15%) for the Contractor's overhead and profit and there shall be no other costs or expenses paid to Contractor. All work, materials and orders paid for pursuant to this provision shall become the property of the DISTRICT. DISTRICT may, without cause, order Contractor in writing to suspend, delay or interrupt the Project in whole or in part for such period of time as DISTRICT may determine. Adjustment shall be made for increases in the cost of performance of the Agreement caused by suspense, delay or interruption.

14.4 REMEDIES OTHER THAN TERMINATION

If a default occurs, the District may, without prejudice to any other right or remedy, including, without limitation, its right to terminate the Contract pursuant to Article 14.2, do any of the following:

(a) Permit the Contractor to continue under this Contract, but make good such deficiencies or complete the Contract by whatever method the District may deem expedient, and the cost and expense thereof shall be deducted from the Contract Price or paid by the Contractor to the District on demand;

(b) If the workmanship performed by the Contractor is faulty or defective materials are provided, erected or installed, then the District may order the Contractor to remove the faulty workmanship or defective materials and to replace the same with work or materials that conform to the Contract Documents, in which event the Contractor, at its sole costs and expense, shall proceed in accordance with the District's order and complete the same within the time period given by the District in its notice to the Contractor; or

(c) Initiate procedures to declare the Contractor a non-responsible bidder for a period of two to five years thereafter.

All amounts expended by the District in connection with the exercise of its rights hereunder shall accrue interest from the date expended until paid to the District at the maximum legal rate. The District may retain or withhold any such amounts from the Contract Price. If the Contractor is ordered to replace any faulty workmanship or defective materials pursuant to Article (b) above, the Contractor shall replace the same with new work or materials approved by the Architect and the District, and, at its own cost, shall repair or replace, in a manner and to the extent the Architect and the District shall direct, all work or material that is damaged, injured or destroyed by the removal of said faulty workmanship or defective material, or by the replacement of the same with acceptable work or materials. In no event shall anything in this Article be deemed to constitute a waiver by the District of any other rights or remedies that it may have at law or in equity, it being acknowledged and agreed by the Contractor that the remedies set forth in this Article are in addition to, and not in lieu of, any other rights or remedies that the District may have at law or in equity.

ARTICLE 15

15.1 COPY OF PAYMENT BOND MUST BE POSTED ON PROJECT SITE

Contractor shall at all times post a full and complete copy of the payment Bond for the Project in a conspicuous place outside of the Inspector of Record's trailer and/or outside the Contractor's trailer in an enclosure to protect the document from the elements so that said Payment Bond is easily readable by any person performing and/or furnishing labor, skills, material, equipment, supplies, apparatus and the like, to the jobsite. District has the right, but not the obligation, to post a copy of such bond at the Project site as well.

15.2 STOP NOTICE RELEASE BONDS REQUIRED

Should a stop notice claimant file a Stop Notice with the District regarding the Project, the District will notify the Contractor in writing of same and provide the Contractor with a copy of the Stop Notice. Contractor shall then immediately do one or more of the following: (1) obtain a release of the Stop Notice and provide the original thereof to the District; (2) use the summary statutory declaration procedure for challenging the Stop Notice; and/or (3) provide the District with a Stop Notice Release Bond from a surety separate from the surety that issued the Payment Bond and Performance Bond for the Project. If the Contractor does not use the summary statutory declaration procedure for challenging the Stop Notice, then if the Contractor has not provided the District with a release of the Stop Notice within seven (7) calendar days of the District giving written notice thereof to the Contractor, Contractor shall immediately provide the District with a Stop Notice Release Bond from a surety separate from the surety that issued the Payment Bond and Performance Bond for the Project. Should Contractor fail to do so, the District has the right, but not the obligation, to obtain such a bond and back charge the Contractor the cost thereof as well as any other costs, fees, and/or expenses the District incurs as a result thereof.

[END OF GENERAL CONDITIONS]

SECTION 00 40 01- SUPPLEMENTAL CONDITIONS

The following supplemental information modifies changes, deletes from or adds to the General Conditions of the Contract and supply in greater detail other clarifications and requirements of the contract documents for Construction. Where any article/paragraph of the General Conditions or other requirements is modified or any article, paragraph, subparagraph, or clause thereof is modified or deleted by these Supplemental Conditions, the unaltered provisions of that article, paragraph, subparagraph, or clause shall remain in effect.

A. LIQUIDATED DAMAGES:

LIQUIDATED DAMAGES: It being impracticable and infeasible to determine the amount of actual damage, it is agreed that the GENERAL CONTRACTOR will pay the DISTRICT the sum of **$500.00** per calendar day for each and every day of delay beyond the time set forth in Article 2 of this Agreement for completing said work as liquidated damages and not as a penalty or forfeiture. GENERAL CONTRACTOR shall pay a percentage of the liquidated damages commensurate with the GENERAL CONTRACTOR's responsibility for each calendar day of delay as determined by the Project Manager and the DISTRICT in completing the work within the stipulated time as a result of: (a) the GENERAL CONTRACTOR's failure to complete the Contract within the time specified in the Notice to Proceed and/or; (b) the GENERAL CONTRACTOR's failure to complete the Contract in accordance with the Project Schedule. In the event the same is not paid, the GENERAL CONTRACTOR further agrees that the DISTRICT may deduct such amount thereof from any money due or that may become due the GENERAL CONTRACTOR under the contract. This Article shall not be construed as preventing the DISTRICT from the recovery of damages under provisions of the contract documents.

B. Regarding General Conditions, section 00 40 00, Article 3.7.2 "SCHEDULE":

1. **Standard Work Hours:** Regular Construction Work Hours and Construction Site Access are Monday through Friday 7:00a.m. – 4:00pm. Schedule changes will need to be approved by Facilities Project Manager 2 days ahead of requested schedule change. Contractor can work weekends it decided. Contractor needs to notify and communicate this via schedule.

C. REGARDING INSTRUCTION TO BIDDERS, SECTION 00 20 00, EVIDIENCE OF RESPONSIBILITY

1. A bidder whose bid is under consideration for the award of contract **must** be available for a Post-Bid Interview at KVCR facility at San Bernardino Valley College on December 10th, 2018 between the hours of 8:00a.m – 12:00p.m. Bidders under consideration shall be contacted by Project Manager to schedule interview during above mentioned time frame.

~~D. CONSTRUCTION DOCUMENTATION MANAGEMENT TOOL:~~

~~1. The District is utilizing document management software for construction administration documentation.~~
~~2. CONTRACTOR shall utilize either Prolog Converge or eBuilder web based software as directed by the District for coordination of construction documentation and communication including but not limited to: RFI's, submittals, change order requests, change orders, construction directives, and punch lists, etc.~~
~~3. CONTRACTOR will be provided one (1) licensing access paid by the District.~~
~~4. Project Manager, CONTRACTOR, Architect and Project Inspector will utilize the document management software.~~

E. CONSTRUCTION DEMOGRAPHICS AND LOCAL HIRE REPORTING:

1. The Contractor will be required to submit monthly demographics/local hire work force and payment summaries with each progress payment. The District is requiring the General Contractor to provide

monthly reporting of workforce utilized on the project, separated by subcontract. In addition, the District will require monthly payment summaries corresponding to each employee wages, subcontractor progress payments and General Contractor payments. Furthermore, the General Contractor will be required to provide all local wages for local residents as shown on certified payroll, subcontract values, subcontractor payments differentiated by local vs. non-local. See Exhibit G for required monthly reporting forms.

F. NOTICE TO PROCEED MILESTONES:

1- Submittals and Material Procurement – Start after Notice to proceed being issued upon the District Board Approval in February 21, 2019 and execution of the contract.

2- Construction (121 Calendar Days) – Must start on March 1, 2019 upon issuing the NTP and must be completed no later than July 30, 2019. Shall consist of all general requirements, including but not limited to required surveys, submittals, deferred approvals, permits and approvals, pre-construction meetings and activities, site walks, long lead procurement requirements, hall off, installation, operation, final cleaning, submission of warranties and complete contract scope of work as defined in the project documents by **July 30, 2019.**

G. Completion Milestones:

1. Substantial Completion: (1) calendar day, within duration of NTP.
2. Punch list: (30) calendar days, within duration of NTP.
3. Final Completion (1) calendar day, within duration of NTP.
4. Notice of Completion (1) calendar day, within duration of NTP.

H. REGARDING CONTRACTOR LOGISTICS AND SITE CONTRAINTS:

1. Logistics: prior to commencement of WORK, CONTRACTOR shall prepare and submit to the Project Manager, a detailed PROJECT specific Site Logistics Plan in legible size, setting forth CONTRACTOR plan of WORK relative to the following items **(IF APPLICABLE)**:

a. Hauling route shall be in accordance with local ordinances. A truck access route to and from PROJECT site. Within the Campus, in accordance with Campus policies and procedures.

b. The identification of any overhead wire restrictions for power, lighting, signal or cable.

c. Pedestrian walkways and ADA pathway access and closure requirements.

d. Protection of sidewalk, walkways, pedestrians and vehicular traffic.

e. PROJECT site fencing and access gate locations.

f. Construction parking.

g. Material staging or delivery areas.

h. Material storage areas.

i. Temporary trailer locations.

j. Temporary service location and proposed routing of all temporary utilities.

k. Location of temporary or accessible fire protection.

l. Trash removal and location of dumpsters.

m. Concrete pumping locations.

n. Steel storing locations.

o. Operation equipment access route.

p. Crane locations.

q. Location of portable sanitary facilities.

r. Mixer truck wash-out locations.

s. Traffic control signage.

t. Perimeter and site lighting.

u. Stockpile or lay down areas.

v. Security lighting.

w. Fire Access.

x. Project signage locations.

2. Underground pipe and trenching for utility point of connections

3. Length of open trench at any one time to be coordinated with Project Manager and Campus and trench plate plan to be submitted for review and approval by District / Campus.

4. Utilities Services Shut Downs, Tie-ins and Start-Ups.

5. FF&E: When project has reached Substantial Completion, the Owner's Furniture, Fixtures and Equipment (FF&E) and Information Technology (IT) vendors may start delivery and installation of systems. CONTRACTOR will be required to coordinate and allow access for these items and any additional Owner vendors that are identified.

I. Constraints

1. **Work Restrictions:**

a. Construction work in surrounding area to be coordinated in advance. Contractor to submit Logistics Plan for approval prior to start of work. See section H above.
b. Construction shall not hinder the Campus ongoing operations for use of accessible paths of travel surrounding the impacted work areas.
c. Contractor shall coordinate construction operations with other District Contractors performing work within the Campus.
d. Construction shall not hinder ongoing Campus operations. Contractor shall maintain continuous uninterruptible utility services, (i.e. electric, phone, data, water, gas, sewer, security, fire alarm) to occupied buildings and/or modular classrooms.
e. Campus testing dates, graduation dates, and special events:
    i. No work allowed during campus VC Commencement ceremonies May 21-22, 2015.
    ii. Summer break conducted May 29 – August 10, 2019. (Campus will have limited student/staff onsite during this time frame)
    iii. Reference Exhibit J for full Academic Calendar.

2. **Building Shut Down Sequence Requirements:**

   a. Contractor to provide building shut down sequence as required to complete their work.

J. WORK REQUIRED UNDER THIS PROPOSAL INCLUDES, BUT IS NOT LIMITED TO THE FOLLOWING INCLUSIONS:

Project Construction provisions/Work:

~~1. Contractor shall provide provision for (10) ten temporary signage, and barricades as required for construction and trenching. Provide provision for traffic control, traffic re-routing and walkway/pathway/sidewalk alternate paths of travel and/or re-routing as necessary and required by conditions and progress of work. Directional signage is critical and shall be provided for review and approval to the Campus operations and student coordination as construction progresses at the construction site. Minimal signage requirements shall be defined as 24" x 36" polyvinyl waffle board signs with 4" lettering in contrasting colors, securely mounted to posts.~~

2. Contractor shall furnish, erect and properly maintain at all times, as directed by District, Project Manager, or Architect/Engineer or required by conditions and progress of work, all necessary safety devices as required by OSHA, city requirements and local jurisdictions, including but not limited to: safeguards, construction canopies, signs, audible devices for protection of the blind, ADA ramps, safety rails, belts and nets, barriers, lights, and watchmen for protection of workers and the public, and shall post danger signs warning against hazards created by such features in the course of construction at the Project construction site and throughout the Campus where any construction activities will occur.

~~3. Contractor to comply with applicable California Environmental Quality Act (CEQA) as required by the Program Environmental Impact Report (PEIR) and coordinate with the Project Manager to the items listed in Section 5.0 Mitigation Monitoring Program including, but not limited to:~~

~~a. Biological Resources: B-2, Cultural and Paleontological Resources: CR-1, CR-2, CR-5, Geology and Soils: G-1, G-2, Hazards and Hazardous Materials, if applicable: HAZ-1 though HAZ-13, Hydrology and Water Quality: H-1, Noise: N-1, N-2, N-3, N-4, N-5, N-6, N-7, N-8, N-9, N-10, N-12, N-15, . Contractors shall follow all directions given by the Project Manager. All requested work shall be at no extra cost to the Owner or Project Manager.~~

~~b. This project requires the following, but not limited to: nesting bird survey, archeological monitoring and Native American monitoring involving ground disturbances in undisturbed sediments. All construction activities shall ensure compliance with PEIR. The contractor shall familiarize themselves with all mitigation monitoring and coordinate with the Project Manager for all construction activities involving PEIR to ensure The District Consultant can be scheduled for the related activities with (2) weeks' notice.~~

4. Fence Plan: Contractor to coordinate actual fence location with the Project Manager and Campus to determine the perimeter locations. Fence plan parameters are defined on the exhibit and shall include construction screen. Submit fence plan showing the layout of the fencing to the Project Manager for approval prior to installing temporary fencing.

5. Contractor shall coordinate all deliveries, equipment and materials to be onsite within the construction temporary fence zone, no later than 7:00am. Deliveries will not be permitted during "off-hours" and weekends, without prior approval from Project Manager.

S. UTILITY WORK: If applicable

~~**1. IRRIGATION SCOPE OF WORK PROCEDURE:**~~

~~a. Irrigation scope of work will consist of tying into existing and active irrigation system that includes irrigation controllers and irrigation lines that control irrigation outside of the project site limits. Below is the procedure that will be followed:~~

~~b. District, Project Manager, CONTRACTOR, and Irrigation SUBCONTRACTOR will review state of existing irrigation systems and sign off on the condition of the entire system prior to any WORK performed by the CONTRACTOR. Once the condition of the system is signed off and while the CONTRACTOR is performing their required scope of work associated with the system the entire affected portions of the system will be deemed as being owned by the CONTRACTOR. It will be the responsibility of the CONTRACTOR to restore/return the system to its signed-off conditions at the completion of the CONTRACTOR'S irrigation scope of WORK.~~

~~c. CONTRACTOR to perform required irrigation scope of WORK and necessary WORK, to ensure irrigation system is returned to its signed-off condition.~~

~~d. Owner, Project Manager, CONTRACTOR, and Irrigation SUB CONTRACTOR will review completed irrigation scope of WORK and once it is verified and agreed upon that the irrigation scope of WORK is complete and the irrigation system is returned to its signed-off condition it will be turned over to the owner. In addition to the WORK specified, CONTRACTOR will be responsible for survival/ restoration of all existing plant material within limits of WORK but not specified on contract documents. CONTRACTOR will also be responsible for all existing plant material outside limits of WORK but dependent on irrigation system modified by the WORK in contract documents.~~

~~e. CONTRACTOR shall repair, fix and replace any landscape area valves/controllers and irrigation broken, damaged or disturbed during the course of construction with like materials at CONTRACTOR'S own cost.~~

2. UTILITY SCOPE OF WORK (IF APPLICABLE)

a. Contractor to coordinate, furnish and install all public utility service connections and provide all communication and scheduling.

b. All costs for public utility service installation fees.

c. *Regional Notification Center.* Contractor, except in an emergency, shall contact the appropriate regional notification center at least two working days prior to commencing any excavation if the excavation will be conducted in an area or in a private easement which is known, or reasonably should be known, to contain subsurface installations other than the underground facilities owned or operated by the District, and obtain an inquiry identification number from that notification center. No excavation shall be commenced and carried out by the Contractor unless such an inquiry identification number has been assigned to the Contractor or any subcontractor of the Contractor and the District has been given the identification number by the Contractor. Any damages arising from failure to make appropriate regional notification shall be at the sole risk of Contractor. Any delays caused by failure to make appropriate regional notification shall be at the sole risk of Contractor and shall not be considered for extension of time pursuant to Paragraph 8.4.

Utilities - Removal and Restoration

The District has endeavored to determine the existence of utilities at the Site of the Work from the records of the District of known utilities in the vicinity of the Work. The positions of these utilities as derived from such records are shown in the Contract Documents.

No excavations were made to verify the locations shown for underground utilities. The service connections to these utilities may not be shown on the plans. It shall be the responsibility of the Contractor to determine the exact location of all service connections. The Contractor shall make its own investigations, including exploratory excavations, to determine the locations and type of service connections, prior to commencing work, which could result in damage to such utilities.

The Contractor shall immediately notify the Project Manager as to any utility discovered by Contractor in a different position than shown in the Contract Documents or which is not shown on the Contract Documents.

Contractor shall coordinate its Work with all utilities, including, but not limited to electricity, water, gas and telephone and meet with said utilities prior to the start of any work.

Existing Utility Lines; Removal, Relocation

The contractor has the responsibility to identify, with reasonable accuracy, all utilities necessary to complete their scope of work. The Contractor shall exercise due diligence and shall not be compensated by the District for the actual verified cost of locating, and removing, relocating, protecting or temporarily maintaining existing utility services.

d. The District will furnish an existing utility survey as-built for reference.

e. The Contractor shall hire an independent underground utility locator service company to identify and verify existing underground utilities within the scope of work. All cost and fees associated with this work shall be at the Contractor's own expense and included in the base bid.

f. Upon completion of the independent underground utility locator survey and prior to any excavations, Contractor's project manager, superintendent and subcontractor are required to conduct an onsite field verification of existing conditions, shall mark-out the utilities, and transfer all information to a working utility as-built. Contractor's utility survey as-built shall be submitted to District.

g. In the event an existing utility service is interrupted or damaged the Contactor shall be required to make all necessary repairs within 4hrs. District, at their discretion, shall calculate and assess liquidated damages against the Contractor for disruption to Campus Operations, including but not limited to, extended loss of utility services resulting in shut down of classes, instructional labs, administrative offices, public safety offices, M&O offices and fire/life/safety services of students and staff. Contractor shall furnish to the District an on-call emergency repair contact list of contacts/companies, consisting of, but not limited to, fiber optics, communications, signal, gas, water, electric and sewer.

h. Adjustment of the Contract Amount, Milestones and/or Contract Time will be allowed to the extent the existence of such revealed conditions directly causes an increase in Contractor cost and/or time of performance of the Work shall be subject to the conditions noted above.

i. Contractor shall not be entitled to an adjustment in the Contract Amount, Milestones and/or Contract Time if: (1) Contractor was aware of the condition at the time of the bid; (2) The existence of discovery of the condition could have been discovered as a result of any examination,

investigation, exploration, test and/or examination of the Project Site and areas adjoining the Project Site as required by the Bid Documents prior to Contractor submission of Bid.

j. Contractor failed to provide notice in accordance with the General Conditions.

k. If the Contractor believes any subsurface or physical condition uncovered, revealed or otherwise exposed at the project site is of such character and/or nature as to require a change in the Contract Documents; materially different from that shown, indicated or described in the Bid Documents; or an unusual nature materially different from conditions normally encountered and generally recognized as inherent in Work of the character provided for in the Bid Documents, then Contactor shall upon discovery notify the District/Project Manager in writing within (1) one calendar day.

T. BUILDING CONNECTIONS:

1. Shutdowns to any utilities of existing Campus buildings shall be coordinated with the Project Manager and Campus. Notification to Project Manager and Campus must occur a minimum of 2 weeks prior to utility disruption and coordinated with Campus Operations.

2. Any and all stucco and plaster repairs to be included in Contractors bid for existing building connections, penetrations to be protected against inclement weather conditions, and patched immediately to ensure protection.

3. Contractor is responsible for any and all repair including but not limited to: paint touch-up, drywall repairs, asphalt, concrete, plaster, framing, electrical, plumbing, etc. as a result of scope of work.

~~**U. SWPP / BMPs / DUST CONTROL**~~

~~1. Furnish, install, monitor, document and maintain throughout the duration of the project, all SWPPP and BMP measures as required in the contract documents and state/local mandates or requirements. Measures include, but are not limited to stabilize construction entrances, silt fences, gravel bag barriers, catch basin, sediment barriers, fiber rolls, all details, and as required.~~

~~2. Provide dust control and cleanup of streets while on site. Streets must remain clean each day. Use street sweeper and hand sweeping as necessary to keep streets clean.~~

~~3. Contractor to comply with Storm Water Pollution control including conformance with erosion control plan and protection of own work as applies. Contractor is responsible to furnish, install and implement the erosion control plan complete per plans and specifications. Work is to include all sandbags, hay bales, swales, rumble pads, etc. as required to complete a system in compliance with all Federal, State, and Local requirements. All Contractors are responsible for repair and replacement of erosion control measures disturbed by or required by their own operations. Contractor shall follow all directions given by the Project Manager. All requested work shall be at no extra cost to the Owner or Project Manager.~~

V. WORK COORDINATION:

1. Contractor shall perform all construction activities as required per the contract documents, including but not limited to, removal and demolition of site areas, building elements and all connections as called out in drawings and site plans. Research existing record drawings and "as-built" for utility locations, "potholing" site as necessary to determine location of underground utilities, disconnecting, capping or sealing, and

removing site utilities, re-routing of existing underground utilities, and field surveys as directed by the Owner.

2. All required pothole utility operations, as required to verify exact locations of existing utilities. Contractor is required to utilize a utility locating company, and ground penetrating radar as necessary to avoid damage to any existing utilities which remain. Contractor to immediately repair any damaged utility lines at their own cost.

3. As applicable and as necessary to conduct scope of work, vacuum excavator to be used at existing utility locations/sites to provide maximum protection of existing utilities.

4. Maintain full, uninterrupted and continuous use of all existing water, sewer, gas, electrical, and telecommunications / low volt systems at all Campus buildings. Provide temporary measures as needed and or required in order to ensure that this requirement is continuously met. Make all required notification as required per the specification prior to any shut down of existing systems.

5. Irrigation and sprinkler heads to be capped off in any construction activity areas.

6. Maintain adjacent irrigation systems to maintain existing landscape past the limits of work.

7. Tree protection: Provide temp fence at drip line of all tress. No storage or equipment to be placed in these areas.

8. Coordinate with the Project Manager and Owner, the lineal footage of trenching to be opened at any one time. The construction activities cannot impede the operations of the campus. Construct and install as required, safety barricades and construction canopies for student and staff access to adjacent Campus Buildings and any area requiring coordination of egress and ADA access. Contractor shall provide trench plates at all open locations at the end of each day to provide pedestrian and vehicle access at all times.

9. Coordinate layout and sequence of work with other Contractors working on Campus. Bring to the attention of the Project Manager when coordination is required as related to Contractors scope of work.

10. Patch and repair pavement and resurface roadways where construction impacts have occurred.

11. Contractor shall remove and replace existing hardscape in kind.

V. SITE CLEARING AND DEMOLITION:

1. Contractor shall make note of any existing damage and notify the Project Manager prior to the start of work. Contractor to schedule a day with the Project Manager to walk the project site, adjacent off site, and building. Contractor to video tape existing condition and forward a copy of the video tape to the Project Manager for the District records prior to start of Construction. Any damage not noted and brought to the attention of the Project Manager, shall be repaired at the expense of the contractor.

2. Remediation and Abatement of any unforeseen Hazardous Materials will be required to be completed and proper clearance received by the District Environmental Consultant.

3. Site Lighting: Existing site lighting within the new building pad will need to be demolished and circuits retained to existing fixtures that are to remain to keep them operational.

4. Provide all site clearing and any demolition as required per contract documents, including but not limited to removal of all planting and landscaping material within areas of work including root systems, removal of existing site improvements, including asphalt paving, walkways, utility and irrigation system components, and related items, protection of existing trees to remain in planted areas, and demolition of structures as indicated on contract documents.

5. Removal of site concrete, walkways, and landscape as required for new construction. New walkways/pathways/sidewalks shall conform to ADA requirements.

6. All landscape repair and replacement due to construction activities indicated in contract documents are to be included in Contractors bid proposal.

7. Shoring where required. Shoring design, when required by state or safety regulations is to be prepared and stamped by an Engineer licensed with the State of California and all associated costs to be in the Contractors scope.

8. All OSHA approved temporary gang ladders, stairs, scaffolding, lifts and any other safety equipment as required accommodating the scope of work with all related permits, special permits as applicable and all height requirements accounted for.

9. All dewatering, pumping of rain water or minor ground water seepage as required for proper completion of the scope of work.

10. Daily cleanup of Contractor's debris, packing materials, boxes, daily trash: remove from site each day. Provide removal of debris from jobsite, including fees as necessary. Jobsite to be kept in a "broom-swept" condition at all times.

11. Prior to cutting concrete floors, walls or roofing: Contractor to provide x-ray to ensure rebar reinforcement is not removed.

12. Protection of all work and exteriors as necessary to prevent water damage to the interior from irrigation or weather elements.

13. Provide all weight and disposal tickets as necessary to comply with contract documents.

14. Include all necessary / incidental demolition to access areas that are schedule to be removed or connected as necessary.

15. Interior: Repair any walls or ceilings damaged as a result of connections to the existing buildings during demo or modification as necessary to install the scope of work. Exterior: Repair any roofing, plaster, finishes, concrete, etc. or related materials as necessary to install scope of work.

16. Protect all structures, appurtenances, equipment, finishes, etc. scheduled to remain as a result of new construction, repair work or connections to all existing buildings. Contractor shall take necessary provisions to provide protection measures for existing ornamental and architectural existing finishes to remain in place. Items to be protected in place are including but not limited to, theatrical audience chairs, windows, ceilings, architectural tiles and lights.

17. Provide appropriate caps or safe-off as required at Applied Technology Project construction site.

18. Contractor to provide all safety measures at any opening in roof, wall, floor or trench to meet all regulatory requirements.

W. HAZARDOUS REMEDIATION WORK:

1 *Lead-containing paints, coatings, and glazings are known to be present on the project site. Owner has a zero-tolerance policy for uncontrolled lead releases during Lead Related Construction Activities. At no added cost to the Owner, all project site trades shall ensure compliance with California Code of Regulations Title 8 Section 1532.1 Lead. Each employer who has a workplace or operation covered by this standard shall initially determine if any employee may be exposed to lead at or above the action level and take all necessary steps to comply with the regulations.*

2 Unforeseen asbestos, lead and transite or any other hazardous materials will be addressed through the allowances.

3 All hazardous materials which will be impacted during the demolition in the subject project are to be removed as part of this project scope.

4 Provide copies of all required notifications / certifications to the Project Manager and environmental consultants, as applicable.

5 During all work, provide monitoring and worker protective equipment in accordance with the California Occupational Safety and Health Administration (Cal-OSHA) and as required by all regulating agencies. Where there is conflict, the most stringent requirement shall apply.

6 Contractor shall provide all specialized staff to demo and legally dispose of any transite, lead asbestos, or any other hazardous materials as encountered. Contractor shall have staff with lead awareness training and/or any required hazardous abatement material training, as required to perform your work and all work will be scheduled for monitoring through the Project Manager for the District's Environmental Consultant: Citadel Environmental.

7 The abatement workers shall have received Cal-OSHA accredited training and be certified for asbestos abatement work. All removal and disturbance of asbestos-containing materials shall be performed by an asbestos abatement contractor, using 32-hour asbestos certified workers (Asbestos Worker trained as outlined in 40 CFR 763). Abatement contractor's workforce shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of asbestos-containing and/or asbestos-contaminated materials, and the subsequent cleaning of contaminated areas, including, at a minimum, Competent Person/Contractor Supervisor training as outlined in 40 CFR 763.

8 All removal and disturbance of lead-based materials shall be performed by a state-licensed contractor, using CDPH-certified workers with at least one CDPH-certified Supervisor. All removal and disturbance of lead-containing materials (not meeting the definition of "lead-based) as defined in 8 CCR 1532.1, shall be performed by a state-licensed contractor, using lead-trained workers with certification of training meeting the requirements of 8 CCR 1532.1. Abatement contractor's workforce shall be supervised by experienced persons trained, knowledgeable and qualified in the techniques of lead abatement, handling and disposal of lead-containing and/or lead-contaminated materials, and the subsequent cleaning of contaminated areas.

9 When exposure monitoring of a particular lead-related task indicates that the permissible exposure limit (PEL) is or will be exceeded, the contractor shall use CDPH-certified lead workers to complete the task. Contractors performing work that disturbs any Lead Containing Materials

(LCM) must submit proof of negative exposure assessment (NEA) if personal protective equipment is not to be used. It is necessary for the Contractor to coordinate all lead-related construction work with the specifications and all regulating agencies. During all work, provide monitoring and worker protective equipment in accord with the California Occupational Safety and Health Administration (Cal-OSHA) and as required by contract documents. Where there is conflict, the most stringent requirement shall apply.

10 For Cal/OSHA compliance purposes, all other painted, varnished, and glazed lead-containing surface coatings (LCSCs) require that contractors performing activities that will disturb these surfaces/materials comply with the requirements of 8 CCR 1532.1. These surfaces were identified in the above-referenced report to have detectable levels of lead, at concentrations less than 0.7 mg/cm^2 lead (the LBP standard) by X-Ray fluorescence.

11 Contractor shall utilize employees with HAZWOPER training, as outlined in 29 CFR 1910.120 and 8 CCR 5192, when handling all "other" hazardous materials, including fluorescent light ballasts and tubes, mercury switches, refrigerants, batteries, and the like.

12 Contractor shall furnish all labor, materials, services, insurance (specifically covering the handling and transportation of asbestos, lead, and other hazardous materials), and equipment which is specified, shown or reasonably implied for the removal, transport, and disposal of the hazardous materials.

13 The Work may include the removal, transport, and disposal of the following contaminated Materials:

a. All hazardous materials identified.

b. All materials used for work area preparation.

c. All discarded personnel protective equipment.

d. All other potentially contaminated materials.

14 Damages caused during the performance of abatement activities shall be repaired by Contractor (e.g. paint peeled off by barrier tape, nail holes, water damage, etc.) at no additional expense to Owner, unless other arrangements and approval have been provided by the Owner.

15 Contractor to perform this work shall be licensed by the State of California, Contractors State License Board and be registered to perform asbestos related work with the Division of Occupational Safety and Health, Department of Industrial Relations.

16 Transportation of Friable and Non-Friable Asbestos Containing Materials:

a. Contractor shall itself be or have a subcontractor who is a registered hazardous waste transporter with the State of California, Department of Toxic Substances Control.

17 Subcontractors shall hold all licenses applicable to specified trade work.

18 Comply with all federal, state, and local regulations pertaining to asbestos removal, storage, transportation and disposal; employee health and safety; Contractor certifications; and all licenses, permits, and training.

19 Contractor shall provide all labor, material, and equipment for PCB containing material removal, abatement and disposal in association with all demolition or connections to existing buildings. Workers involved in the removal of PCBs shall have received specific training on the hazards, appropriate personal protection and decontamination procedures associated with PCBs.

20 Contractor shall provide proper notification and obtain proper permits for the AQMD Air Quality District prior to start of work.

21 Contractor to keep all required paperwork onsite for review by AQMD.

X. ALLOWANCES:

Allowances to be included in the total bid amount as identified below. Use of any allowance will be at the sole discretion of the Owner/Project Manager and must be authorized in writing at the discretion of the Owner/Project Manager. No General Contractor or Subcontractor overhead and profit markups will be allowed on any allowance items. Any money used from the Allowances will be processed for payment to the Contractor using the District's Allowance distribution form. Any amount of money remaining in any of the Allowance line items upon completion of the Project will be deducted from the Contract by Deductive Change Order for the full amount(s) remaining therein. The Contractor has no beneficial interest in, and/or claim to, the Allowances and hereby disclaims any and all such interests.

BID ALLOWANCE	DESCRIPTION	VALUE ($)
ALLOWANCE NO. 01	Unforeseen Conditions and Not Included in the Scope of Work such as but not limited to hazardous remediation and light fixture changes.	$ 50,000.00

Allowance Subtotal **$ 50,000.00**

~~Y. CONCRETE WORK FOR ADA REPAIR OF SIDEWALKS, PATHWAYS, WALKWAYS:~~

~~1. Concrete allowance shall be used at Owners discretion. Allowance to be used for flatwork currently not identified in the drawings. All flatwork currently identified in the drawings shall be in Contractors bid proposal.~~

~~2. All concrete work and concrete repair work which will be impacted during the demolition and construction operations for the project are to be removed as part of this project scope and replaced as ADA compliant throughout the project.~~

~~3. Concrete panel Joint to joint replacement for a uniform and code compliant walkway. Demolition and concrete removal of panels to be joint to joint. Saw cutting to existing joints, reference drawings to replace existing concrete per section, contractor to match finish, color and grades to existing concrete and maintain positive drainage. Cross slope shall not exceed 2% maximum.~~

~~4. Provide flush transition and replace accessible slopes where accessible walkways are disrupted.~~

~~Z. CONCRETE WORK~~

~~1. All pumping, placement, and finish of concrete as required.~~

2. ~~Concrete trucks to be washed out at an area as designated by Project Manager. Washout and containment receptor shall be water tight to not allow leakage. Contractor shall be responsible for containment and removal of washout debris and any other hazardous waste, including water, generated by its operation to a legal dumpsite offsite. No pit clean out areas will be allowed.~~

3. ~~Provide all forming of concrete at retaining walls, patch back, sack, and slurry.~~

4. ~~All placement of all concrete and finishing as required per the contract documents requirements.~~

5. ~~All OSHA approved temporary gang ladders, stairs, scaffolding, lifts and any other safety equipment as required to accommodate scope of work.~~

6. ~~Provide concrete mix design from a primary and secondary supplier in case of material shortage.~~

7. ~~Provide all rigging, storing, and hoisting of concrete reinforcement as required for the scope of work. Reinforcement steel and/or mesh to be stockpiled to an area designated by Project Manager.~~

8. ~~All backfilling and compaction of soil and/or base against walls.~~

9. ~~Furnish and install all grouting and dry packing associated to the concrete activities~~

10. ~~All sacking and patching of concrete work, as required.~~

11. ~~All caulking, expansion joints, construction joints, backer rods and joint sealing at flat work and wall joints as indicated on the contract documents.~~

12. ~~All concrete additives as required.~~

13. ~~Provide rebar caps as required by OSHA.~~

AA. TEMP FACILITIES / TEMP UTILITIES

1. Contractor to provide and pay for the following: temp fencing, temp toilets, dumpsters, hand washing stations, water, electrical, phone, trailer, temp power, job site water, drinking water, data and security for the duration of the project. ~~All temporary utilities required by the Contractor are required to be metered separately.~~

BB. GENERAL WORK REQUIRED

1. Any haul routes to be coordinated with Campus operations, Project Manager and any city or agency requirements and ordinances, including permits. .

2. Permits / Fees / Agency Notification / Compliance / Ordinances

3. Any and all other permit and/or service fees, assessments, or bonding required in conjunction with the work of this Contractor shall be the responsibility of the Contractor.

4. All notifications with various agencies required in the performance of the work shall remain the responsibility of the Contractor.

5. Compliance with regulatory agency, organization, and governing body requirements having jurisdiction over Contractors scope of work.

6. Contractor shall provide all necessary safety measures required for each work area including but not limited to: Temporary fencing with privacy screen as required, completely securing, and controlling each work area. Contractor shall move fencing as required to each area of work as required. Submit plan showing the layout of the fencing to the Project Manager for approval prior to installing temporary fencing. Temporary fencing shall be minimum 6' high relocatable fence panels (as appropriate). Fence panel bases shall be located to avoid trip hazards in all paths of travel. Barricades, traffic plates, temporary patching, temporary signage required for safely delineating all detours, road lane and pathway closures and rerouting, traffic control, safety warnings.

7. Contractor shall prepare and submit to the Project Manager for approval a traffic control and pedestrian pathway control plan prior to starting work in any area cover by the scope of work for review. Traffic control plan as required to be approved by the City jurisdiction.

8. There may be other District Contractors involved in the project or working on the Campus. It is the responsibility of this Contractor to be aware of other operations with the coordination of the Project Manager, and be aware of all others working in order to coordinate work accordingly.

9. Prior to use of bobcat or any equipment involving 2nd floor or roof, contractor to provide engineers statement that the weight of the equipment is appropriate to use for the floor design criteria.

10. Contractor shall furnish to the Project Manager at the end of each day, completed daily reports, and safety meeting reports. Reports shall include: name of each worker performing work each day, classification for each worker employed on the project (including any sub-tier subcontractors' workers), a description of work performed, and any equipment used for each day. Contractor forms to be provided by Project Manager. Current daily reports are a condition of release of monthly payment to the Contractor.

11. Responsibility for storage and security of own materials and/or equipment located on and off the jobsite property. Location of staging area to be determined / approved by Project Manager. Own work shed, yard, lighting and security fence, if required for storage.

12. Contractor shall be responsible to provide and maintain adequate dust control and street cleaning all areas of work and public pathways, haul routes and campus streets and walkways throughout the duration of their scopes of work. These measures must be done to the satisfaction of the District and Project Manager.

13. Off-loading, scaffolding, ladders, hoisting and moving of materials and/or equipment for own work.

14. Contractor is responsible for temporary power, portable lighting and extension cords necessary to complete the scope of work. Contractor will be responsible to provide general egress/ingress pedestrian, parking lot, walkway, safety, etc. OSHA required temporary lighting. Contractor shall provide their own task lighting, including any extension cords, generators and light stands as may be required.

15. Provide and maintain dewatering operation as required to eliminate ponding of water immediately after rainfall has occurred in order to allow these areas to dry out as quickly as possible. Dewatering to be done by whatever means necessary, including mechanical pumps, siphons, etc.

Any SWPPP measures defeated or removed in the dewatering process shall be replaced per the posted SWPPP plan by the Contractor. Dewatering for grading operation, trenches, footings, pits, slab areas, etc., shall be done immediately by Contractor.

16. Upon failure by Contractor to provide sufficient cleanup, and after 24-hour Notice, Project Manager will perform the cleanup and assess all costs against the Contractor's Contract, which have failed to perform clean up. If lack of cleanup results in an immediate safety concern to public safety the District and Project Manager shall have right to correct any situation.

17. Contractor is responsible for environmental conditions (i.e. temperature, moisture, etc.) affecting own work.

18. Provide survey, layout and field measurements for own work.

19. Safety requirement for own work, in compliance with most recent OSHA regulations Specification Section 01 4005 and in cooperation with the District's safety requirements. Hardhats, boots, eye protection, long pants and shirts, and 100% tie off are required for all personnel at all times during construction of the Project. Failure to comply with any Safety Regulations will be grounds for removal of personnel from the jobsite. Flammable products must be continually stored per OSHA regulations**.**

20. Job hazard analysis, IIPP, site specific safety plan must be submitted to Project Manager prior to commencement of work.

21. Contractor to comply with all ordinances regarding parking, hours of work and routing of delivery trucks to the project site, and as required by the District and Campus management staff.

22. Contractors and employees will be required to park in designated areas as directed by the Project Manager. No parking will be allowed within Campus student/staff/employee lots. Contractor shall provide provisions as required for own employees, equipment, suppliers and sub-tier contractors.

23. Compliance with specified warranty and guarantee requirements, both standard and special.

24. Provide one qualified Superintendent and one lead foreman for the duration of own work on project, including punch list corrections at completion of project. Superintendent and/or Foreman must be on-site when work is being performed. Superintendent / Foreman may not be changed without Project Manager's approval.

25. Attendance at jobsite coordination, scheduling and safety meetings shall be by the Contractors Project Manager and Superintendent at a minimum.

26. Multiple move-ons to comply with the project's schedule or as required.

27. Provide relocation of staging area as necessary due to construction progress and as directed by Project Manager.

28. Contractor has primary responsibility for locating existing utilities prior to commencing underground work. Contractor must make own notification to required agencies and hold a pre-dig conference prior to starting underground work. Contractor should not rely on any representation made by anyone other than those individuals duly authorized to survey, locate and stake existing utilities. All utilities slated for removal or cap off must be potholed and exposed prior to removal

of cap off. Should location of utilities differ from those shown on the contract documents contractor shall make every effort to locate said at no cost to the District.

29. All welding required for own work. Submit current and valid welder's certifications prior to beginning any welding installation on site for IOR, District or Project Managers review.

30. Additional testing costs as required should initial tests fail as a result of the scope of work.

31. All project record documents as required per plans and specifications. Monthly updates of as-built documents on record plan set, and transfer to project as built set at end of the project as required by specifications. Update as-built drawing on a weekly basis.

32. All project record documents as required per plans and specification.

33. Contractor is responsible for access onto the site for scope of work (i.e. cranes, concrete trucks, etc.)

34. Contractor shall be responsible for coordinating the structural drawings with architectural, mechanical, electrical, plumbing, civil, and general for all aspects and coordination of work.

35. Warranty period starts at Notice of Completion for all systems of the Applied Technology Project. All systems must be operational and accepted by the owner.

~~CC.~~ **~~COORDINATED DRAWINGS~~**

1. ~~Submit drawings that indicate routing, locations sizes, types and number of components in concealed spaces where potential conflict may occur between structures, mechanical, electrical, Automatic Fire Sprinkler System (AFSS), communications and ceiling suspension systems.~~

2. ~~Indicate locations of ceiling penetrations and surface mounted items. Provide cross sections at areas to indicate proper support of ceilings and non interference with work of other Sections of specifications. Cross sections shall indicate coordination required and proposed solutions for routing of elements where potential conflict exists. Reproduction of Architect's reflected ceiling plan is not acceptable~~

3. ~~LEAD PAINT: indicate proposed routing of electrical conduit, mechanical piping and ductwork, and miscellaneous framing before demolition or removal of painted surfaces, which may penetrate or disturb existing surfaces so in event of lead paint existence, accurate locations and scope of Work to abate lead paint can be determined by Owner.~~

4. ~~Drawings shall be based on field measurements, shop drawings and product data.~~

5. ~~Conflicts shall be brought to Architect's attention immediately.~~

6. ~~Submit to Architect, in writing, requests for clarification or interpretations that will affect intent and/or scope of Contract Documents.~~

7. ~~Coordinated drawings shall indicate each class of Work in affected area. Drawing or written submittal shall include Contractor's recommendations for solution of any potential conflicts as well as recommendations tendered by any Work of any Section of Specifications which may be affected thereby.~~

8. ~~Submit coordinated drawings in scale of not less than 1/8" = 1' 0" with necessary sections and profiles at an appropriate, clearly readable enlarged scale. Submit coordinated drawings as one electronic (CD) copy and one bond (hard) copy.~~

9. ~~Architect will review submittals, make appropriate notations and comments to ensure solution meets intent of Contract Documents and then return to Contractor for implementation.~~

10. ~~Contractor shall be responsible for proper coordination of Work of Sections of Specifications in execution of coordinated drawings. Installation of materials, components or equipment under one Section of Specifications without full and complete, agreement, knowledge and consent by fabricators of adjacent or otherwise related or affected Work will not be approved.~~

11. ~~It shall be incumbent upon Contractor that fabricators of Work involved in execution of coordinated drawings be informed, consulted and advised in sufficient advance time to arrive at solutions where no extension of contract time for extra cost to Owner will be approved due to Contractor's negligence in expeditious, timely submittal of coordinated drawings.~~

EXHIBIT C

PROJECT SPECIFICATIONS

SECTION 01 20 00 - PRICE AND PAYMENT PROCEDURES

PART 1 – GENERAL

1.1 SECTION INCLUDES

This section specifies administrative and procedural requirements for a certified Application for Payment.

RELATED DOCUMENTS OR SECTIONS

Document – 00 50 00 Owner Contractor Agreement
Document – 00 40 00 General Conditions
Section 01 33 00 – Submittals
Section 01 77 19 – Contract Close-out

1.1.1 This Section specifies administrative and procedural requirements governing the Contractor's Application for Payment.

1.1.2 Submit Applications for Payment to Project Manager in accord with the schedule established by this Section, the Conditions of the contract and agreement between Owner and Contractor.

1.1.3 Related Requirements in other parts of the Project Manual:

1.1.3.1. Contract Sum and Payments: Agreement between Owner and Contractor.

1.1.3.2. Progress Payments, retention and final payment: Conditions of the Contract

1.1.3.3. Contract Close-out: Section 01 7719

1.1.3.4. Project Construction: Section 01 32 16

1.2 FORMAT AND DATA REQUIRED

1.2.1. Format and content: Use the Project Manual Table of Contents as a guide to establish the format for the Schedule of Values.

1.2.2. Submit itemized applications typed on AIA Document G702/CMA, application and Certificate for Payment and continuation sheets AIA Document G703/CM.

1.2.3. Provide itemized data on continuation sheet:

1.2.3.1. Format, schedules, line items and values: Those of the Schedule of Values accepted by the Project Manager.

1.2.3.2. Obtain signature of Resident Inspector on each application prior to submittal to Project Manager.

1.2.4. SCHEDULE OF VALUES

1.2.4.1 Within 10 days of award of contract, the Contractor shall submit to the Project Manager a schedule of values allocated to the various portions of the work in sufficient detail and supported by such data to substantiate its accuracy as the Project Manager and the Owner may require. This schedule, when approved, shall be used as a basis for the Contractors applications for payment. The Schedule of Values shall be aligned with the Specification Section 01 32 16.

1.2.4.2 Should the Contractor and the Owner not come to agreement on the schedule of values by the expiration date of the "interim Schedule", the Owner shall prepare a schedule of values which shall then be used for the remainder of the Project to determine the compensation payable to the Contractor under the Agreement."

SCHEDULE OF VALUES

Submit type schedule complying with the format established in this section. Contractor's standard form or electronic print out format may be considered, at Project Manager's discretion.

Identification: Include on Schedule of Values the following:

- Project Name and Location
- Contract/Purchase Order #
- Contractor's Name and Address
- Date of Submittal

Format: Type in tabular form with separate columns to indicate the following for each item listed

- Work Task Name, using Project Manual Table of Contents as a content guide.
- Related Specification Section
- Name of Subcontractor
- Description of Work
- Name of manufacturer or fabricator where applicable
- Name of supplier where applicable
- Change Order amounts allocated to the line item
- Total Dollar value of item
- Percentage of contract sum represented by item, rounded to nearest one hundredth percent, adjusted to total 100 percent.
- Correlate line items with terms and identification used in other administrative work items, including schedules, list of subcontractors, list of products and suppliers, and submittal schedule.

Provide schedules as follows:

Provide separate schedule of values for each section of the building I.E. – basement, 1st floor west, 1st floor east, second floor east second floor west, Roof, site work.

Provide separate schedule of values for site work, broken down by phases where applicable- refer to project Schedule Section 01 32 16.

Where an Application for Payment may include requests for equipment, components or materials purchased, stored or fabricated, but not yet installed, provide separate line item on the schedule- activities breakdown for such items. Breakdown such line items to include component, equipment or material cost for each phase or sequence of construction, with associated staging, transport and installation cost- refer to Section 01 32 16.

The total of the amounts of all scheduled line items shall equal the Contract Sum. Refer to Specification Section 01 32 16. Round amounts to the nearest dollar.

Provide separate line item for Contractors overhead and profit. Refer to Specification Section 01 32 16.

Revise schedule to list approved Change Orders and Construction Change Directives, and submit with each Application for Payment.

The amounts shown on Schedule of Values or/and shown on the detailed schedule breakdown for tasks and activities may be used by Owner to determine the true value for additive or deductive change orders.

Temporary facilities and other cost items that are not direct cost of actual work-in-place shall be shown as separate line items. Contractor must clearly identify what is included in each line item. Project Manager will request specific back-up for line items as deemed necessary.

An approved Schedule of Values with the associated cost loaded work activities shall serve as the basis for the monthly certified Application for Payment. All work activities shall be cost loaded and will be the basis for payment during the beginning months of the project. All activities must be assigned cost account(s) to align with the approved Schedule of Values- refer to Section 01 32 16. The Critical Path Method Schedule to be prepared by the Contractor pursuant to this section will be a part of a total system for scheduling, reporting work progress, and preparing the monthly payment application.

If at any time, Owner determines in its reasonable discretion that the Schedule of Values does not approximate the actual cost being incurred by Contractor to perform work, Contractor shall prepare for Project Manager approval, revised Schedule of Values with detailed cost loaded work activities breakdown, which then shall be used as the basis for future progress payments. Without changing the contract amount, Owner reserves the right to require Contractor:

1. To increase or decrease amounts within the line items in the Schedule of Values; and,
2. To conform the price breakdown to Owner accounting practice.

Contractor shall submit five (5) certified copies of a Schedule of Values for review and approval by the project Manager at least (14) days before the first application for Payment.

Any requested revisions shall be corrected and returned within (3) days of receipt.

An approved copy of the Schedule of values shall be transmitted by Project Manager to Contractor and IOR.

1.2.5. APPLICATIONS FOR PAYMENT

1.2.6. Prior to the date for each progress payment review established in the Construction Procedures Manual, the Contractor Shall submit to the Project Manager a copy of the schedule with that show the activities earned values and percentage of completion for physical work proposed by the Contractor that aligned with the overall Schedule of Values, refer to Section 01 32 16. The Official Contract Schedule shall be a CPM schedule. Activity costs shall correlate with the Schedule of Values. The activities of the Contract Schedule shall be from the Schedule of Values line items and shall be the basis for establishing the distribution of costs within the Schedule of Values. Costs relating to each activity shall be distributed evenly over the duration of the activity. The Schedule will be the basis for payment. Refer to Article 9 for general conditions.

Content and Format: Utilize Schedule for activities that align with Schedule of Values for listing items in Application for Payment.

Payment Period: Monthly, scheduled as defined in General Conditions
Submit application on AIA form G702 Application and Certificate for Payment as follows:

Submit initial rough draft of pay application to Project Manager for review- refer to Specification Section 01 32 16.

Project Manager will return initial rough draft of pay application to Contractor following review.

Submit six copies of adjusted pay application to Project Manager, consisting of 3 complete copies with all back-up and justification, 2 partial copies (cover sheet, schedule of values, schedule showing the percentage of completion for activities and releases) and pencil copy showing corrections required by Project Manager on initial rough draft.

Submit conditional lien releases for work covered by current application warranting that title to all work, labor, materials and equipment covered by the application is free and clear of all liens, claims, security interests or encumbrances, and notarized unconditional releases for work covered by previous month's billings.

Complete every entry on the form, including notarization and execution by person authorized to sign legal documents on behalf of the Contractor. Incomplete applications will be returned without action.

Transmit each copy with a transmittal form listing attachments, and recording appropriate information related to the application in a manner acceptable to the Project Manager.

Include a current fully executed Demographics Monthly Summary Reporting Form located in specification section 01 2614 with the monthly payment application, submitted in hard copy and electronic format (excel).

Entries shall match data on the Schedule of Values and Contractor's Construction Schedule per Section 01 32 16. Use updated schedules if revisions have been made. Include amounts of Change Orders and Construction Change Directives issued prior to the last day of the construction period covered by the application.

The initial Application for Payment and final Application for Payment involve additional requirements.

Initial Application for payment within 60 days of NTP: Administrative actions and submittals that must precede with submittal for first verified Application for Payment include, but are not limited to:

1. Certified Schedule of Values
2. Performance and payment Bonds
3. List of principle suppliers and fabricators
4. Workers compensation certificates, if applicable
5. Auto Insurance , if applicable
6. Hazard Material Insurance certificate, if applicable
7. Construction Schedule (refer to Section 01 32 16)
8. Submittal Schedule
9. Emergency Contact list
10. Emergency Contact List of repair vendors such as fiber optics, gas, electric, sewer, etc.
11. Copy of licenses from governing authorities for performance of work
12. Certified payroll
13. Storm Water Pollution Prevention plan (SWPPP), if applicable
14. Certificate of Compliance with CEQA Mitigations, if applicable

1.2.7. At a meeting held on or before the ***23rd*** of each month, the Project Manager, Inspector, and Contractor will review the contractors proposed percentages of completion and agree on a final percentage to be paid for the month.

1.2.8. Release of Liens: Following agreement on percentage of completion, Contractor shall submit a conditional lien release warranting that title to all work, labor, materials and equipment covered by the invoice is free and clear of all liens, claims, security interests or encumbrances. With each subsequent application, Contractor shall submit a notarized unconditional lien release for the previous applications, and conditional lien release for the current application.

- In addition to releases from the contractor, each pay application shall include lien releases from every subcontractor listed at the time of the bid and every vendor who has filed a prelim notice for the project.
- An unconditional progress payment release which covers the period previously submitted by the contractor and paid for by the District and a conditional progress payment release for the current pay period being submitted.
- A conditional final upon final payment will be required for the retention pay app to be processed.
- No pay app will be processed until all releases have been received.

1.2.9. The Signing of a certificate for payment will constitute a representation by the Project Manager and Inspector to the Owner that, based on their observations at the site, and the data comprising the application for payment, the work has progressed to the point indicated and that, to the best of their knowledge, information and belief, the quality of work is in accordance with the Contract Documents and that the contractors are entitled to payment in the amount certified. However, by signing a certificate for payment, the Project Manager shall not thereby be deemed to represent that the Project Manager either has made exhaustive or continuous on site inspections to check the quality or quantity of the work, that either has reviewed the construction means, methods, techniques, sequences or procedures, or that either has made an examination to ascertain how or for what purpose the Contractors has used the previous payments paid on account of the contract sum.

1.2.10 Payments may be made by the Owner, in its sole discretion, on account of materials or equipment not incorporated into the work but delivered to the site and suitably stored and insured by the Contractor, Payments for materials or equipment stored shall only be considered upon submission by the Contractor of satisfactory evidence that it has acquired title to such material, that it will be utilized on the work under this contract and that it is satisfactorily stored, protected and insured, or such other procedures satisfactory to the Project Manager and Inspector, to protect the Owner's interests.

1.2.11 RETENTION

1.2.12 Subject to the requirements of state law, each Application for Payment shall be subject to all payments to the Contractor shall be subject to the requirements therein contained for the retention in the amount of from the monies earned by the Contractor on the contract during the progress of the work. There shall be reserved from the monies earned by the Contractor a sum equal to (5%) five percent. It is understood that, if payment requests are made in accordance with the established time schedule, payment requests received by Owner will be processed within sixty (60) days. Payment for additional work or extras, if any, under this contract shall be made in like manner. The amounts so reserved will be subject to claims of liens provided by applicable state laws in the manner and within the time now or hereafter provided by such statutes.

1.2.13 Pursuant to Section 22300 of the Public Contract Code of the State of California, the contract will contain provisions permitting the Contractor successful bidder to substitute securities for any moneys withheld by the Owner to ensure performance under the contract.

1.2.14 The Contractor warrants and guarantees herewith that title to all work, materials and equipment covered by an application for payment will pass to the Owner either by incorporation in the construction or upon the receipt of payment by the Contract, whichever occurs first, free and clear of all liens, claims, security interest or encumbrances, referred to in this article as "liens", claims, security interest or encumbrances, referred to in this article as "liens", and that no work materials or equipment covered by an application for payment will have been acquired by the Contractor, or by any other person performing work at the site or furnishing materials and equipment for the project, subject to an agreement under which an interest of an encumbrance is retained by the seller otherwise imposed by the Contractor or such other person.

1.2.15 PROGRESS PAYMENTS

1.2.16 After a certificate of payment has been issued, the Owner shall make payment in the manner and within the time provided in the Contract Documents.

1.2.17 The contractor shall promptly pay each subcontractor (including suppliers, laborers and material men) performing labor or furnishing material for the work upon receipt of payment from the Owner out of the amount paid to the Contractor on account of the work of such subcontractor, supplier, laborer or material man, the amount of which said subcontractor, supplier, laborer or material man, the amount o which said subcontractor entitled, reflecting the percentage actually retained, if any, from payments to the Contractor on account of such work. The contractor shall, by an appropriate agreement with each subcontractor, also require each subcontractor to make payments to his subcontractors in a similar manner.

1.2.18 The Owner my on request, furnish to any subcontractor, if practicable, information regarding the percentages of completion or the amounts applied for the Contractor and the action taken by the Project Manager on account of the work done by such subcontractor.

1.2.19 Neither the Owner nor the Project Manager shall have any obligation to pay nor to see to the payment of any monies to a subcontractor except as may otherwise be required by law.

1.2.20 No certificate for a progress payment nor any progress payment nor any partial or entire use or occupancy of the project by the Owner shall constitute an acceptance of any work which is not in accordance with the Contract Documents.

1.2.21 The Contractor agrees to keep the work and the site on which work is to be performed free and clear of a liens and claims of liens on materials furnished pursuant to the Contract Documents. Notwithstanding anything to the contract contained in the Contract Documents, if any such lien is filed or there is any reason to believe that any lien may be filed at any time during the progress of the work or the duration this contract, the Owner may refuse to make any payment otherwise due the Contractor or withhold from any payment due to the Contractor a sum sufficient in the opinion of the Owner to pay all obligations and expenses necessary to satisfy such lien or claim and completely indemnity the Owner against any such lien or claim unless and until the Contractor shall furnish satisfactory evidence that the indebtedness and the lien in respect thereof, if any, has been satisfied, discharged and released of record if and as provided by law pending the resolution of any dispute between the Contractor and the person filing such lien; and if such evidence is not furnished by the Contractor to the Owner within a period of five days after demand to do so, the Owner may discharge such indebtness and deduct the amount required therefore,, together with any and all losses, costs, damages and attorneys' fees suffered or incurred by the Owner from any sum payable to the Contractor under the Contract Documents. Final payment to the Contractor may be withheld until the work and the site on which the work is to be performed are free and clear of any and all liens or rights thereto arising because of the work performed or materials furnished under the Contract Documents.

1.2.22 PAYMENTS WITHHELD

The Project Manager may decline to certify payment and may withhold their certificate in whole or in part, to the extent necessary to protect the Owner, if in their opinion they are unable to make representations to the Owner as provided in subparagraph 1.02D in this section.

If the Project Manager are unable to make representations to the Owner as provided in subparagraph 1.2.4 and to certify payment in the amount of the application, the Project Manager will notify the contractor as soon as possible, if the Contractor and the Project Manager cannot agree on a revised amount, the Project Manager will promptly issue a certificate for payment in the amount for which the Project Manager is able to make such representations to the Owner.

The Project Manager may also decline to certify payment or any part thereof or, because of subsequent observations, they may nullify the whole or any part of any certificate for payment previously issued, to such extent as may be necessary in their opinion to protect the Owner from loss because of the following conditions.

Defective work not remedied;

Third Party claims filed or reasonable evidence indicating probable filing of such claims;

Failure of the Contractor to make payments properly to subcontractors or for labor, materials or equipment;

Reasonable evidence that the work cannot be completed for the unpaid balance of the contract sum;

Damage to the Owner or another contractor;

Failure to execute the work in accordance with the Construction schedule;

Failure to provide, maintain, and update record drawings;

Reasonable evidence that the work will not be or had not been completed within the contract time;

Failure to carry out the work in accordance with the Contract Documents;

Liens filed, or reason to believe it is probable a lien will be filed for any portion of the work;

Failure or refusal of the Contractor to fully comply with Division 1

1.2.34 UNIT PRICES

1.2.35 Unless otherwise specified, all unit prices quoted in the Bid Form for additions to or deductions from the work are the installed costs of products, including overhead and profit, taxes and other costs, so that they are the complete price to the Owner. These unit prices shall not apply to work which the contractor may elect to do or not to do, for the sake of his own convenience, nor shall they apply to work required to be performed in order to correct errors committed by the Contractor.

1.2.36 All unit prices shall be valid and in force during the life of the contract and shall be reconciled with the Contract Sum, in accordance with the General Conditions, before filing of the Notice of Completion.

1.2.37 FINAL COMPLETION AND FINAL PAYMENT

1.2.38 Upon receipt of written notice from the Contractor as required in Section 01 77 19 that the work is ready for final inspection and acceptance and upon receipt of final application for payment, the Project Manager will promptly make such inspection, and when they find the work acceptable under the Contract Documents and the Contract fully performed, the Project Manager will jointly issue a final Certificate for Payment stating that to the best of their knowledge, information and belief, and on the basis of their observations and inspections, the work has been completed in accordance with the terms and conditions of the Contract Documents and that the entire balance found to be due the Contractor, and noted in said final certificate, is due and payable. The final certificate for

payment will constitute a further representation that the conditions precedent, to the Contractors being entitled to final payment as set forth in subparagraph 1.4.1, have been fulfilled.

1.2.39 Retention of funds withheld will be released to the Contractor within 60 days of the date of completion of a work of improvement. Completion, is defined as occurring when a Owner begins occupancy, beneficial use, and enjoyment of work of improvement (excluding an operation for testing, startup, or commissioning) accompanied by a cessation of labor on the work of improvement. It is also considered to occur when the work is accepted by the District or its agent if a cessation of work occurs for a continuous period of 100 days or more after work on a job began and is due to factors beyond the control of the contractor; or if a cessation of work occurs for a continuous period of 30 days or more and the Owner files for a notice of cessation or a notice of completion, then the project is considered to have reached completion for the purposes of payment.

1.2.40 Neither final payment nor the remaining retention percentage shall become due until the work is free and clear of any and all liens and the Contractor submits to the Owner (1) an Affidavit that all payrolls, bills for materials and equipment and other indebtedness connected with the work for which the Owner or his property might in any way be responsible, have been paid or otherwise satisfied; (2) consent of surety, if any, to final payment; and, (3) if required by the Project Manager, other data establishing payment or satisfaction of all such obligations, such as receipts, releases and waivers of liens arising out of the contractor, to the extent and in such form as may be designated by the Project Manager. If any subcontractor refuses to furnish a release or waiver required by the Owner, the Contractor may furnish a bond, satisfactory to the Owner, to indemnify him against any loss. If any such lien or claim remains unsatisfied after all payments are made, the Contractor shall refund to the Owner all monies that the Owner may be compelled to pay in discharging such lien or any sum that the Owner has reason to believe may be needed to satisfy any lien, claim or threat of lien arising out of the work. The Owner may deduct from final payment an amount equal to any costs, expenses and attorneys' fees incurred by the owner in removing or discharging any liens arising out of the work.

1.2.41 If, after substantial completion of the work, final completion thereof is materially delayed through no fault of the Contractor or by the issuance of change orders affecting final completion, and the Owner so confirms, the Owner shall, upon application by the Contractor and certification by the Project Manager, and without terminating the contract, make payment of the balance due for that portion of the work fully completed and accepted. If the remaining balance for the work not fully completed or corrected is less than the retention stipulated in the Contract Documents, the written consent of the surety to the payment due for that portion of the work fully completed and accepted shall be submitted by the contractor to the Project Manager prior to the certifications of such payment. Such payment shall be made under the terms and conditions governing final payment except that it shall not constitute a waiver of claims.

1.2.42 The making of final payment shall constitute a waiver of all claims by the Owner against the Contractor except those arising from:

1.2.43 Unsettled liens and claims against the Owner, the Project Manager, or their employees, agents or representatives;

1.2.44 Faulty or defective work appearing after substantial completion;

1.2.45 Failure of the work to comply with the requirements of the Contract Documents;

1.2.46 Failure to provide fully updated and completes record drawings

1.2.47 Any warranties contained in or required by the Contract Documents; or

1.2.48 Damages incurred by the Owner resulting from lawsuits brought against the Owner, the Project Manager, or their agents, employees or representatives because of failures or actions on the part of the Contractor, his subcontractors or sub subcontractors, or any of their employees, agents or representatives.

1.2.49 The acceptance of final payment shall constitute a waiver of all claims by the Contractor except those previously made in writing and identified by the Contractor as unsettled at the time of the final application for payment.
1.2.50 All provisions of this Agreement, including, without limitation, those establishing obligations and procedures, shall remain in full force and effect notwithstanding the making or acceptance of final payment prior to the Date of Substantial Completion of the Project.

1.2.51 PREPARATION OF APPLICATION FOR FINAL PAYMENT

1.2.52 Fill in application form as specified for progress payments.

1.2.53 Use continuation sheet for presenting the final statement of accounting.

1.2.54 Administrative actions and submittals, which must precede or coincide with submittal of the final payment Application for Payment include the following:

1.2.55 Occupancy permits and similar

1.2.56 Warranties (guarantees) and maintenance agreements

1.2.57 Test/adjust/balance records

1.2.58 Maintenance instructions

1.2.59 Meter readings

1.2.60 Startup performance reports

1.2.61 Change over information related to

1.2.62 Owner’s occupancy, use, operation and maintenance

1.2.63 Final cleaning

1.2.64 Completion of Project Close-Out requirements

1.2.65 Completion of items specified for completion after Substantial Completion

1.2.66 Assurance that unsettled claims will be settled

1.2.67 Assurance that work not complete and accepted will be completed without undue delay

1.2.68 Transmittal of required Project construction records to Owner

1.2.69 Proof that taxes, fees and similar obligations have been paid

1.2.70 Removal of temporary facilities and services

1.2.71 Removal of surplus materials, rubbish and similar elements,

1.2.72 Change of door locks to Owner’s access

1.2.73 SUBMITTAL PROCEDURE

- Submit Applications for Payment to Project Manager at the time stipulated in the agreement
- Number: Five copies of each application
- Demographics Monthly Summary Reporting Form

1.2.74 UNIT PRICES

Unless otherwise specified, all unit prices quoted in the Bid Form for additions to or deductions from the Work are the installed costs of products, including overhead and profit, taxes and other costs, so that they are the complete price to the Owner. These unit prices shall not apply to work which the Contractor may elect to do or not to do, for the sake of its own convenience, nor shall they apply to work required to be performed in order to correct errors committed by the Contractor.

Part 2 – Products

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION 01 20 00

SECTION 01 26 00 – CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Schedule of Values

1.1.2. Application for Payment.

1.1.3. Change procedures.

1.1.4. Request for Information Procedures.

1.2. SCHEDULE OF VALUES

1.2.1. See also General Conditions Article 9 for additional information. Article 9 supercedes information contained within this section.

1.2.2. Submit typed schedule complying with the format established in this Section. Contractor's standard form or electronic print-out format may be considered, at Construction Manager's discretion.

1.2.3. Submit Schedule of Values per schedule defined in General Conditions, modified per Document: Supplementary Conditions and as specified.

1.2.4. Identification: Include on schedule of values the following:

1.2.4.1. Project name and Location.

1.2.4.2. Construction Manager’s Project Numbers.

1.2.4.3. Contractor's Name and Address.

1.2.4.4. Date of Submittal.

1.2.5. Format: Type in tabular form with separate columns to indicate the following for each item listed.

1.2.5.1. Generic Name, using Project Manual table of contents as a content guide.

1.2.5.2. Related Specification Section.

1.2.5.3. Breakdown to include a) Materials and b) Labor separately.

1.2.5.4. Name of Subcontractor.

1.2.5.5. Name of manufacturer or fabricator where applicable.

1.2.5.6. Name of supplier where applicable.

1.2.5.7. Change Order amounts allocated to the line item.

1.2.5.8. Total Dollar value of item.

1.2.5.9. Percentage of Contract sum represented by item, rounded to nearest one hundredth percent, adjusted to total 100 percent.

1.2.6. Correlate line items with terms and identification used in other administrative work items, including schedules, list of subcontractors, list of products and suppliers, and submittal schedule.

1.2.7. Provide schedules as follows.

1.2.7.1. Where an Application for Payment may include requests for equipment, components or materials purchased, stored or fabricated, but not yet installed, provide separate line item on the Schedule of Values for such items. Breakdown such line items to include component, equipment or material cost for each phase or sequence of construction, with associated staging, transport and installation cost.

1.2.8. The total of the amounts of all scheduled line items shall equal the Contract Sum. Round amounts to nearest dollar.

1.2.9. Provide separate line item for Contractor's overhead and profit.

1.2.10. Revise schedule to list approved Change Orders and Construction Change Directives, and submit with each Application for Payment.

1.2.11. The amounts shown on Schedule of Values may be used by Owner to determine the true value for additive or deductive change orders.

1.3. INSPECTOR OF RECORD PAYMENT PROVISIONS

1.3.1. In the event Contractor's performance of the work activities requires the Owner's Inspector of Record to work overtime, holidays or weekends, Inspectors cost shall be reimbursed by Contractor to Owner by deductive contract adjustment.

CHANGE PROCEDURES

1.3.2. General

1.3.2.1. See also General Conditions Article 7 for additional information. Article 7 supercedes information contained within this section.

1.3.2.2. Contractor shall establish measures as needed to assure familiarity of the Contractor’s staff and employees with procedures for processing changes to the Contract Documents.

1.3.2.3. The Contractor shall maintain and coordinate a Register of RFI's, ASI's, Contractor Change Order Requests, CCD's and Change Orders at the job site, accurately reflecting current status of all pertinent data as submitted by the Contractor.

1.3.3. Construction Manager will provide a single copy of all documents issued under this Article for transmission to Contractor. Contractor shall prepare copies as required for distribution to subcontractors, suppliers and others at no cost to Owner.

1.3.4. All changes in contract for construction, regardless of effect on Contract Price or Contract Time, require the approval of DSA in accordance with Section 4-338, Part 1, T-24 CCR, "Addenda and Change Orders".

1.4. PROGRESS PAYMENT COORDINATION

1.4.1. See Section 01 77 19 for requirements and relationship between progress payment and maintenance of record drawings.

1.4.2. See Section 01 33 00 for requirements and relationship between progress payment and construction schedule updates.

1.4.3. See also General Conditions Article 9.4 for additional information. Article 9.4 supercedes information contained within this section.

1.4.4. Submit application on AIA Form G702-Application and Certificate for Payment or on other form approved by the Construction Manager.

1.4.5. Payment Period: as defined in General Conditions.

1.5. PAYMENT FOR CONTRACT MODIFICATIONS

1.5.1. The Contractor shall compensate the Owner, by Owner-Contractor Contract adjustment, for the Construction Manager's reasonable costs to modify Contract Documents required by work not performed in accordance with approved Contract Documents.

1.6. REQUEST FOR INFORMATION

1.6.1. See also General Conditions Article 7.4 for additional information. Article 7.4 supercedes information contained within this section.

1.6.2. The Project Manager will respond to legitimate and bonafide Requests for Information (RFI) initiated by Contractor.

1.6.3. Submit all RFI's on attached form. RFI's submitted by subcontractors or suppliers will not be reviewed.

1.6.4. The Contractor shall compensate the Construction Manager's, by Owner-Contractor Contract adjustment, for the Construction Manager's reasonable costs to respond to RFI's if the P determines:

1.6.4.1. The RFI does not reflect careful study and review of the documents, or;

1.6.4.2. Demonstrates a lack of knowledge or construction competency reasonably expected of a Contractor performing the work.

END OF SECTION 01 2600

SECTION 01 31 13 – PROJECT COORDINATION

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Coordination.

1.1.2. Preconstruction conference.

1.1.3. Progress meetings.

1.1.4. Preinstallation conferences.

1.2. COORDINATION

1.2.1. Contractor shall comply with the following project start-up and administrative requirements for work under the Contract:

1.2.1.1. **Coordinate the work and work of Subcontractors with the Project Manager as well as Superintendents from other Contractors, as it may affect other construction project or other projects on the Site.**

1.2.1.2. Establish procedures for the orderly progress and prosecution of the work, including, but not limited to, attendance at project meetings, communication and documentation procedures, submittal processing, and control of the site.

1.2.1.3. Coordinate work with all inspection and testing, including compliance with all agency inspection criteria, including DSA inspections.

1.2.1.4. Coordinate and monitor use of temporary utilities, conserving energy where feasible.

1.2.1.5. Prepare detailed schedule for all subcontractors in compliance with Section 01 33 00 and Section 01 32 16. Coordinate scheduling of work, submittals, and inspection/testing to assure the efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later. Monitor schedules for compliance with completion dates, modify and recommend adjustments. Manage subcontractors work, including monitoring of work force, work completed and impact on schedule

1.2.1.6. Coordinate completion and clean up the Work in preparation for Substantial Completion.

1.2.1.7. After Owner occupancy of premises, coordinate access to site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

1.2.2. Contractor shall comply with the following requirements for coordinating the Work:

1.2.2.1. Coordinate all work with the Project Manager as well as Superintendents from other Contractors so that there are no conflicts or delays.

1.2.2.2. Verify that utility requirement characteristics of operating equipment are compatible with building utilities. Coordinate work of various trades having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

1.2.2.3. Coordinate space requirements and installation of mechanical and electrical work, which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with the line of the building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

1.2.2.4. Unless otherwise indicated, where piping, ducts, and wiring occurs in finished areas, conceal such pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements and the Project Manager.

1.3. PRECONSTRUCTION CONFERENCE

1.3.1. Project Manager will schedule a conference upon execution of the Contract.

1.3.2. Attendance Required: Owner, Owner's Project Inspector, Owner's Testing Service representative, Project Manager, Contractor, including assigned superintendent and foreman. Obtain Project Manager's prior approval of major subcontractor attendance if applicable.

1.3.3. Agenda:

1.3.3.1. Organizational structure of project, schedule overview and other project characteristics.

1.3.3.2. Designation of responsible staff representing the parties required for implementation of the project, including Contractor, Project Manager, and others.

1.3.3.3. Submission of list of Subcontractors, list of Products, draft schedule of values, and progress schedule for review.

1.3.3.4. Procedures and processing of field decisions, submittals, substitutions, proposal request, Change Orders and Contract closeout procedures.

1.3.3.5. Scheduling, including coordination with work of others.

1.3.3.6. Use of premises by Owner, Contractor, Project Manager.

1.3.3.7. Owner's requirements and partial occupancy.

1.3.3.8. Construction facilities and controls provided by Owner.

1.3.3.9. Temporary utilities considerations.

1.3.3.10. Security and housekeeping procedures.

1.3.3.11. Procedures for testing.

1.3.3.12. Procedures for maintaining record documents.

1.3.3.13. Requirements for start-up of equipment.

1.3.3.14. Inspection and acceptance of equipment put into service during construction period.

1.4. PROGRESS MEETINGS

1.4.1. Project Manager will schedule and administer meetings throughout progress of the work at weekly intervals.

1.4.1.1. Contractor shall assign the same staff members to represent and act on behalf of the Contractor at all progress meetings.

1.4.2. Project Manager will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.

1.4.3. Attendance Required: Contractor Project Manager, Contractor superintendent, major Subcontractors and suppliers as requested, Owner, Project Manager, or Engineer, Project Inspector and others as appropriate to agenda topics for each meeting.

1.4.4. Agenda:

1.4.4.1. Review minutes of previous meetings.

1.4.4.2. Review of Work progress.

1.4.4.3. Field observations, problems, and decisions.

1.4.4.4. Identification of problems, which impede planned progress.

1.4.4.5. Review of submittals schedule and status of submittals.

1.4.4.6. Review of off-site fabrication and delivery schedules.

1.4.4.7. Maintenance of progress schedule.

1.4.4.8. Corrective measures to regain projected schedules.

1.4.4.9. Planned progress during succeeding work period.

1.4.4.10. Coordination of projected progress.

1.4.4.11. Maintenance of quality and work standards.

1.4.4.12. Effect of proposed changes on progress schedule and coordination.

1.4.4.13. Other business relating to Work.

1.5. PREINSTALLATION CONFERENCES

1.5.1. When required by Project Manager or in individual specification Sections, convene a pre-installation conference at work site prior to commencing work of the Section.

1.5.2. Require attendance of parties directly affecting, or affected by, work of the specific Section.

1.5.3. Notify Project Manager and Inspector of Record a minimum four (4) days in advance of meeting date.

1.5.4. Contractor will prepare agenda, preside at conference, record minutes, and distribute copies within two days after conference to participants, with submittal to Project Manager.

1.5.5. Review conditions of installation, preparation and installation procedures, and coordination with related work.

1.6. MINUTES OF MEETINGS

1.6.1. Project Manager shall compile detailed minutes of the meetings, except pre-installation conferences, and furnish one copy to the Owner, Contractor and Inspector. Minutes shall record discussion, actions taken, and issues assigned to parties responsible for resolution.

1.6.2. Recipients of minutes may make additional copies as they desire.

1.6.3. Published minutes will be accepted as properly stating the activities and decision of the Meeting unless they are challenged in writing prior to the next regularly scheduled Progress Meeting.

1.6.3.1. Persons challenging published minutes are responsible to reproduce and distribute copies of challenge to all recipients of the particular minutes being challenged.

1.6.3.2. Settle challenge as priority item of 'old business' at the next regularly scheduled meeting.

1.6.4. Except for pre-installation conferences, Contractor shall not prepare or distribute meeting minutes. Project Manager will not review or take action on any meeting minutes prepared by Contractor.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 31 13

SECTION 01 3216 – PROJECT CONSTRUCTION SCHEDULE

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. The following applies to this section:
1. General provisions of the Contract, including General and Supplementary Conditions.
2. The Drawings.
3. Division 01 Specification Sections and related requirements in other sections of the Project Manual.
4. Related requirements in other Contract Documents listed in the Agreement.

B. Review these documents for coordination with additional requirements and information that apply to work under this Section

1.2 DESCRIPTION

A. Requirements for CPM scheduling are included to insure adequate planning and execution of the Work and to assist the Owner in evaluating progress of the Work economically and chronologically.

B. The Contractor shall be solely responsible for establishing the schedule for the Work and shall be responsible for such schedule to be consistent with meeting the contract milestone, intermediate milestones, and completion dates as established by the Owner.

1. General Contractor shall prepare and submit per the time constraints identified in this section, a project schedule consisting of their scope of work, milestones, and work sequence to be incorporated into the development of the project baseline schedule. The Conditions of the contract and the other sections of Division 1 apply to this section as fully as if repeated herein.
2. The Contractor shall prepare and submit to the Owner a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the salient features of the work (including acquiring materials and equipment).
3. The schedule shall be in the form of a CPM (critical path method) schedule, of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period.
4. The scheduled completion date shall be the same as the contractual completion date, for the initial schedule and subsequent updates. Any proposed early completion date shall show the difference between that date and the contract completion date as Float, which shall belong to both the Owner and Contractor.
5. If, in the opinion of the Owner, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, without additional cost to the Owner. The Contractor shall submit any supplementary schedule or schedules in CPM form as the Owner deems necessary to demonstrate how the approved rate of progress will be regained.
6. All schedule updates must accurately reflect the as-built schedule. There shall be no change to the Critical Path without the Owner’s written consent.
7. Sequencing of the scope of work shall be coordinated with the Owner’s Project Manager and Campus.

1.3 QUALITY ASSURANCE

A. Contractor shall designate a scheduler and present that designee for Owner approval. Scheduler shall be trained and experienced in compiling construction scheduling data, in analyzing scheduling data by use of CPM, and in the preparation and issuance of periodic reports as required herein. The Contractor's Scheduling Representative shall have direct control and complete authority to act on behalf of the Contractor in fulfilling all project schedule requirements.

B. The CPM Progress Schedule shall be prepared based on the principles defined by the latest issue of the Construction Planning & Scheduling Manual published by the Associated General Contractors of America, except where superseded by the contract documents and this specification.

C. Software: This work shall consist of preparing, maintaining and submitting a Progress Schedule using the Critical Path Method on Primavera P6 software, or newer release, which demonstrates complete fulfillment of all work shown in the contract documents. All work to prepare, and maintain the CPM Progress Schedule shall be performed using the scheduling software application provided by the Owner on network servers and accessed through the Internet with Owner provided user accounts.

1.4 OFFICIAL CONTRACT SCHEDULE (Baseline Schedule)

A. The Critical Path Method Schedule to be prepared by the Contractor pursuant to this section will be a part of a total system for scheduling, reporting work progress, and preparing the monthly payment application.

1. Within thirty (30) calendar days after the Notice to Proceed, the Contractor shall submit the complete project schedule to the Owner’s PM for review.

2. The approved Interim Schedule shall be incorporated into the final Contract Schedule and shall represent the initial forty five (45) calendar days of the Contract Schedule.

3. The initial submittal of the Contract Schedule shall not reflect contract changes or delays. These changes shall be added within the first Schedule Revision.

4. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

5. The Official Contract Schedule shall not extend beyond the number of calendar days specified in the Contract. The baseline schedule shall have a data date of the first working day of the contract and not include any completed work to date. The baseline schedule shall not attribute negative float or negative lag to any activity.

6. Schedule review by the Owner and its agents is limited to ensuring the logic of sequencing is reasonable and Contractor has demonstrated ability to meet contractual milestone and completion dates. Acceptance of schedule should not be construed as direction from the Owner to Contractor on how to schedule the work. Construction Manager shall review and return with comments within five (5) working days of receipt of the schedule submittal. The re-submittal must be returned within seven (7) calendar days from receipt of the

Project Manager 's request for revision to the baseline schedule. This process will continue until the baseline schedule is accepted. With each re-submittal, the contractor shall include a narrative with a brief statement for each review comment that explains how that comment was addressed. Any revisions made as a result of the review comments, shall be made by the Contractor at no additional cost to the Owner. The first progress payment will not be given if the Interim schedule has not been accepted.

7. Should the Contract Schedule not be accepted within sixty (60) calendar days after Notice to Proceed, the Contractor may be due provisional progress payments(s) on work performed, based on the Interim Schedule. It is the responsibility of the Contractor to reconcile such cost information and payments with the Contract Schedule. However, no payment shall be approved after the sixty (60) calendar day period, until the Contract Schedule has been accepted by the Owner.

8. After Completion and Acceptance of the Official Contract Schedule: The Contractor will provide initial computer reports and weekly and monthly reports thereafter.

9. The project schedule shall be computer generated, time scaled, and critical path method (CPM) network utilizing the precedence diagram method of representation. The number of activities shall be sufficient to assure adequate planning of the project, to permit monitoring and evaluation of progress, and to do an analysis of time impacts. Schedule activities shall include the following:
    a. Activity Name – Clearly and uniquely define each activity name with a description of the work that is readily identifiable to inspection staff. Each activity shall have a narrative description consisiting at a minimum of a verb or work function (i.e. form, pour , excavate etc) and object (i.e. slab, footing, wall etc) and a location (i.e. room number, gridline, column line etc.)
    b. Start and finish dates
    c. Construction activities shall have duration not to exceed Fifteen (15) calendar days. If an activity is greater than Fifteen (15) calendar days, the activity will need be split or phased.
    d. All holidays and non-working days shall be identified by way of calendar designations. Refer to General and Supplementary Conditions for recognized Designated Holidays. The schedule shall clearly indicate any work that is planned to be accomplished on a work schedule other than eight (8) hours per day and forty (40) hours per week.
    e. The schedule shall include an activity for "Owner / Architect punch walk & list distribution" with a Seven (7) calendar day duration for each area.
    f. Punch walk / Correction Activity shall not have duration longer than Fifteen (15) calendar days.
    g. At least one predecessor and one successor is required for each activity, except for the project start and finish milestones.
    h. All required constraints.
    i. Codes for responsibility, stage, work shifts, and location.

10. **Activities:** The initial submittal of the Official Contract Schedule shall include, in addition to construction activities, the following:
    a. The submittal and approval of construction drawings, shop drawings and materials, the procurement, fabrication, delivery, and testing of major materials

and equipment, and their installation and testing.

b. Contract requirement dates of all or parts of the Work will be shown including all activities of the Owner that affect the progress of the work.
c. Activities of completed work ready for use by next trade, etc.
d. Activities relating to different areas of responsibility, such as sub-contracted Work which is distinctly separate from that being done by Contractor directly. Each activity shall represent the work of a single subcontractor.
e. Different categories of Work as distinguished by craft or crew requirements.
f. Different categories of Work as distinguished by materials.
g. Distinct and identifiable subdivisions of Work such as structural slabs, beams, or columns. Location of Work within the project that necessitates different times or crew to perform.
h. Outage schedules of limiting times that existing utility services may be interrupted to construct the Project.
i. Acquisition and installation of equipment and materials supplied and/or installed by Owner or separate Contractors.
j. Material stored on site.

11. **Major Equipment/Materials**: For all major equipment and materials fabricated or supplied for Project, Including All items identified as "Riverside County Design Submittals", the Construction Schedule shall show a sequence of activities including:
    a. Preparation of shop drawings and sample submissions.
    b. Receiving approval of the design drawings, calculation and specification.
    c. Time required to obtain special inspection certifications and additional permits or certifications that may be required for specific tasks and/or systems (i.e., elevator variance).
    d. Review of shop drawings and samples.
    e. Shop fabrication, delivery, and storage.
    f. Erection or installation.
    g. Test of equipment and materials.
    h. Required dates of completion.

12. **Milestones:**
    a. Standard Work Hours: Regular Construction Work Hours and Construction Site Access are Monday through Friday 7:00a.m. – 4:00pm.
    b. Notice to Proceed Milestones

        i. Submittals and Material Procurement – Start March 1, 2019 – End April 15, 2019 - (45 Calendar Days) issued after District Board Approval and execution of the contract.

        ii. Construction (121 Calendar Days) – Must start on March 1, 2019 and must be completed no later than July 30, 2019. Shall consist of all general requirements, including but not limited to required surveys, submittals, deferred approvals, permits and approvals, pre-construction meetings and activities, site walks, long lead procurement requirements, hall off, installation, operation, final cleaning, submission of warranties and complete contract scope of work as defined in the project documents by **July 30, 2019.**

c. Interim Milestones
- **i.** No interim milestone for this project.

d. Completion Milestones
- **i.** Substantial Completion: (1) calendar day, within duration of NTP.
- **ii.** Punch list: (10) calendar days, within duration of NTP.
- **iii.** Final Completion (1) calendar day, within duration of NTP.
- **iv.** Notice of Completion (1) calendar day, within duration of NTP.

e. Phasing of Work
- **i.** Constraints: See General Requirements Division 1, Section 01 32 16; Project Construction Schedule.

13. **Contract Time and Sequencing:** The Official Contract Schedule shall include the entire scope of work and show how the Contractor plans to complete the work. The CPM schedule shall show the order in which the Contractor proposes to carry out the work with logical links between time-scaled work activities, and calculations made using the critical path method to determine the controlling operation(s). The Contractor is responsible for assuring that all activity sequences are logical and that each schedule shows a coordinated plan for complete performance of the work.
    a. All analysis of time impacts shall be based upon total float. Total float shall be the difference in calendar days between the late finish date and the early finish date of an activity. Float shall be a jointly owned resource. Float shall be consumed by both the Owner and the Contractor on a first come first served basis.
    b. The contract completion milestone shall represent the completion of all construction related work.
    c. The anticipated weather related delays as noted in "Weather Days" 1.8 of this division shall be taken into consideration and included with the duration of the applicable schedule activity(s).
    d. The Contractor shall furnish such manpower, materials, facilities and equipment and shall work such hours, including night shifts, overtime operations, Sundays and holidays as may be necessary to insure the prosecution and completion of the Work in accordance with the Final Baseline schedule.

14. **Relationships:** All activities shall be linked by realistic logical Finish-to-Start relationships only. Other type of relationships shall be permitted but shall be minimized (including start-to-start and finish-to-finish). The Owner's PM will reject any schedule utilizing unrealistic or meaningless logic. Constraints on activities shall be kept to a minimum and subject to the written permission of the Owner's PM. Negative lags will not be used without the prior written permission of the Owner.

15. **Critical Activities:** The schedule shall show the activities that define the critical path. Multiple critical paths will not be accepted. A total of no more than 25 percent of the baseline schedule activities shall be critical or near critical, unless otherwise authorized by the Owner's PM. Near critical is defined as float less than ten (10) days.

1.6 UPDATE SCHEDULES

A. The Contractor shall submit an Update Schedule – hard copy and electronic copy -- and meet with the Owner's PM to review progress, before the first day of each month, beginning one month after the Baseline Schedule is accepted. The Contractor shall allow Seven (7) calendar days for the Owner's PM to review after the update schedule and all supporting data are provided, except that the review period shall not start until the

previous month's required schedule is accepted.

1. The Update Schedule shall have a data date of the end of the month or other date established by the Owner's PM. The update schedule shall show the status of work actually completed to date and the work yet to be performed as planned. Actual activity start dates, percentage complete, and finish dates shall be shown. Actual Durations for work that has been completed shall be shown on the Update Schedules for when the work actually occurred, including submittal reviews and contractor re-submittal times. The update submittal scope shall contain the following information:
   i. Actual Start and finish dates
   ii. Percent complete and remaining duration
   iii. A narrative explaining each change to the record schedule
   iv. A tabular listing of all activities including: Activity data, activity identifier, description, remaining duration, total float, and activity.
   v. Narrative of manpower used verses manpower allocated in the schedule
   vi. Daily reports signed daily by the Project Management Representative.
   vii. Copies of confirmation letters from vendors and/or manufactures confirming material orders.
2. The Contractor may include modifications such as adding or deleting activities or changing activity constraints, durations, or logic that do not: (1) alter the critical path(s) or near critical path(s), or (2) extend the schedule completion date compared to that shown on the current accepted schedule. The Contractor shall provide a narrative in writing that states the reasons for any changes to the planned work. If any propose changes in planned work will result in (1) or (2) above, then Contractor shall submit a time impact analysis as described herein.
3. Any request for an adjustment of the Contract Time for completion submitted by Contractor for changes or alleged delays shall be accompanied by a complete Time Impact Analysis, (TIA), which shall be submitted for review within fifteen (15) days after the initial request for time by Contractor, or the impacting incident, whichever comes first.
4. **Narrative Reports**: Monthly Narrative Reports shall contain the following information for each monthly update:
   a. Description of overall project status
   b. Description of problem areas (referenced to pending change orders as appropriate)
   c. Current and anticipated delays not resolved by approved change order, including:
      1) Cause of the delay
      2) Corrective action and schedule adjustments to correct the delay
      3) Known or potential impact of the delay on other activities and milestones.
      4) Changes in the construction sequence
      5) Pending items and status thereof, including but not limited to:
         a) Pending Change Orders
         b) Time Extension Requests
         c) Other Issues relating to Contract Time

5. Contract Completion Date status:
   a) If ahead of schedule, the number of calendar days ahead
   b) If behind schedule, the number of calendar days behind

6. **Three-week Window**: Weekly, for the progress meeting, the Contractor shall produce a three-week window of the current schedule, indicating activities scheduled for the current and following two week period.
8. Payment Progress Reporting: Owner and Contractor shall select a specified time for updating the Project Schedule at the jobsite each month. (Reference General Conditions Article 9 Progress Payments)

   a. The Owner and Contractor and his/her designated scheduling representatives will attend the meeting to review the project progress.
   b. The schedule shall be the basis for monthly pay requests derived from the joint review of the schedule update.
   c. All progress and status information provided by the Contractor shall clearly define the reporting period for which the status is provided.

9. At the monthly progress review meeting coinciding with the Pencil Draft Date/meeting (see article 9 Progress Payments) the Contractor will provide "actual start" and "actual completion" dates for activities that were started or completed during the reporting period(for purposes of forecasting activities with an agreed upon completion for that period will be counted for payment application purposes only). The Contractor and the Owner's PM will agree upon and assign percent complete values to activities in progress. In the event of a disagreement, the Owner's PM shall make the final decision as to percent completion of each activity.
10. After joint review, Owner's PM will process the Contractor's pay request based on progress from the schedule in conjunction with approved Schedule of Values associated with those progressed activities.

    a. Payment to the Contractor shall be made from the progress reflected by the Interim or the Contract Schedule.

11. Time is of the essence: Whenever it becomes apparent from the current monthly progress review that phases of Work or the Contract Completion Date will not be met, through no fault of the Owner, the Contractor will take the following actions with no change in the contract amount:

    a. Increase construction manpower to eliminate any adverse backlog of work.

    b. Increase the number of working hours per shift, shifts per day, working days per week, the amount of construction equipment, or any combination of the foregoing to eliminate the adverse backlog of Work.

12. The Official Contract Schedule as accepted by the Owner's PM will be an integral part of the Contract, and will establish interim Contract Completion Dates or milestone dates for the various activities.
13. Delays of any non-critical Work shall not be the basis for an extension of Contract Time.

14. **FLOAT TIME**; Float is defined as the time that a non-critical Work activity can be delayed

or extended without delaying the scheduled completion of milestones specified in this Section or the scheduled completion date of the Work, or both. **Float time is not for the exclusive use or benefit of either Owner or Contractor. Neither Contractor nor Owner shall have an exclusive right to the use of float. Contractor is to document the effect on the updated Contract Schedule whenever float has been used.**

15. It is expressly understood and agreed that the failure by the Owner to either order the Contractor to expedite an activity or to expedite the activity by other means, pursuant to the two preceding paragraphs, shall not be considered precedent setting with respect to any other activities which may fall behind the Official Contract Schedule approved by the Owner; nor will it relieve the Contractor from completion of the Project Work in accordance with the Official Contract Schedule and the Contract Completion Date.
16. Owner's acceptance of, or its review of, comments about any schedule or scheduling data shall not relieve the Contractor from its sole responsibility to plan for, perform, and complete the Work within the Contract Time. Acceptance of or review of comments about any schedule shall not transfer responsibility for any schedule to Owner nor imply their agreement with (1) any assumption upon which such schedule is based, or (2) any matter underlying or contained in such schedule.
17. Failure of Owner to discover errors or omissions in schedules that it has reviewed, or to inform Contractor that Contractor, Subcontractors, or others are behind schedule, or to direct or enforce procedures for complying with the Contract Schedule shall not relieve Contractor from its sole responsibility to perform and complete the Work within the Contract Time and shall not be a cause for an adjustment of the Contract Time or the Contract Sum.

B. **Schedule Revisions**:

1. **General**: Revisions to accepted Construction Schedule must be approved in writing by the Owner and Contractor.
2. **Contractor**: Submit requests for revision to schedule to the Owner's PM together with a Time Impact Analysis (TIA) and a written rationale for revisions and description of logic for re-sequencing Work and maintaining Specific Contractual Milestone Dates listed in Contract Documents.
3. Proposed revisions acceptable to Owner may then be incorporated into next update of Construction Schedule following the review and acceptance.
4. **Acceptance**: Acceptance of revised schedule by Owner does not relieve Contractor of meeting contractual milestone and completion dates.

1.7 RECOVERY SCHEDULE

A. **General**: Should updated Construction Schedule show Contractor to be Ten (10) s or more calendar days behind schedule at any time during construction, Contractor will prepare Recovery Schedule displayed on CPM schedule, at no additional costs to Owner. Prepare Recovery Schedule to show plan for returning to original schedule as expeditiously as possible, and in a manner that complies with paragraph 1.07 Update Schedules, requirements.

B. **Schedule Preparation**: Within three (3) calendar days after notice from Owner's PM, prepare and submit to Owner's PM a Recovery Schedule, incorporating best available information from

Subcontractors and others which will permit return to Construction Schedule at earliest possible time. Prepare Recovery Schedule to same level of detail as Construction Schedule and for maximum duration of one (1) month.

C. **Schedule Review**: Within seven (7) calendar days after notice from Owner, participate in conference with Owner and Owner's PM to review and evaluate Recovery Schedule. Submit revisions necessitated by review for Owner's acceptance within Three (3) calendar days of conference. Use accepted Recovery Schedule for its planned duration as basis for return to Construction Schedule.

D. **Schedule Assessment**: Seven (7) days prior to expiration of Recovery Schedule, confer with Owner's PM to assess effectiveness of Recovery Schedule. As a result of this conference, Owner's PM will direct Contractor as follows:

1. **Behind Schedule**: If Owner's PM determines Contractor is still behind schedule, Owner's PM will direct Contractor to prepare another Recovery Schedule for subsequent pay period.
2. **On Schedule**: If Owner' PM determines Contractor has successfully complied with provisions of Recovery Schedule, Owner's PM will direct Contractor to return to use of Construction Schedule.

1.8 REQUEST FOR TIME EXTENSION

A. In the event the Contractor requests an extension of contract time for unavoidable delay, justification shall be submitted no later than seven (7) calendar days after the initial occurrence of any such delay. When requesting time for proposed change orders, the request(s) must be submitted with the proposed change order with full justification. If the Contractor fails to submit justification he shall waive his right to a time extension at a later date. Justification must be based on the currently accepted contract schedule as updated at the time of occurrence of delay or execution of work related to any change(s) in the scope of work. The justification must include a schedule, including, but not limited to, the following :

B. **Time Impact Analysis (TIA)**:

C. The Contractor shall submit a written impact analysis (TIA) – hard copy and electronic -- to the Owner's Project Manager with each request for adjustment of contract time, or when the Contractor or Owner's Project Manager consider that an approved or anticipated change may impact the critical path or contract progress.

D. The TIA shall illustrate the impacts of each change or delay on the current schedule completion date or internal milestone, as appropriate. The analysis shall use the accepted schedule that has a data date closest to and prior to the event. If the Owner's PM determines that the accepted schedule used does not appropriately represent the conditions prior to the event, the accepted schedule shall be updated to the day before the event being analyzed. The TIA shall include an impact schedule developed from incorporating the event into the accepted schedule by adding or deleting activities, or by changing durations or logic of existing activities. If the impact schedule shows that incorporating the event modifies the critical path and scheduled completion date of the Official Contract Schedule, the difference between scheduled completion dates of the two schedules shall be equal to the adjustment of contract time. The Owner's PM may construct and utilize an appropriate project schedule or other recognized method to determine adjustments in contract time until the Contractor provides the TIA.

E. The Contractor shall submit a TIA in duplicate within 7 calendar days of receiving a written request for

a TIA from the Owner's PM. The Contractor shall allow the Owner's PM 14 calendar days after receipt to accept or reject the submitted TIA. All approved TIA schedule changes shall be shown on the next update schedule.

F. If a TIA submitted by the Contractor is rejected by the Owner's PM, the Contractor shall meet with the Owner's PM to discuss and resolve issues related to the TIA. If agreement is not reached, the Contractor will be allowed 21 calendar days from the meeting to give notice of potential claim, as noted in Section 00 70 10 General Conditions. The Contractor shall only show actual as-built work, not unapproved changes related to the TIA, in subsequent update schedules. If agreement is reached at a later date, approved TIA schedule changes shall be shown on the next update schedule. The Owner's PM will withhold remaining payment on the schedule contract item if a TIA is requested by the Owner's PM and not submitted by the Contractor within 21 calendar days. The schedule item payment will resume on the next payment application after the requested TIA is submitted. No other contract payment will be retained regarding TIA submittals.

G. In the event the Contractor disagrees with the Owner's decision, the Contractor shall be required to submit a claim pursuant to the DISPUTE Resolution process. (See article 4.5 of the General Conditions.)

H. The term "day" as used in the Contract Documents shall mean calendar day unless otherwise specifically defined.

1.9 WEATHER DAY ALLOWANCE

A. The Contractor will only be allowed a time extension for unusually severe weather if it results in precipitation or other conditions, which in the amount, frequency, or duration is in excess of the norm at the location and time of year in question as established by NOAA weather data. No less than 44 calendar days will be allotted for in the Contractor's schedule. The weather days shall be shown on the schedule and if not used will become float for the Project's use. If the weather is unusually severe in excess of the NOAA data norm and prevents the Contractor from beginning work at the usual daily starting time, or prevents the Contractor from proceeding with seventy-five (75%) of the work force for the critical path activities for a period longer than four hours. Based on the approved baseline schedule contractor shall document workforce, schedule activities, weather report and daily reports, submit to Project Manager for approval. Upon completion of review and approval by the Project Manager/Owner, will designate such time as unavoidable delay and grant one (1) calendar-day extension. Weather delay will only grant time extension, no additional cost.

B. Normal weather conditions shall be considered and included in the planning and scheduling of all work influenced by high or low ambient temperatures and/or precipitation to ensure completion of all work within the Contract Time.

C. Time extensions for unusually severe weather: This provision specifies the procedure for determination of time extensions for unusually severe weather. The listing below defines the monthly anticipated adverse weather in Calendar Days to be used for the Contract Period.

Monthly anticipated adverse weather days:

January	7
February	7
March	7
April	5
May	3
June	1
July	0
August	1
September	1
October	3
November	4
December	5

D. The above schedule of anticipated adverse weather will constitute the base line for monthly weather evaluations. Upon acknowledgment of the Notice to Proceed, and continuing throughout the Contract, actual adverse weather days will be recorded on a work day basis and compared to the monthly anticipated adverse weather days listed above.

E. The number of actual adverse weather delays shall be calculated chronologically from the Notice to Proceed date for 365 calendar days. The Project Manager will convert any qualifying delays to calendar days on an annual basis. If the number of actual adverse weather days, for each year or portion thereof, exceeds the number of anticipated adverse weather days, an equitable adjustment in calendar days to the Contract performance period will be made.

2.0 FINAL UPDATE SCHEDULE

A. The Contractor shall submit a final as-built schedule with actual start and finish dates for the activities, within 30 calendar days after completion of the contract work. The Contractor shall provide a written statement with this submittal signed by the Contractor's Project Manager and an officer of the company stating, "To my knowledge and belief, the enclosed final update schedule reflects the actual start and finish dates of the actual activities for the project contained herein." An officer of the company may delegate in writing the authority to sign the statement to a responsible manager.

END OF SECTION 01 32 16

SECTION 01 35 17 – ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Products and installation for patching and extending Work.

1.1.2. Transition and adjustments.

1.1.3. Repair of damaged surfaces, finishes, and cleaning.

1.2. QUALITY ASSURANCE

1.2.1. Use only personnel who are thoroughly trained and experienced in the skills required and have installed similar applications of the specified products within one year prior to beginning work of this section.

1.2.2. Use only staff that is completely familiar with the requirements of this work.

1.3. ASBESTOS CONTAINING MATERIALS

1.3.1. Contractor is specifically notified that certain existing materials may contain asbestos, and such materials may be encountered during the course of this work. It is anticipated the underground utilities may contain asbestos. Contractor shall comply with all applicable laws and ordinances regarding such asbestos containing materials.

1.3.2. If Contractor encounters materials believed to contain asbestos containing materials, cease work at such locations and obtain direction from the Owner.

1.4. LEAD BASED PAINT CONTAINING MATERIALS

1.4.1. Contractor is specifically notified that certain existing materials may be coated with paints and coatings containing lead, and such materials may be encountered during the course of this work. Contractor shall comply with all applicable laws and ordinances regarding lead based coatings. The Owner's consultant has prepared an evaluation of such existing materials, and a report regarding this evaluation is available. Reference Spec. 13280.

1.5. PCB CONTAINING COMPONENTS

1.5.1. Work under this contract requires removal of existing oil insulated electrical switches. It is the Owners understanding that such switches do not contain PCB products.

1.5.2. Prior to removal of such components, Contractor shall take samples and deliver to an approved testing agency to determine the presence if any, of PCB containing materials. Contractor shall comply with all licensing and safety regulations concerning PCB containing materials in obtaining samples for testing.

1.5.3. Cost of sample and testing shall be included in the Contract amount and at no further cost to the Owner.

1.5.4. Contractor shall provide test results to Owner. If testing indicates presence of PCB containing materials, Contractor shall obtain dispose of as required

PART 2 - PRODUCTS

1.6. PRODUCTS FOR PATCHING AND EXTENDING WORK

1.6.1. General:

1.6.1.1. See also Section 01 73 29 Cutting and Patching

1.6.1.2. Unless noted otherwise, provide products matching existing finish, color, dimension, and assembly.

1.6.1.3. All products shall be new, unless specifically noted otherwise.

1.6.1.4. Provide asbestos-free materials.

1.6.1.5. Maintain all fire resistance ratings of existing assemblies and materials.

1.6.1.6. Maintain water and weather tight characteristics of assemblies and materials.

1.6.2. Comply with requirements as specified in applicable specification sections for materials used in repairing and extending existing work.

PART 3 - EXECUTION

1.7. SURFACE CONDITIONS

1.7.1. Inspection

1.7.1.1. Prior to work of this section, carefully inspect previously installed work. Verify all such work is complete to the point where this installation may properly commence.

1.7.1.2. Verify that work of this section may be installed in strict accordance with the original design, all pertinent codes and regulations, and all pertinent portions of the referenced standards.

1.7.1.3. In the event of discrepancy, immediately notify the Project Manager.

1.7.1.4. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

1.8. PREPARATION

1.8.1. Cut, move, or remove items as necessary for access to alterations and renovation Work. Replace and restore at completion.

1.8.2. Remove unsuitable material not marked for salvage, such as rotted wood, corroded metals, and deteriorated masonry and concrete. Replace materials as specified for finished Work or as directed by Project Manager.

1.8.3. Remove debris and abandoned items from area and from concealed spaces.

1.8.4. Prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

1.8.5. If required, protect existing fire alarm sensors and wiring in ceilings and walls from damage.

1.8.5.1. Alert Owner's alarm supervision service prior to work which requires moving or adjusting wiring or sensors

1.8.5.2. Alert service each day prior to work to avoid response to false alarm and advise service each day at end of work to reinstate response to alarms

1.9. INSTALLATION

1.9.1. Coordinate work of alterations and renovations to expedite completion and to accommodate Owner occupancy.

1.9.2. Complete work in all areas in all respects, including maintaining operational mechanical and electrical systems.

1.9.3. Remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to specified condition.

1.9.4. Refinish visible existing surfaces to remain, located in renovated rooms and spaces, to specified condition for each material, with a neat transition to adjacent finishes.

1.9.5. During the course of the work, advise Project Manager of all discovered deficiencies, damage and degradation in existing structure, finishes, and all plumbing, heating, ventilation, air conditioning, and electrical systems.

1.9.6. Install Products as specified in individual Sections or as indicated.

1.10. TRANSITIONS

1.10.1. Where new Work abuts or aligns with existing, provide a smooth and even transition. Patched Work shall match existing adjacent Work in texture and appearance.

1.10.2. When finished surfaces are cut so that a smooth transition with new work is not possible, terminate existing surface along a straight line at a natural line of division as approved by Project Manager.

1.11. ADJUSTMENTS

1.11.1. Where removal of partitions or walls results in adjacent spaces becoming one, rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads by use of specified materials and as approved by Project Manager.

1.11.2. Where a change of plane of 1/4 inch or more occurs, request instructions from Project Manager.

1.11.3. Where permitted by code criteria for rated doors, trim existing doors as necessary to clear new floor finish. Comply with code and door listing requirements for fire rated doors. Refinish doors and trim after trimming.

1.12. REPAIR OF DAMAGED SURFACES

1.12.1. Patch or replace portions of existing surfaces which are currently damaged, lifted, discolored, or showing other imperfections, including those damaged by performance of the Work.

1.12.2. Repair substrate prior to patching finish.

1.13. FINISHES

1.13.1. Finish surfaces as specified in individual Product Sections or as indicated.

1.13.2. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections in all directions.

END OF SECTION 01 35 17

SECTION 01 40 05 – CONTRACTOR SAFETY

1.01 GENERAL

A. HEALTH AND SAFETY POLICY

1. The policy of the District is to promote safety at a level to minimize personal injury and potential property damage.

2. Employees of Contractor working on this project are required to meet or exceed all established and recognized codes and standards for safety and protection of personnel and property. District will require the General Contractor and each Subcontractor to include in their safety programs a 100% tie off policy for all work over 6'.

3. The safety guidelines included here are made available as an extension of the safety clause in your Contract General Conditions.

4. These guidelines are not intended to be complete in every detail, but are merely of a general nature. The contractors are in no way relieved of their responsibilities for safety of persons and property, and compliance with all statutes, rules, regulations and orders applicable to the conduct of the work.

5. The possession, use of and/or sale of any alcoholic beverage or illegal controlled drug substance will not be permitted on or immediately adjacent to the job site by any contractor, contractor employee, subcontractor employer or associate.

6. The abuse of prescribed medication will not be permitted on or immediately adjacent to the job site by any contractor, contractor employee, subcontractor employee or associate.

7. This Contractor, and subcontractors, share the responsibility of monitoring and enforcing, as necessary, A.5 and A.6 above. Any known, (or with due cause believed to be), violator of A.5 or A.6 shall be immediately reported to the Project Manager.

8. The District reserves the right to take corrective action, as deemed in the best interest of the Project and the District, for violation of any health or safety standard. This corrective action may include, but is not limited to; removal (from the job site) any unsafe tools/equipment, temporary work stoppage for any unhealthy or unsafe condition, immediate removal (from the job site) any person that is unwilling or incapable of conducting themselves in a manner that promotes a healthy and safe working atmosphere. Any person found to be repeatedly in violation of health and/or safety standards will be permanently removed for the site.

B. RESPONSIBILITIES

1. The District demands that Contractors perform in a reasonable and safe manner.

2. The contractors working on this project have the ultimate and total responsibility to conduct a sound accident control program, as it pertains to their work and their employees, as well as to ensure safe working conditions for employees of other contractors.

3. The Contractor and their Subcontractors will ensure employees cooperate with and coordinate safety matters to form a joint safety effort.

4. Employees who have been, or will be exposed to excessive (measured against applicable standards) levels of toxic materials or harmful physical agents shall be notified by the General Contractor.

Notice of corrective action being taken shall be provided to the employees. Accurate records must be kept of all exposures which are required to be monitored under the State and Federal Codes.

5. In the event of a defense by the Contractor against unsafe independent employee actions, the Appeals Board requires that you must show evidence of the following:
   a. That the employee was experienced in the job being performed;
   b. That you as the employer have a well devised safety program which includes training employees in safety matters relating to their individual job assignments;
   c. That you effectively enforce your safety program;
   d. That you have and enforce a policy of sanctions against employees who violate your safety program; and
   e. That the employee caused a safety infraction which he or she knew was in violation of your safety requirement.
6. Dedicated full time safety officer to be assigned to the project if more than 50 people on site.

C. SAFETY ACTIVITIES

1. General Contractor to provide a copy of their company IIPP and a copy of the site specific IIPP which will include local hospital location, and any site specific Job Hazard Analysis required.
2. General Contractor superintendent will have a minimum 10 hour OSHA safety certification.
3. General Contractor safety officer shall have a minimum of 30 hour OSHA training and will visit the site a minimum of once a week and provide a report on the site safety.
4. General Contractor and their Subcontractors will conduct or initiate and submit on a weekly basis:
   a. Safety program as required by current State of California requirements.
   b. Weekly “tool box” safety meetings between their supervisors, foremen, employees, and subcontractors working on the project; and
   c. Daily and Weekly safety inspections of your work area and those areas of work under your responsibility or shared responsibility as well as taking any other necessary safety precautions.

D. REPORTS

1. Submit all preliminary, weekly, periodic and special reports to the Project Manager. The Contractor is in no way relieved of the requirements for submission of reports to any agency or authority.
   a. All reports listing deficiencies, accidents, or injuries shall show corrective action taken.
   b. A weekly status and summary report of each “tool box” meeting held and items discussed. Each report shall also contain attendance names, signatures and company affiliation.
   c. A weekly status report of inspection results. The attached status forms are for your convenience only.
   d. A continuing list of deficiencies found, date identified responsible party, corrective action and date corrected.
   e. Accident reports and injury forms. Submit a copy of one of the following to the Project Manager for each case:
      1.) California Division of Labor Statistics and Research Form 5020 (latest rev.), or;
      2.) Federal OSHA Form 101, or;
      3.) Insurance Company form similar to 1 or 2 above.
   f. A copy of CAL/OSHA Form 200 “Log and Summary of Occupational Injuries and Illness”.

2. Special Reports
   a. Notify the Project Manager immediately of any accident involving injury to personnel or property; and complete written reports within 24 hours of a death or injury.
   b. Copies of all toxic or harmful agent reports (See paragraph B.4.)

3. Governmental Reports

a. Notification of governmental authorities is the responsibility of the General Contractor.

E. SAFETY DEFICIENCY CORRECTION

1. All safety deficiencies will be corrected by the General Contractor in accordance with the following priorities.
   a. Immediate correction of items with any probability of major or minor injury to people
   b. Correction immediately of any accident probability which could involve people and/or equipment.
   c. Correction within one day (or sooner) of potential injury or damage to property.

F. OUTSIDE SAFETY INSPECTIONS

1. Unannounced inspections by city, state or federal safety agencies or insurance companies may occur.
   a. General Contractor is to escort representatives of these agencies or companies directly to the Project Manager and assist him as required or directed.
   b. If the Project Manager is not available, the General Contractor's foreman or representative shall accompany the inspector on the inspection.

G. INVESTIGATING

1. All injuries are to be investigated by the General Contractor and reported.

2. The Project Manager shall be notified prior to proceeding with an investigation.

H. SAFETYSTANDARDS AND CODE

1. Provide job supervision with applicable safety code publications and ensure they are familiar with the contents.
2. Occupation Safety and Health Administration Standards (latest applicable edition) on the designated applicable safety standards.

3. In States with OSHA approved plans, state codes will take precedence unless federal standards are more stringent, in which case federal standards shall apply.

4. On General Services Administration (GSA) projects, applicable sections of the GSA Manual Accident & Fire Prevention on Construction and Alteration Work will apply in addition to all other codes and standards.

5. All code and standard conflicts will be resolved by applying the most restrictive code and/or standard.

6. Suggested references for trade contractors are:
   a. Safety &Health Regulation for Construction, U.S. Department of Labor, OSHA, Volume 37, No. 243.
   b. Construction safety orders, State Standard, CAL/OSHA, State of California, latest edition.
   c. GSA Manual – GSA – PBSP 5900.3.
   d. U.S. Army Engineering Manual – EM 385-1.
   e. Accident Prevention, Associated General Contractors.
   f. A short guide to the California Occupational Safety and Health Act – National Federation Independent Business, 150 West 20th Avenue, San Mateo California 94403.

I. REQUIRED NOTICES: TO BE VISIBLY DISPLAYED

1. Workers' Compensation Insurance Notice.

2. OSHA poster: Safety and Health Protection on the job.

3. State of California Department of Human Resources: Notice to Employees Unemployment Insurance – Disability Insurance.

4. Hard Hat Area Signs.

5. List of ambulances, doctors and hospitals with telephone numbers which can be called during an emergency.

6. Name and title of the safety representative from each trade contractor's organization.

7. Any other safety signs, slogans, etc. that will improve the general awareness of a joint safety program.

J. PERMITS

1. Permits and/or certification from the Division in Industrial Safety are required before contractors may undertake the following kinds of work:
   a. Construction of trenches or excavations which are 5 feet or more deep, into which a person is required to descent;
   b. Construction of any building, structure, false work, or scaffolding more than three stories high.

2. The Division of Industrial Safety may investigate or confer with the employer before the start of work. If a pre-job safety conference between the Division of Industrial Safety personnel and the employer is a requirement specified by the Division of Industrial Safety at the time the permit is issued, employees or their representatives are to be included at the conference.

3. Permits must be posted at or near each place of employment requiring a permit. If posting at the actual job site is not possible, the permit must be available for inspection at all times on the site, or, in the case of a mobile unit, at the employer's head office in the area.

4. Additional permits may be required from the Division of Industrial Safety or other applicable governmental agencies. It is the responsibility of each trade contractor to determine, procure, and pay for their own such permits.

SAFETY STATUS FORMS
(See attached Safety Form)

SAFETY STATUS FORMS

This report is to serve as a minimum standard guideline and does not include job or trade specific items or conditions. Said items or conditions should be added by contractor on the last page entitled "COMMENTS AND REMARKS"

#	QUESTION/CHECK LIST COMMENT:	YES	NO	N/A
A.	**FIRE PROTECTION AND PREVENTION:**			
1	Are all flammable liquid containers clearly identified?			
2	Are all flammable liquid containers UL or FM listed?			
3	Have proper storage practices for flammables been observed?			
4	Have the proper type & adequate number of fire extinguishers been observed at the job site?			
5	Are extinguishers readily accessible and serviced regularly?			
6	Are hydrants clear and accessible for Fire Department personnel?			
B.	**ELECTRICAL**			
1	Are all switch gear, panels, and devices that are energized marked and/or guarded to prevent accidental contact?			
2	Are lockout devices available and used on all circuits and equipment that could become energized while work is being performed?			
3	Are all temporary circuits properly guarded and grounded?			
4	Are all extension cords in continuous lengths without splices or tape?			
5	Are GFCI's being used? If not, is Assured Equipment Grounding Conductor Program being followed?			
6	If temporary lighting is provided, are bulbs protected against accidental breakage?			
7	Are there a sufficient number of temporary outlets on the job site?			
8	Are there any visual signs of outlet overloading?			
C.	**HAZARD COMMUNICATION**			
1	Does the Hazard Communication Program include a list of hazardous chemicals?			
2	Does the Hazard Communication Program include container labeling?			
3	Does the Hazard Communication Program include "Material Safety Data Sheets (MSDS)?			
4	Does the Hazard Communication Program include employee training?			
5	Does the Hazard Communication Program include personal protective equipment (PPE)?			
6	Does the Hazard Communication Program include emergency response procedures, information & phone numbers?			
7	Does the Hazard Communication Program include a list of hazards for non-routine tasks?			
8	Does the Hazard Communication Program include procedures for informing other contractors of hazardous conditions and/or procedures?			
9	Does the Hazard Communication Program include adequate posting of signage & warning labels?			
10	Is a copy of the Hazardous Communication Program at this job site?			

SAFETY STATUS FORMS

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#	QUESTION/CHECK LIST COMMENT:	YES	NO	N/A
D.	**EXCAVATION/TRENCHING**			
1	Have utility companies been notified of proposed excavation work (one-call system)?			
2	Are overhead utility lines noted and precautions taken to avoid contact by cranes, backhoes, or other heavy equipment?			
3	Is the excavation inspected daily or more frequently when there is a change in weather or environment that could affect the soil?			
4	If needed, are barricade, stop logs, etc. properly located?			
5	Are excavations five (5) feet or deeper correctly sloped, benched, shored, or is a trench box (shield) used?			
6	Is a ladder or other means of exit (egress) provided in trenches or excavations four (4) feet or deeper?			
7	When ladders are used, do they extend three (3) feet above the surface and are they secured?			
8	Are shoring and shielding systems inspected daily by a competent person?			
E.	**SCAFFOLDING**			
1	Are scaffold components visibly free of any physical damage (no bent supports or cross bracing)?			
2	Is scaffolding properly erected with all pins and braces in place and locked?			
3	Are wheels locked when scaffold is in use?			
4	Is scaffold erected on a firm and substantial surface?			
5	Is planking of a scaffold grade?			
6	Is planking in good condition and properly installed?			
7	Are toe boards and guardrails in place on scaffold work platform?			
8	Are workers on scaffolding protected from falling objects if overhead hazards exist?			
9	Is a ladder provided for access to scaffold work platform?			
F.	**BARRICADING**			
1	Are floor openings planked and secured or barricaded?			
2	Is a flag person provided to direct traffic when needed?			
3	Are open excavation, road drop offs, manholes, & uneven surfaces barricaded?			
G.	**LADDERS**			
1	Is the proper ladder for the job being used?			
2	Are ladders in good condition (no missing or broken rungs, etc.)?			
3	Is there a need for and/or are there safety shoes/cleats on the bottom of ladders?			
4	Are non-conductive ladders available for use around live wiring?			
5	Are ladders tied-off at top or otherwise secured?			
6	Do side rails extend 36 inches above the top of the landing?			
7	Are step ladders fully opened when in use?			

SAFETY STATUS FORMS

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#	QUESTION/CHECK LIST COMMENT:	YES	NO	N/A
H.	**PERSONAL PROTECTIVE EQUIPMENT**			
1	Is hearing protection available for personnel that may be exposed to noisy conditions?			
2	Is respiratory protection available to personnel and is it being used when conditions require same?			
3	Are safety harnesses, belts, lifelines, and lanyards available and being used?			
4	Are personnel using gloves when handling sharp or rough material?			
I.	**MEDICAL**			
1	Are first-aid kits available and properly stocked?			
2	Are all emergency phone numbers posted?			
3	Are all employees aware of the address of the site or capable of giving proper directions to emergency personnel?			
4	Is anyone trained in first-aid CPR?			
J.	**TOOLS: (Hand & Power)**			
1	Are tools free of any obvious physical damage?			
2	Are tools inspected for frayed and damaged cords?			
3	Are tools and cords properly grounded and are ground pins in good condition?			
4	Are the handles on all tools in good condition (not bent, splintered, or broken)?			
5	Are all hoses on air or hydraulic tools in good condition?			
6	Are all shields and guards in place on the tools and in good condition?			
7	Has each tool and/or equipment operator received proper operating and safety instruction for each tool and/or piece of equipment which he or she is using?			
8	Has each user of a power actuated tool been properly certified and are their certifications current?			
K.	**WELDING AND CUTTING**			
1	Are welding goggles, helmet, gloves and clothing being used by each welder?			
2	Inspection for fire hazards after welding stops			
3	Are gas cylinders, hoses, regulators, torches, torch tips, and welding carts in good working order and are same being properly secured?			
L.	**HOIST, CRANES AND DERRICKS**			
1	Are cables and sheaves checked?			
2	Are slings hooks, eyelets and chokes inspected?			
3	Are load capacities posted in cab?			
4	Are power lines at a safe distance?			
5	Are crane inspection logs with crane?			

SAFETY STATUS FORMS

This report is to serve as a minimum standard guideline and does not include job or trade specific items or conditions. Said items or conditions should be added by contractor on the last page entitled "COMMENTS AND REMARKS"

#	QUESTION/CHECK LIST COMMENT:	YES	NO	N/A
M.	**FLOOR, WALL OPENINGS, STAIRWAYS**			
1	Are floor and roof openings guarded by properly constructed guardrails or a properly reinforced and secured cover?			
2	Are open-sided floors and platforms six feet or more above the ground guarded with a properly constructed railing?			
3	Are stairs with four or more risers equipped with standard hand rail construction?			
4	Are runways four feet or more above the ground properly guarded?			

CONTRACTORS SAFETY – "COMMENTS & REMARKS"

END OF SECTION 01 40 05

SECTION 01 45 00 – QUALITY CONTROL

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Quality assurance and control of installation.

1.1.2. Contractor responsibility for structural tests and special inspections.

1.2. QUALITY ASSURANCE/CONTROL OF INSTALLATION

1.2.1. Monitor quality control over suppliers, manufacturers, Products, services, site conditions, and workmanship, to produce Work of specified quality.

1.2.2. Comply fully with manufacturers' instructions, including each step in sequence. Should manufacturers' instructions conflict with Contract Documents, request clarification from Project Manager before proceeding.

1.2.3. Comply with specified standards as a minimum quality for the Work except when more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

1.2.4. The Owner will retain a project inspector to inspect all work performed by Contractor in compliance with Section 4-333 and 4-342, Part 1, Title 24, CCR.

1.2.4.1. The Owner will retain special inspectors, minimum Class 1, for those portions of the work as shown on the drawings and specified in the respective sections in compliance with Section 4-333, Part 1, Title 24, CCR.

1.2.5. Perform work by persons qualified to produce workmanship of specified quality.

1.2.6. Secure Products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion or disfigurement.

1.3. CONTRACTOR RESPONSIBILITY

1.3.1. Each Contractor responsible for the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting-component listed in the statement of special inspections shall submit a statement of responsibility to the building official and the Owner prior to commencement of work on the system or component. The Contractor’s statement of responsibility shall contain the following:

1.3.1.1. Acknowledgment of awareness of the special requirements contained in the statement of special inspections;

1.3.1.2. Acknowledgment that control will be exercised to obtain conformance with the construction documents approved by the building official;

1.3.1.3. Procedures for exercising control within the Contractor's organization, the method and frequency of reporting and the distribution of the reports;

1.3.1.4. Identification and qualifications of the person(s) exercising such control and their position(s) in the organization.

1.4. FIELD SAMPLES

1.4.1. Install field samples or mock-ups for review at the site as required by individual specifications Sections.

1.4.2. Acceptable samples represent a quality level for the Work.

1.4.3. Remove field sample or mock-up when specified in individual Sections.

1.5. MANUFACTURERS' FIELD SERVICES AND REPORTS

1.5.1. When specified in individual specification Sections, require material or Product suppliers or manufacturers provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start - up of equipment, test, adjust, and balance of equipment as applicable, and to initiate instructions when necessary.

1.5.2. Report to the Project Manager observations, site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

1.5.3. Submit report in duplicate within 5 days of observation.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 45 00

SECTION 01 60 00 - PRODUCT REQUIREMENTS

PART 1 – GENERAL

1.1 SECTION INCLUDES

a. Products

b. Transportation and handling

c. Storage and protection

1.1.1 PRODUCTS

1.1.2 Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment that may have been used for the preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.

Do not use materials and equipment removed from existing premises, except as specifically permitted by the Contract Documents.

Provide interchangeable components of the same manufacturer, for similar components.

1.1.3 TRANSPORTATION AND HANDLING

a. Transport and handle Products in accordance with manufacturer's instructions.

b. Promptly inspect shipments to assure that Products comply with requirements, quantities are correct, and Products are undamaged.

c. Provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement or damage.

1.1.4 STORAGE AND PROTECTIONS

1. Store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive Products in weather-tight, climate controlled enclosures.

2. Where approved by Project Manager and permitted by General Conditions, provide off-site storage and protection in an insured warehouse when site does not permit on-site storage or protection.

3. Provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

PART 2 – PRODUCTS

(NOT USED)

PART 3 – EXECUTION

(NOT USED)

END OF SECTION 01 60 00

SECTION 01 73 29 – CUTTING AND PATCHING

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Requirements and limitations for cutting and patching of Work.

1.2. QUALITY ASSURANCE

1.2.1. Use only personnel who are thoroughly trained and experienced in the skills required and have installed similar applications of the specified products within one year prior to beginning work of this section.

1.2.2. Use only staff that is completely familiar with the requirements of this work.

1.3. SUBMITTALS

1.3.1. Submit written request and obtain, review, and approved by the Project Manager in advance of cutting or alteration of the following,:

1.3.1.1. Structural integrity of any element of Project.

1.3.1.2. Integrity of moisture - resistant element.

1.3.1.3. Efficiency, maintenance, or safety of any operational element.

1.3.1.4. Visual qualities of sight exposed elements.

1.3.1.5. Work of others.

1.3.1.6 Any location or member.

1.3.2. Include in request:

1.3.2.1. Identification of Project.

1.3.2.2. Location and description of affected work.

1.3.2.3. Necessity for cutting or alteration.

1.3.2.4. Description of proposed work, and Products to be used.

1.3.2.5. Alternatives to cutting and patching.

1.3.2.6. Effect on work of others.

1.3.2.7. Date and time work will be executed.

PART 2 - PRODUCTS

1.4. PRODUCTS FOR PATCHING AND EXTENDING WORK

1.4.1. General:

1.4.1.1. Unless noted otherwise, provide products matching existing finish, color, dimension, and assembly.

1.4.1.2. All products shall be new, unless specifically noted otherwise.

1.4.1.3. Provide asbestos-free materials.

1.4.1.4. Maintain all fire resistance ratings of existing assemblies and materials.

1.4.1.5. Maintain water and weather tight characteristics of assemblies and materials.

1.4.2. Comply with requirements as specified in applicable specification sections for materials used in repairing and extending existing work.

1.4.3. Primary Products: Those required for original installation.

1.4.4. Subfloor Filler: Portland cement based, Ardex or equal.

1.4.5. Portland Cement Plaster: Portland cement plaster with wire mesh reinforcing and casing/corner beads per the Plaster and Drywall System Manual of the Information Bureau of Western Lath/Plaster and Drywall Industry Association.

1.4.6. Product Substitution: Submit request for substitution under provisions of Section 01 25 00 for all proposed change in materials.

PART 3 - EXECUTION

1.5. SURFACE CONDITIONS

1.5.1. Inspection

1.5.1.1. Prior to work of this section, carefully inspect previously installed work. Verify all such work is complete to the point where this installation may properly commence.

1.5.1.2. Verify that work of this section may be installed in strict accordance with the original design, all pertinent codes and regulations, and all pertinent portions of the referenced standards.

1.5.1.3. In the event of discrepancy, immediately notify the Project Manager.

1.5.1.4. Do not proceed with installation in areas of discrepancy until all such discrepancies have been fully resolved.

1.5.2. During the course of the work, advise Project Manager of all discovered deficiencies, damage and degradation in existing structure, including finishes, and all plumbing, heating, ventilation, air conditioning, and electrical systems.

1.5.3. All cost caused by defective or ill-timed work shall be borne by General Contractor. General Contractor shall not endanger any work by cutting, excavating, or otherwise altering work and shall not cut or alter work of any other Contractor except with consent of the Project Manager.

1.6. PREPARATION

1.6.1. Provide temporary supports as required to ensure structural integrity of the Work, including scaffolding, shoring, and underpinning. Provide devices and methods to protect other portions of Project from damage.

1.6.2. Maintain excavations free of water.

1.6.3. Utility and Service Identification and Location

1.6.3.1. Locate and identify existing utility, service and irrigation system components affected by work of this contract. Review existing record drawings, conduct site investigations, contact Underground Service Alert and other qualified on-site cable/pipe/line locator services, and implement all other means necessary to define the location of underground systems.

1.6.3.2. Prior to beginning any cutting or patching affecting identified utilities, properly disconnect all water, gas and electrical power supply at appropriate disconnect locations. Obtain all necessary releases and approvals from serving utility companies.

1.6.3.3. Prior to disconnect, through the Project Manager, obtain Owners approval that such system does not impact facilities or systems beyond the extent of this contract.

1.6.3.4. Mark location of disconnected systems. Identify and indicate stub-out locations on Project Record Documents.

1.6.4. Coordinate the time and duration of all system disconnects with Project Manager.

1.7. CUTTING AND PATCHING

1.7.1. Contractor shall provide all cutting, including excavation and fill, fitting, or patching of Work as required to make its several parts come together properly and fit to receive or be received by work of other Contractors shown upon, or reasonably implied by the contract documents and Specifications for the completed structure, and as the Project Manager may direct.

1.7.2. Fit Products together, to integrate with other work.

1.7.3. Uncover work to install ill timed work.

1.7.4. Remove and replace defective or non-conforming work.

1.7.5. Remove samples of installed work for testing when requested.

1.7.6. Provide openings in the Work for penetration of mechanical and electrical work.

1.7.7 No structural member shall be cut, notched, bored or otherwise altered unless specifically approved.

1.8. PERFORMANCE

1.8.1. Execute work by methods to avoid damage to other Work, and which will provide appropriate surfaces to receive patching and finishing.

1.8.2. Employ original installer to perform cutting and patching for weather exposed and moisture resistant elements, and sight-exposed surfaces.

1.8.3. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

1.8.4. Restore work with new Products in accordance with requirements of Contract Documents.

1.8.5. Fit work air tight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces.

1.8.6. At penetrations of fire rated walls, partitions, ceiling, or floor construction, completely seal voids with fire rated material in accordance with Section 07 - Firestopping, to full thickness of the penetrated element.

1.8.7. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

END OF SECTION 01 73 29

SECTION 01 75 00 – STARTING AND ADJUSTING

PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Starting systems.

1.1.2. Demonstration and instructions.

1.1.3. Testing, adjusting and balancing.

1.2. STARTING SYSTEMS

1.2.1. Coordinate schedule for start-up of various equipment and systems.

1.2.2. Notify Inspector and Project Manager 48 hours prior to start-up of each item.

1.2.3. Verify that each piece of equipment or system has been checked for proper lubrication, drive rotation, belt tension, control sequence or other conditions which may cause damage.

1.2.4. Verify that tests, meter readings, and specified electrical characteristics agree with those required by the equipment or system manufacturer.

1.2.5. Verify wiring and support components for equipment are complete and tested.

1.2.6. Execute start-up under supervision of responsible manufacturer's representative and/or Contractor personnel in accordance with manufacturers' instructions.

1.2.7. When specified in individual specification Sections, require manufacturer to provide authorized representative to be present at site to inspect, and check equipment or system installation prior to start-up and to supervise placing equipment or system operation.

1.2.8. Submit a written report to the Project Manager that equipment or system has been properly installed and is functioning correctly.

1.2.9. Provide advance notice to Project Manager and Inspector of Record regarding all coordination for utility and service systems hook-ups.

1.3. DEMONSTRATION AND INSTRUCTIONS

1.3.1. Demonstrate operation and maintenance of Products to Owner's personnel within seven (7) calendar days of Substantial Completion, prior to occupancy.

1.3.2. Demonstrate Project equipment by a qualified manufacturers' representative who is knowledgeable about the Project.

1.3.3. For equipment or systems requiring seasonal operation, perform demonstration for other seasons within six months.

1.3.4. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

1.3.5. Demonstrate start-up, operation, control, adjustment, trouble-shooting, servicing, maintenance and shutdown of each item of equipment at agreed-upon times at equipment location.

1.3.6. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

1.3.7. The amount of time required for instruction on each item of equipment and system is that specified in individual sections.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 75 00

SECTION 01 77 19 – CLOSEOUT REQUIREMENTS

1. PART 1 - GENERAL

1.1. SECTION INCLUDES

1.1.1. Closeout Procedures.

1.1.2. Final Cleaning.

1.1.3. Adjusting.

1.1.4. Project Record Documents.

1.1.5. Operation and Maintenance Data.

1.1.6. Warranties.

1.1.7. Spare Parts, Turn-Over and Maintenance Materials.

1.1.8 Training

1.2. SUBSTANTIAL COMPLETION AND PUNCH LIST PROCEDURES

1.2.1. See General Conditions Article 9.9.1 for additional closeout procedures. General Conditions shall supercede any language in this section.

1.2.2. At such time as each Contractor believes project is substantially complete, notify Project Manager and request Punch List Inspection.

1.2.3. Project Manager and District's consultants will conduct an inspection in order to determine acceptance of work and identify items remaining to complete. The Project Manager will prepare a Punch List of such items and transmit to Contractor.

1.2.4. If Project Manager determines that punch list items remaining are sufficiently minor, and that Owner can occupy work and use it for its intended purpose, then Project Manager will prepare a Notice of Substantial Completion for Owner's signature.

1.2.4.1. If work is not substantially complete, Contractor shall continue construction until such time as project status justifies subsequent inspection. Project Manager and District's consultant costs incurred in such subsequent inspections will be paid by Contractor by Owner-Contractor contract adjustment.

1.2.4.2. Contractor shall complete all items on Punch List within 30 days, or as stated on Notice of Substantial Completion.

1.2.5. Provide submittals to Project Manager as required by governing or other authorities, including all required forms and approvals.

1.2.6. ***Contractor to provide a progress cleaning of the entire building once substantial completion is achieved.***

1.3. FINAL COMPLETION PROCEDURES

1.3.1. At such time as Contractor believes project is complete and following completion of Punch List items, notify Project Manager and request Final Inspection

1.3.1.1. Submit written certification that Contract Documents have been reviewed, Work has been inspected, and that Work is complete in accordance with Contract Documents and ready for Project Manager's Final inspection.

1.3.1.2. Upon receipt of request for final inspection, Project Manager will perform a Final Inspection and recommend actions as defined by the General Conditions.

1.3.1.3. If Project Manager determine work is acceptable under the Contract Documents, Contractor shall submit Final Application for Payment and close out documents.

1.3.2. Final Application for Payment -

1.3.2.1.1. See General Conditions Article 9

1.4. FINAL CLEANING

1.4.1. Contactor shall conduct all final cleaning required to comply with requirements of this Section prior to final inspection.

1.4.2. Use cleaning materials which do not create hazards to health or property and which will not damage surfaces. Use only those cleaning materials and methods recommended by manufacturer of the surface material to be cleaned. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.4.3. Employ experienced workers or professional cleaners for final cleaning. Comply with instructions of manufacturer for surface being cleaned.

1.4.4. Comply with regulations of authorities having jurisdiction and safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on the Owner's property. Do not discharge volatile, harmful or dangerous materials into drainage systems. Remove waste materials from the site and dispose of in a lawful manner

1.4.5. Contractor shall clean all completed interior work, including but not necessarily limited to, surfaces exposed to view in final construction, all cabinet/casework interiors and surfaces, and all equipment and fixtures.

1.4.6. Clean all completed building exterior surfaces and site work, including but not necessarily limited to, surfaces exposed to view in final construction, all roof surfaces, all site paving surfaces, and all equipment and fixtures.

1.4.6.1. Remove temporary labels, stains and foreign substances from exterior surfaces.

1.4.6.2. Polish exterior signage components and similar glossy surfaces.

1.4.6.3. Remove dirt and dust from all exterior surfaces by approved means. Clean all sealant joints and similar applications.

1.4.6.4. Remove debris, construction products, fasteners, and trash from all roof surfaces.

1.4.6.5. Rake grounds that are neither paved nor planted to a smooth even-textured surface.

1.4.6.6. Clean all paving surfaces as necessary to remove construction dust and dirt, including debris from joints using approved methods. Remove all construction stains by approved means. Remove asphalt and seal coat splatter from curb faces.

1.4.7. Remove waste and surplus materials, rubbish, and construction facilities from the site and legally dispose of.

1.4.8. **If there is a delay to the schedule due to the contractor, and the contractor does not achieve final completion prior to the District occupying the building, the contractor is responsible for providing the final cleaning just prior to the occupancy.**

1.5. ADJUSTING

1.5.1. Adjust operating Products and equipment to ensure smooth and unhindered operation.

1.5.2. Contractor to adjust the door hardware prior to punch list, again before Notice of Completion, and again at the 11 month warranty walk review.

1.6. RECORD DOCUMENTS: RECORD SET

1.6.1. Upon completion of the Work, update record set supplied by Project Manager. Complete update of record set is required for submittal of final payment. Project Manager shall be sole judge of completeness of record set.

1.6.1.1. Update record set at regular intervals as directed by Project Manager.

1.6.2. Provide two (1) full size set of as-builts for the project with electronic (PDF) version for the District/Campus.

1.6.3. Provide a separate copy of the Field Superintendent’s as-builts, which were used to create the office set.

1.7. OPERATION AND MAINTENANCE DATA

1.7.1. Submit four sets prior to final inspection, bound in 8-1/2 x 11 inch text pages, three ring binders with durable plastic covers.

1.7.2. Prepare binder covers with printed title "OPERATION AND MAINTENANCE INSTRUCTIONS", title of project, and subject matter of binder when multiple binders are required.

1.7.3. Internally subdivide the binder contents with permanent page dividers, logically organized as described below; with tab titling clearly printed under reinforced laminated plastic tabs.

1.7.4. Contents: Prepare a Table of Contents for each volume, with each Product or system description identified type on 24-pound white paper.

1.7.5. Part 1: Directory, listing names, addresses, and telephone numbers of Engineers, Contractor, Subcontractors, and major equipment suppliers.

1.7.6. Part 2: Operation and maintenance instructions arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

1.7.6.1. Significant design criteria.

1.7.6.2. List of equipment.

1.7.6.3. Parts list for each component.

1.7.6.4. Operating instructions.

1.7.6.5. Maintenance instructions for equipment and systems.

1.7.6.6. Maintenance instructions for special finishes, including recommended cleaning methods and materials and special precautions identifying detrimental agents.

1.7.7. Part 3: Project documents and certificates, including the following:

1.7.7.1. Shop drawings and product data.

1.7.7.2. Certificates.

1.7.7.3. Photocopies of warranties.

1.7.8. Submit one copy of completed volumes in final form 15 days prior to final inspection. This copy will be returned after final inspection, with Project Manager comments. Revise content of documents as required prior to final submittal.

1.7.9. Submit final volumes revised, within 15 days after final inspection.

1.8. WARRANTIES

1.8.1. Provide duplicate notarized copies.

1.8.2. Execute and assemble documents from Subcontractors, suppliers, and manufacturers.

1.8.3. Provide Table of Contents and assemble in three ring binders with durable plastic cover.

1.8.4. Submit prior to final Application for Payment.

1.8.5. For items of Work delayed beyond date of Substantial Completion, provide updated submittal within 10 days after acceptance, listing date of acceptance as start of warranty period.

1.8.6. CONTRACTOR to participate in an 11 month warranty walk prior to warranty period end.

1.8.7. WARRANTY CALLS:

1.8.7.1. CONTRACTOR to provide a Warranty log that includes, but limited to the following information: Warranty #, Request Date, and Completion Date.

1.8.7.2. Warranty request form is to have a sign-off line for the Requestor and the Contractor at the time the work is complete.

1.8.7.3. The CONTRACTOR is to coordinate with the District/Campus when they will be on site for warranty work calls.

1.9 TRAINING

1.9.1 All training requirements are to include the manufacturer's representative for initial start-up training and an additional day of follow-up training with M&O (Maintenance & Operations) upon their request after use of the system/equipment before the Notice of Completion is filed.

1.9.2 M&O shall have a copy of all training manuals (regardless of training) prior to project completion.

PART 2 - PRODUCTS

Not used

PART 3 - EXECUTION

Not used

END OF SECTION 01 77 19

EXHIBIT D

AGREEMENT FORMS

CONSTRUCTION AGREEMENT

THIS CONSTRUCTION AGREEMENT ("Agreement"), is entered into this __ day of February, 2018 in the County of San Bernardino of the State of California, by and between the San Bernardino Community College District ("DISTRICT") and _____ ("CONTRACTOR").

WITNESSETH that the DISTRICT and the CONTRACTOR for the consideration stated herein agree as follows:

ARTICLE 1 - SCOPE OF WORK: The CONTRACTOR shall furnish all labor, materials, supplies, products, design and engineering services, equipment, tools, utility and transportation services, apparatus, and the like, and perform and complete all work required in connection with the project commonly referred to as **KVCR RADIO AND TELEVISION BUILDING REPURPOSE ("Project")** in strict accordance with the Contract Documents enumerated in Article 8 below. The CONTRACTOR shall be liable to the DISTRICT for any damages arising as a result of a failure to comply with all of these obligations, and the CONTRACTOR shall not be excused with respect to any failure to so comply by an act or omission of the Inspector of Record, the Riverside County ("Planning Department"), or representative of any of them, unless such act or omission actually prevents the CONTRACTOR from fully complying with the contract documents and the CONTRACTOR protests, in accordance with the Contract Documents, that the act or omission is preventing the CONTRACTOR from fully complying with the Contract Documents. Such protest shall not be effective unless reduced to writing and filed with the DISTRICT within seven days of the date of occurrence of such act or omission preventing the CONTRACTOR from fully complying with the Contract Documents. Everything called for by the Agreement is sometimes also referred to as the "Work."

ARTICLE 2 - TIME OF COMPLETION: Once the CONTRACTOR has received the Notice to Proceed from the DISTRICT, the CONTRACTOR shall proceed as identified therein as well as required by the Project Schedule, and shall diligently schedule, execute, and fully complete the required Work in accordance with the current Project Schedule and within the time period specified in the Notice to Proceed. The Project duration shall be 121 calendar days.

It is expected that the DISTRICT will issue the Notice to Proceed to the CONTRACTOR within 30 days of the CONTRACTOR's execution of this Agreement. But it is expressly understood that with reasonable notice to the CONTRACTOR, the DISTRICT may postpone issuing the Notice to Proceed. It is further expressly understood that the CONTRACTOR shall not be entitled to any claim of additional compensation as a result of the DISTRICT's postponement of the issuance of the Notice to Proceed.

ARTICLE 3 –LIQUIDATED DAMAGES: The CONTRACTOR shall pay the DISTRICT $500.00 per day as liquidated damages for each calendar day of unexcused delay that the Work remains unfinished beyond the completion date as set forth in the Project Schedule that is caused by the CONTRACTOR or by those for whom the Contractor is legally responsible for to the District. The DISTRICT may deduct such liquidated damages from any payments due or to become due to CONTRACTOR. This provision shall not limit any rights or remedies of the DISTRICT in the event any other default of the CONTRACTOR other than failing to complete the Work by the completion date.

ARTICLE 4 - CONTRACT PRICE: The DISTRICT shall pay to the CONTRACTOR as full consideration for the faithful performance of this Agreement, subject to any additions or deductions as provided in the Contract Documents, the sum of _____DOLLARS ($), said sum being the total amount stipulated in the CONTRACTOR's proposal. Payment shall be made as set forth in the General Conditions.

Should any Change Order, Partial Change Order, Construction Directive, or Compromise result in an increase or decrease in the Contract Price, the cost of such Change Order, Partial Change Order, Construction Directive, or Compromise, shall be agreed to in advance by the CONTRACTOR and the DISTRICT, subject to the limitations set forth in the applicable Public Contract Code sections. In the event that the CONTRACTOR proceeds with a change in the Work without an agreement between the DISTRICT and CONTRACTOR regarding the cost of a Change Order, Partial Change Order, Construction Directive, or Compromise, the CONTRACTOR waives any claim of additional compensation for such additional work. The DISTRICT's Vice Chancellor has received delegated authority from the DISTRICT's Governing Board to approve additive and deductive Change Orders, Partial Change Orders, Construction Directives, and Compromises, and to bind the DISTRICT thereto, in the amount of the monetary limitations set forth in the applicable Public Contract Code sections. See General Conditions, Article 7, for further details.

ARTICLE 5 – DEFENSE – INDEMNIFICATION – HOLD HARMLESS OBLIGATIONS: CONTRACTOR shall defend, indemnify, and hold harmless the DISTRICT, the Architect, the Inspector of Record, Project Manager, and the State of California, and their respective officers, trustees, employees, agents, and independent contractors, from all liabilities, claims, actions, liens, judgments, demands, damages, losses, costs, and expenses, of any kind, arising from death, personal injury, property damage, or other cause, based or asserted upon any act, omission, or breach connected with or arising from the Work or performance of service under this Agreement or the Contract Documents. As part of this indemnity, CONTRACTOR shall protect and defend, at its own expense, the DISTRICT, the Architect, the Inspector of Record, the State of California, and their respective officers, trustees, employees, agents, and independent contractors, from any such legal action, including attorneys' fees and legal costs.

Furthermore, CONTRACTOR hereby agrees to defend, indemnify, and hold harmless the DISTRICT, the Architect, the Inspector of Record, the Project Manager, and the State of California, and their respective officers, trustees, employees, agents, and independent contractors from every claim or demand made, and every liability, loss, damage, expense, or attorney's fees and legal costs, of any nature whatsoever, which may be incurred by reason of:

(a) Liability for: (1) death or bodily injury to persons; (2) damage or injury to, loss (including theft), or loss of use of, any property; (3) any failure or alleged failure to comply with any provision of law or the Contract Documents; or (4) any other loss, damage, or expense, sustained by any person, firm, or corporation in connection with the Work called for in this Agreement or the Contract Documents, except to the extent resulting from the sole negligence or the sole willful misconduct of the DISTRICT.

(b) Any bodily injury to or death of persons, or damage to property, caused by any act, omission, or breach of the CONTRACTOR, or by any person, firm, or corporation employed or retained by the CONTRACTOR, either directly or by independent contract, including all damages or injury to, loss (including theft), or loss of use of, any property, sustained by any person, firm, or corporation, including the DISTRICT, arising out of or in any way connected with the Work

covered by this Agreement or the Contract Documents, but not for any loss, injury, death, or damages caused by the sole negligence or sole willful misconduct of the DISTRICT.

(c) Any dispute between the CONTRACTOR and the CONTRACTOR's subcontractors, suppliers, agents, or sureties, including, but not limited to, any failure or alleged failure of the CONTRACTOR (or any person hired or retained directly or indirectly by the CONTRACTOR) to pay any subcontractor of any tier, or any other person employed in connection with the Work, or in connection with the filing of any stop notice or mechanic's lien claims.

(d) Any breach of the Agreement by the CONTRACTOR.

CONTRACTOR, at its own expense, cost, and risk, shall defend any and all claims, actions, suits, and other proceedings that may be brought or instituted against the DISTRICT, its officers, trustees, agents, or employees, on any such claim or liability, and shall pay or satisfy any judgment that may be rendered against the DISTRICT, or its officers, trustees, agents, or employees, in any action, suit, or other proceedings as a result thereof.

The Parties agree to comply with the dispute resolution procedures set forth in Public Contract Code Section 9204, as applicable.

ARTICLE 6 - CONTRACTOR'S INSURANCE:

6.1 **Insurance Requirements.** Before the commencement of Work on the Project, the CONTRACTOR shall purchase from and maintain in a company or companies lawfully authorized to do business in California, with a financial rating of at least A+ status as rated in the most recent edition of Best's Insurance Reports, such insurance as will protect the DISTRICT from claims set forth below, which may arise out of or result from the CONTRACTOR's operations under this Agreement and for which the CONTRACTOR may be legally liable, whether such operations are by the CONTRACTOR, or by anyone directly or indirectly employed or retained by CONTRACTOR, or by anyone for whose acts CONTRACTOR may be liable, including insurance coverage for the following:

(a) Claims for damages because of bodily injury, sickness, disease, or death of any person, including employees, contractors, and agents of the DISTRICT;

(b) Claims for damages insured by usual personal injury liability coverage which are sustained by a person as a result of an offense directly or indirectly related to employment of such person by the CONTRACTOR or by a subcontractor or agent of the CONTRACTOR;

(c) Claims for damages because of injury or destruction of tangible property, including loss of use resulting therefrom, arising from acts or omissions under this Agreement or the Contract Documents;

(d) Claims for damages because of bodily injury, death of a person, or property damage arising out of the ownership, maintenance, or use of a motor vehicle, all mobile equipment, and vehicles moving under their own power and engaged in the Work for the Project;

(e) Claims involving contractual liability applicable to the CONTRACTOR's obligations under this Agreement and the Contract Documents, including liability assumed by and the indemnity and defense obligations of the CONTRACTOR and its subcontractors;

(f) Claims involving completed operations, independent contractors' coverage, and Broad Form property damage, without any exclusions for collapse, explosion, demolition, underground coverage, or excavating; and

(g) Claims involving sudden or accidental discharge of contaminants or pollutants.

6.2 **Additional Insured Endorsement Requirements**. The CONTRACTOR shall name, on any policy of insurance required under Article 6.1 above, the DISTRICT, the Architect, the Inspector of Record, the State of California, and their respective officers, trustees, employees, agents, and independent contractors as additional insureds. The CONTRACTOR also shall ensure that all of the CONTRACTOR's subcontractors name the same additional insureds. The Additional Insured Endorsement included on all such insurance policies shall state that coverage is afforded the additional insured with respect to claims arising out of operations performed by or on behalf of the insured. If the additional insureds have other insurance which is applicable to the loss, such other insurance shall be on an excess or contingent basis. The insurance provided by the CONTRACTOR pursuant to this Article must be designated in the policy as primary to any insurance obtained by the DISTRICT. The amount of the insurer's liability shall not be reduced by the existence of such other insurance.

6.3 **Specific Insurance Requirements**. The CONTRACTOR shall take out and maintain and shall require all of its subcontractors, if any, whether primary or secondary, to take out and maintain:

(a) **General Liability Insurance**. Comprehensive General Liability Insurance with a combined single limit per occurrence of not less than $1,000,000.00 or Commercial General Liability Insurance (including automobile insurance) which provides limits of not less than:

i. Per occurrence (combined single limit)….....$1,000,000.00

ii. Project Specific Aggregate (for this project only) … $1,000,000.00

iii. Products and Completed Operations…….....$500,000.00

iv. Personal and Advertising Injury Limit……..…$500,000.00

6.4 **Workers' Compensation Insurance.** During the term of this Agreement, the CONTRACTOR shall provide workers' compensation insurance for all of the CONTRACTOR's employees working on the Project under this Agreement and, in case any of the CONTRACTOR's work is subcontracted, the CONTRACTOR shall require the subcontractor to provide workers' compensation insurance for all the subcontractor's employees working on the Project. Any class of employee not covered by a subcontractor's insurance shall be covered by the CONTRACTOR's insurance. In case any class of employee working on the Project under this Agreement on the Project is not protected under the workers' compensation laws, the CONTRACTOR shall provide or cause a subcontractor to provide adequate insurance coverage for the protection of those

employees not otherwise protected. The CONTRACTOR shall file with the DISTRICT certificates of insurance in accordance with Labor Code § 3700.

6.5 **Other Insurance.** The CONTRACTOR shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

6.6 **Proof of Insurance.** The CONTRACTOR shall not commence work on the Project, nor shall it allow any subcontractor to commence work on the Project until all required insurance and certificates have been obtained and delivered in duplicate to the DISTRICT for approval subject to the following requirements:

(a) Certificates and insurance policies shall include the following clause: "This policy shall not be non-renewed, canceled, or reduced in required limits of liability or amounts of insurance until notice has been mailed to the DISTRICT."

(b) Certificates of insurance shall state in particular those insured, the extent of insurance, location, and operation to which the insurance applies, the expiration date, and cancellation and reduction notices.

(c) Certificates of insurance shall clearly state that the DISTRICT and the Architect are named as additional insureds under the policy described, and that such insurance policy shall be primary to any insurance or self-insurance maintained by the DISTRICT.

(d) The CONTRACTOR and its subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the DISTRICT.

6.7 **Compliance.** In the event that the CONTRACTOR fails to furnish and maintain any insurance required by this Article, the CONTRACTOR shall be in default under the Contract. Compliance by CONTRACTOR with the requirement to carry insurance and furnish certificates or policies evidencing the same shall not relieve the CONTRACTOR from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the DISTRICT.

ARTICLE 7 - PROVISIONS REQUIRED BY LAW: Each and every provision of law and clause required to be inserted in this Agreement shall be deemed to be inserted herein, and this Agreement shall be read and enforced as though it were included herein, and if through mistake or otherwise any such provision is not inserted or is not inserted correctly, then upon application of either party, this Agreement shall forthwith be physically amended to make such insertion or correction.

ARTICLE 8 - COMPONENT PARTS OF THIS AGREEMENT: This Agreement consists of the following Contract Documents, all of which are component parts of the Agreement as if herein set out in full or attached hereto:

Notice Inviting Bids
Bid Proposal Form
Bid Guarantee Form
Bid Bond ***(Notarized)***
Designation of Subcontractors
Non-Collusion Declaration ***(Notarized)***

Contractor's Certificate Regarding Worker's Compensation
Acknowledgment of Bidding Practices
Bidder's Acknowledgement of Project Duration
Site Visit Certification (*Notarized)*
Substitution Request Form
General Conditions
NIB Documents
Agreement Form **(*Notarized)***
Payment Bond **(*Notarized)***
Performance Bond **(*Notarized)***
Contractor's Guarantee
Insurance Endorsements
Contractor's Certificate Regarding Drug-Free Workplace
Contractor's Certificate Regarding Tobacco & Alcoholic Beverage Use
Recycled Content Certification
Asbestos-Free Materials Certificate **(*Notarized)***
Lead Base Paint Requirements **(*Notarized)***
Project Schedule
All Addenda as Issued
All Change Orders and/or Partial Change Orders

All of the Contract Documents are intended to be complementary. Terms used in this Agreement are as used herein or in the General Conditions. Work required by one of the Contract Documents and not by others shall be done as if required by all. In case of a conflict between this Agreement and any other of the Contract Documents, the terms of this Agreement shall prevail.

ARTICLE 9 - PREVAILING WAGES: Wage rates for this Project shall be in accordance with the general prevailing rate of holiday and overtime work in the locality in which the work is to be performed for each craft, classification, or type of work needed to execute the contract as determined by the Director of the Department of Industrial Relations ("DIR"). Copies of schedules of rates so determined by the Director of the DIR are available from the DIR.

The following are hereby referenced and made a part of this Agreement and the CONTRACTOR agrees to the provisions contained therein.

1. Chapter 1 of Part 7 of Division 2 of the Labor Code (Sections 1720 et seq.);

2. California Code of Regulations, Title 8, Chapter 8, Subchapters 3 & 4 (Sections 16000 et seq.); and

ARTICLE 10 - RECORD AUDIT: In accordance with Government Code Section 8546.7, records of both the DISTRICT and the CONTRACTOR shall be subject to examination and audit by the Auditor General for a period of three years after final payment. Separate and apart from the foregoing, the CONTRACTOR shall keep all of its, and require by contract that each of its subcontractors, sub-subcontractors, and suppliers keep all of their, Project and Project-related records, for a period of four years from the Project's completion, and the DISTRICT has the right to copy, review, inspect, and audit all such records at DISTRICT's cost and expense upon 48 hours' notice. Upon receipt of such notice, the CONTRACTOR shall make said records available as required herein.

ARTICLE 11 - CONTRACTOR'S LICENSE AND REGISTRATION: The CONTRACTOR must possess, and keep in good standing at all times during the performance of this Agreement, all required licenses and certifications. In addition, the CONTRACTOR shall comply with the registration requirements set forth in Labor Code Section 1725.5.

ARTICLE 12 – PROJECT MANAGER STATUS: DISTRICT staff or a designated consultant will serve as Project Manager. The Project Manager will assist the DISTRICT with the administration of the Agreement, in accordance with the terms of those General Conditions and the Construction Management Agreement, if any, between the DISTRICT and the Project Manager. The Project Manager has been appointed as the DISTRICT's agent with the power to carry out the Project Manager's duties and activities on behalf of the DISTRICT. The Project Manager has no payment obligation under this Agreement and cannot authorize any changes to the Agreement, the Work, or the Project.

IN WITNESS WHEREOF, this Agreement has been duly executed by the parties, on the day and year first above written.

San Bernardino Community College District	CONTRACTOR:
By:_____	_____ Typed or Printed Name
	_____ Title
By:_____	_____ Type or Printed Name
Dated:_____	_____ Title (Authorized Officers or Agents)
	(CORPORATE SEAL)

SECTION 00 50 01 – PAYMENT BOND (CALIFORNIA PUBLIC WORKS)

Required Action By Contractor – Posting of the Payment Bond:

Contractor shall post at the jobsite a complete copy of the actual payment bond issued. The copy of the payment bond shall be posted outside, but protected from the elements, so that all the information contained in the payment bond issued shall be legible and available to all those persons who the law permits to make a claim against said bond.

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, San Bernardino Community College District (sometimes referred to hereinafter as "Obligee") has awarded to _____ (hereinafter designated as the "CONTRACTOR"), an agreement for the work described as follows: _____ (hereinafter referred to as the "Public Work"); and

WHEREAS, said CONTRACTOR is required to furnish a bond in connection with said Contract, and pursuant to, without limitation, California Civil Code section 9550, and/or other applicable laws;

NOW, THEREFORE, We, _____, the undersigned CONTRACTOR, as Principal; and _____, a corporation organized and existing under the laws of the State of, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto San Bernardino Community College District and to any and all persons, companies, or corporations entitled by law to file stop notices under California Civil Code section 9100, or any person, company, or corporation entitled to make a claim on this bond, in the sum of _____ Dollars ($_____), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which payment will and truly to be made, we bind ourselves, our heirs, executors and administrators, successors and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH that if said Principal, its heirs, executors, administrators, successors, or assigns, or subcontractor, shall fail to pay any person or persons named in Civil Code section 9100; or fail to pay for any materials, provisions, or other supplies, used in, upon, for, or about the performance of the work contracted to be done, or for any work or labor thereon of any kind, or for amounts due under the Unemployment Insurance Code, with respect to work or labor thereon of any kind; or shall fail to deduct, withhold, and pay over to the Employment Development Department, any amounts required to be deducted, withheld, and paid over by Unemployment Insurance Code section 13020 with respect to work and labor thereon of any kind, then said Surety will pay for the same, in an amount not exceeding the amount herein above set forth, and in the event suit is brought upon this bond, also will pay such reasonable attorneys' fees as shall be fixed by the court, awarded and taxed as provided in California Civil Code sections 9550 et. seq., and/or other applicable laws.

This bond shall inure to the benefit of any person named in Civil Code section 9100 giving such person or his/her assigns a right of action in any suit brought upon this bond.

It is further stipulated and agreed that the Surety of this bond shall not be exonerated or released from the obligation of the bond by any change, extension of time for performance, addition, alteration or modification in, to, or of any contract, plans, or specifications, or agreement pertaining or relating to any scheme or work of improvement herein above described; or pertaining or relating to the furnishing of labor, materials, or equipment therefore; nor by any change or modification of any terms of payment or extension of time for payment pertaining or relating to any scheme or work of improvement herein above described; nor by any rescission or attempted rescission of the contract, agreement or bond; nor by any conditions precedent or subsequent in the bond attempting to limit the right of recovery of claimants otherwise entitled to recover under any such contract or agreement or under the bond; nor by any fraud practiced by any person other than the claimant seeking to recover on the bond;

and that this bond be construed most strongly against the Surety and in favor of all persons for whose benefit such bond is given; and under no circumstances shall the Surety be released from liability to those for whose benefit such bond has been given, by reason of any breach of contract between the DISTRICT and the CONTRACTOR or on the part of any obligee named in such bond; that the sole condition of recovery shall be that the claimant is a person described in California Civil Code sections 8400 and 8402, and who has not been paid the full amount of his or her claim; and that the Surety does hereby waive notice of any such change, extension of time, addition, alteration or modification herein mentioned.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20_____.

PRINCIPAL/CONTRACTOR:

_____

By: _____

SURETY:

_____

By: _____

Attorney-in-Fact

IMPORTANT: THIS IS A REQUIRED FORM AND MAY NOT BE ALTERED OR CHANGED

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or Project is financed, in whole or in part, with federal, grant or loan funds, Surety's name must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)	(Name and Address of agent or representative for service for service of process in California)
_____	_____
_____	_____
Telephone:_____	Telephone: _____

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On this _____ day of _____, in the year _____, before me, _____, a Notary Public in and for said State, personally appeared _____, known to me to be the person whose name is subscribed within the instrument as the Attorney-in-Fact of the _____ (Surety) and acknowledged to me that he subscribed the name of the _____ (Surety) thereto and his own name as Attorney-in-Fact.

_____ (SEAL)
Notary Public in and for said State

Commission expires:_____

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.

END OF SECTION

SECTION 00 50 02 – PERFORMANCE BOND (CALIFORNIA PUBLIC WORKS)

KNOW ALL MEN BY THESE PRESENTS:

THAT WHEREAS, San Bernardino Community College District (sometimes referred to hereinafter as "Obligee") has awarded to _____ (hereinafter designated as the "CONTRACTOR"), an agreement for the **KVCR Radio and Television Building Repurpose** Project located at KVCR 701 S. Mount Vernon Avenue, San Bernardino CA 92410 ("Contract"); and

WHEREAS, the terms, conditions, covenants, provisions and obligations to be performed by the CONTRACTOR are more particularly set forth in that Contract, which is incorporated in full herein by this reference; and

WHEREAS, the CONTRACTOR is required by said Contract to competently, completely and promptly perform all of the terms, conditions, provisions, covenants, and obligations thereof and to provide a bond guaranteeing the competent, complete and prompt performance thereof.

NOW, THEREFORE, we, _____, the undersigned CONTRACTOR, as Principal, and _____, a corporation organized and existing under the laws of the State of _____, and duly authorized to transact business under the laws of the State of California, as Surety, are held and firmly bound unto San Bernardino Community College District in the sum of _____ Dollars ($_____), said sum being not less than one hundred percent (100%) of the total amount payable by said Obligee under the terms of said Contract, for which amount well and truly to be made, we bind ourselves, our heirs, executors, administrators, successors, and assigns, jointly and severally, firmly by these presents.

THE CONDITION OF THIS OBLIGATION IS SUCH THAT, if the CONTRACTOR, his or her heirs, executors, administrators, successors or assigns, shall in all things stand to and abide by, and well and truly keep and perform all of the terms, conditions, provisions, covenants, and obligations in said Contract, and any alteration thereof made as therein provided, on his or her part, to be kept and performed at the time and in the manner therein specified, and in all respects according to their intent and meaning; and shall faithfully fulfill all guarantees of all materials and workmanship; and indemnify, defend and save harmless the Obligee, its officers and agents, as stipulated in said Contract, then this obligation shall become null and void; otherwise it shall be and remain in full force and effect.

For value received, the Surety hereby stipulates and agrees that no change, extension of time, alteration, addition, or deletion, to the terms, conditions, provisions, covenants, and obligations of the Contract, or to the work to be performed thereunder, or the Specifications accompanying same, shall in any way affect its obligations on this bond, and it does hereby waive notice of any such change, extension of time, alteration, addition, and deletion, to the terms, conditions, provisions, covenants, and obligations of said Contract, or to the Work, or to the Specifications.

No final settlement between the Obligee and the CONTRACTOR shall abridge the right of any beneficiary hereunder, whose claim may be unsatisfied.

CONTRACTOR and Surety agree that if the Obligee is required to engage the services of an attorney in connection with enforcement of the bond, CONTRACTOR and Surety shall pay Obligee's reasonable attorneys' fees incurred, with or without suit, in addition to the above sum.

In the event suit is brought upon this bond by the DISTRICT and judgment is recovered, the Surety shall pay all costs incurred by the DISTRICT in such suit, including reasonable attorneys' fees to be fixed by the Court regardless of whether such fees and costs exceed the penal sum of this bond.

IN WITNESS WHEREOF, we have hereunto set our hands and seals this _____ day of _____, 20____.

PRINCIPAL/CONTRACTOR:

_____

By: _____

SURETY:

_____

By: _____

Attorney-in-Fact

The rate of premium on this bond is _____ per thousand.

The total amount of premium charged: $_____ (This must be filled in by a corporate surety).

IMPORTANT: THIS IS A REQUIRED FORM AND MAY NOT BE ALTERED AND/OR CHANGED

Surety companies executing bonds must possess a certificate of authority from the California Insurance Commissioner authorizing them to write surety insurance defined in California Insurance Code section 105, and if the work or Project is financed, in whole or in part, with federal, grant or loan funds, Surety's name must also appear on the Treasury Department's most current list (Circular 570 as amended).

Any claims under this bond may be addressed to:

(Name and Address of Surety)	(Name and Address of agent or representative for service for service of process in California)
_____	_____
_____	_____
Telephone:_____	Telephone: _____

STATE OF CALIFORNIA)
) ss.
COUNTY OF _____)

On this _____ day of _____, in the year _____, before me, _____, a Notary Public in and for said State, personally appeared _____, known to me to be the person whose name is subscribed within the instrument as the Attorney-in-Fact of the _____ (Surety) and acknowledged to me that he subscribed the name of the _____ (Surety) thereto and his own name as Attorney-in-Fact.

_____ (SEAL)
Notary Public in and for said State

Commission expires:_____

NOTE: A copy of the power-of-attorney to local representatives of the bonding company must be attached hereto.

THIS FORM IS MANDATORY AND NO CHANGE, MODIFICATION AND/OR ALTERATION THEREOF WILL BE ACCEPTED BY THE OWNER.

END OF SECTION

SECTION 00 50 03 – CONTRACTOR'S GUARANTEE

Guarantee for **KVCR RADIO AND TELEVISION BUILDING REPURPOSE.**

We hereby guarantee that all the services we, and/or our subcontractors, suppliers, materialmen, laborers, and the like, will perform, and all the work, labor, materials, equipment, supplies, apparatus, products, and the like, that we will furnish to and/or install in the Project will be done in accordance with the Contract Documents, including without limitation, the drawings and specifications, and that the services performed, and all the work, labor, materials, equipment, supplies, apparatus, products, and the like, that we will furnish to and/or install in the Project will fulfill the requirements included in the bid documents. The undersigned agrees to repair or replace any or all such work, materials, equipment, supplies, apparatus, and the like, together with any other adjacent work, which may be displaced in connection with such replacement, that may prove to be defective in workmanship or material within a period of one (1) years from the date of the Notice of Completion of the above-mentioned structure by San Bernardino Community College District, ordinary wear and tear and unusual abuse or neglect excepted.

In the event the undersigned fails to comply with the above-mentioned conditions within a reasonable period of time, as determined by the DISTRICT, but not later than ten (10) days after being notified in writing by the DISTRICT, the undersigned authorizes the DISTRICT to proceed to have said defects repaired and made good at the expense of the undersigned and/or its performance bond surety, who will pay the costs and charges therefore upon demand.

The time period set forth herein shall not diminish, impair, modify, alter, change or replace any obligations of the CONTRACTOR and its sureties required elsewhere in the Contract Documents and/or as stated under applicable law.

	Countersigned
_____	_____
(Proper Name)	(Proper Name)
By: _____	By: _____
_____	_____
(Signature of Subcontract or CONTRACTOR)	(Signature of General Contractor if for Subcontractor)

Representatives to be contacted for service:

Name: _____

Address: _____

_____

Phone Number: _____

END OF SECTION

SECTION 00 50 04 – CONTRACTOR'S CERTIFICATE REGARDING DRUG-FREE WORKPLACE

This Drug-Free Workplace Certification form is required from all successful bidders pursuant to the requirements mandated by Government Code sections 8350 et. seq., the Drug-Free Workplace Act of 1990. The Drug-Free Workplace Act of 1990 requires that every person or organization awarded a contract or grant for the procurement of any property or service from any State agency must certify that it will provide a drug-free workplace by performing certain specified acts. In addition, the Act provides that each contract or grant awarded by a State agency may be subject to suspension of payments or termination of the contract or grant, and the CONTRACTOR or grantee may be subject to debarment from future contracting, if the contracting agency determines that specified acts have occurred.

Pursuant to Government Code section 8355, every person or organization awarded a contract or grant from a State agency shall certify that it will provide a drug-free workplace by doing all of the following:

a) Publishing a statement, notifying employees that the unlawful manufacture, distribution, dispensation, possession, or use of a controlled substance is prohibited in the person's or organization's workplace, and specifying actions which will be taken against employees for violations of the prohibition;

b) Establishing a drug-free awareness program to inform employees about all of the following:
   1) The dangers of drug abuse in the workplace;
   2) The person's or organization's policy of maintaining a drug-free workplace;
   3) The availability of drug counseling, rehabilitation and employee-assistance programs;
   4) The penalties that may be imposed upon employees for drug abuse violations;

c) Requiring that each employee engaged in the performance of the contract or grant be given a copy of the statement required by subdivision (a) and that, as a condition of employment on the contract or grant, the employee agrees to abide by the terms of the statement.

I, the undersigned, agree to fulfill the terms and requirements of Government Code section 8355 listed above and will (a) publish a statement notifying employees concerning the prohibition of controlled substance at the workplace, (b) establish a drug-free awareness program, and (c) require each employee engaged in the performance of the contact be given a copy of the statement required by section 8355(a) and require such employee agree to abide by the terms of that statement.

I also understand that if the DISTRICT determines that I have either (a) made a false certification herein, or (b) violated this certification by failing to carry out the requirements of section 8355, that the contract awarded herein is subject to termination, suspension of payments, or both. I further understand that, should I violate the terms of the Drug-Free Workplace Act of 1990, I may be subject to debarment in accordance with the requirements of sections 8350 et. seq.

I acknowledge that I am aware of the provisions of Government Code sections 8350 et. seq. and hereby certify that I will adhere to the requirements of the Drug-Free Workplace Act of 1990.

DATE:_____

_____
CONTRACTOR

By:_____

SIGNATURE

SECTION 00 50 04 – INSURANCE ENDORSEMENT

The following insurance endorsements and documents must be provided to the District within five (5) calendar days after receipt of notification of award. If the apparent low bidder fails to provide the documents required below, the District may award the contract to the next lowest responsible and responsive bidder or release all bidders, and the bidder's bid security will be forfeited. All insurance provided by the bidder shall fully comply with the requirements set forth in Article 11 of the General Conditions.

1. General Liability Insurance: Certificate of Insurance with all specific insurance coverages set forth in Article 11 of the General Conditions, proper Project description, designation of the District as the Certificate Holder, a statement that the insurance provided is primary to any insurance obtained by the District and minimum of 30 days' cancellation notice. Bidder shall also provide required additional insured endorsement(s) designating all parties required in Article 11 of the General Conditions. The additional insured endorsement shall be an ISO CG 20 10 (11/85) or ISO CG 20 10 (10/93) or their equivalent as determined by the District.

Incidents and claims are to be reported to the insurer at:

Attn: _____
(Title) (Department)

_____
(Company)

_____
(Street Address)

_____
(City) (State) (Zip Code)

(_____) _____
(Telephone Number)

2. Workers' Compensation/ Employer's Liability Insurance: Certificate of Workers' Compensation Insurance meeting the coverages and requirements set forth in Article 11 of the General Conditions, minimum of 30 days' cancellation notice, proper Project description, waiver of subrogation and any applicable endorsements.

3. Automobile Liability Insurance: Certificate of Automobile Insurance meeting the coverages and requirements set forth in Article 11 of the General Conditions, minimum 30 days' cancellation notice, any applicable endorsements and a statement that the insurance provided is primary to any insurance obtained by the District.

Incidents and claims are to be reported to the insurer at:

Attn: _____
(Title) (Department)

_____
(Company)

_____
(Street Address)

_____
(City) (State) (Zip Code)

(_____) _____
(Telephone Number)

DATE:_____ _____
CONTRACTOR

By:_____
Signature

END OF SECTION

SECTION 00 50 05 – CONTRACTOR'S CERTIFICATE REGARDING TOBACCO & ALCOHOLIC BEVERAGES

The CONTRACTOR agrees that it will abide by and implement the DISTRICT'S Tobacco & Alcoholic Beverage-Free Campus Policy, which prohibits the use of alcoholic beverages and tobacco products, at any time, on and/or in DISTRICT-owned or leased buildings, on DISTRICT property, and in DISTRICT vehicles.

The CONTRACTOR shall procure signs stating "**TOBACCO & ALCOHOLIC BEVERAGE USE IS PROHIBITED**" and shall ensure that these signs are prominently displayed in all entrances to school property at all times.

DATE:_____

_____
CONTRACTOR

By:_____
Signature

END OF SECTION

SECTION 00 50 06 – RECYCLED CONTENT CERTIFICATION

The undersigned declares that he or she is the person who executed the bid for the **KVCR RADIO AND TELEVISION BUILDING REPURPOSE** (hereinafter referred to as the "Project"), and submitted it to the San Bernardino Community College District (hereinafter referred to as the "Owner") on behalf of _____ _____ (hereinafter referred to as the "Contractor").

Pursuant to Public Contract Code Section 12205, all contractors are required to certify in writing under penalty of perjury the minimum (if not exact) percentage of recycled content in materials, goods, or supplies offered or products used in the performance of their contract, regardless of whether the product meets the required recycled product percentage as defined in Sections 12161 and 12200. The recycled content shall include both post-consumer material and secondary material as defined in Public Contract Code Sections 12200. The contractor may certify that the product contains zero recycled content. For purposes of this Certification, the definitions found in Public Contract Code Sections 12200 shall apply.

I declare under penalty of perjury under the laws of the State of California that the following percentages of Post-consumer Material and Secondary Material is in the materials, goods or supplies offered for, or products used in, the performance of the Contract for the Project:

_____% Post Consumer Material _____% Secondary Material

Executed on this _____ day of _____, 20__

at _____

_____
Name of Contractor (Print or Type)

By: _____
Signature

_____
Print Name

_____
Title

Subscribed and sworn before me this _____ day of _____, 20__

Notary Public in and for the State of California

My Commission Expires: _____

END OF SECTION

SECTION 00 50 07 – ASBESTOS-FREE MATERIALS CERTIFICATION

The undersigned declares that he or she is the person who executed the bid for the **KVCR RADIO AND TELEVISION BUILDING REPURPOSE** (hereinafter referred to as the "Project"), and submitted it to the San Bernardino Community College District (hereinafter referred to as the "Owner") on behalf of_____(hereinafter referred to as the "Contractor").

To the best of my knowledge, information and belief, in completing the Contractor's Work (Bid Category Number(s)_____) for the Project, no material furnished, installed or incorporated into the Project will contain, or in itself be composed of, any materials listed by the federal or state EPA or federal or state health agencies as a hazardous material.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct.

Executed on this _____ day of _____, 20__

at _____

_____
Name of Contractor (Print or Type)

By: _____
Signature

_____
Print Name

_____
Title

Subscribed and sworn before me this day of , 20

_____
Notary Public in and for the State of California

My Commission Expires: _____

END OF SECTION

SECTION 00 50 08 – LEAD BASED PAINT REQUIREMENTS

In recent years, lead-based paint and other materials have come to the forefront of the regulatory process. Regulatory agencies such as the California Occupational Safety and Health Administration (Cal OSHA), Environmental Protection Agency (EPA), California Department of Health Services (DHS), California Department of Education (CDE), and the Consumer Product Safety Commission (CPSC) have all regulated, in some manner, lead-containing paint and lead products.

Because the Contractor and its employees will be providing services for the San Bernardino Community College District ("Owner"), and because the Contractor's work may disturb lead containing building materials, **CONTRACTOR IS HEREBY NOTIFIED** of the potential presence of lead containing materials located within certain buildings utilized by the Owner. Lead was used extensively in paint because it rendered the paint more durable. All school buildings built prior to 1993 are presumed to contain some lead-based paint until sampling proves otherwise.

Although the regulatory process is not yet complete, there are several regulations currently in place that affect school districts. The CDE mandates that school districts utilize DHS lead-certified personnel when a lead-based hazard is identified. Examples of lead-certified personnel include: project designers, inspectors and abatement workers. The California Education Code also prohibits the use of lead-containing paint, lead plumbing and solders, or other potential sources of lead contamination in the construction of any new school facility or in the modernization or renovation of any existing school facility.

FURTHERMORE, SINCE IT IS ASSUMED BY THE OWNER THAT ALL PAINTED SURFACES (INTERIOR AS WELL AS EXTERIOR) WITHIN THE DISTRICT CONTAIN SOME LEVEL OF LEAD, IT IS IMPERATIVE THAT THE CONTRACTOR, ITS WORKERS AND SUBCONTRACTORS FULLY AND ADEQUATELY COMPLY WITH ALL APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING LEAD-BASED MATERIALS **(INCLUDING TITLE 8, CALIFORNIA CODE OF REGULATIONS, SECTION 1532.1)**.

If failure to comply with these laws, rules and regulations results in a site or worker contamination, the Contractor will be held solely responsible for all costs involved in any required corrective actions, and shall defend, indemnify and hold harmless the Owner, pursuant to the indemnification provisions of the Contract Documents, for all damages and other claims arising there from. If lead disturbance is anticipated in your scope of work, only persons with appropriate accreditation, registrations, licenses and training shall conduct this work. Please note that, unless otherwise specifically required in the contract documents, the Owner will require full lead abatement by licensed abatement contractors only if required by Cal-OSHA or any other state or federal agency with jurisdiction to impose such a requirement.

It shall be the responsibility of the Contractor to properly dispose of any and all waste products, including but not limited to, paint chips, any collected residue, or any other visual material that may occur from the prepping of any painted surface. It will be the responsibility of the Contractor to provide the proper disposal of any hazardous waste by a certified hazardous waste hauler. This company shall be registered with the Department of Transportation (DOT) and shall be able to issue a current manifest number upon transporting any hazardous material from any school site within the District.

The Owner shall require the Contractor to provide any sample results prior to beginning work, during the work, and after the completion of each job. Along with these records, the Owner will request to examine, prior to the commencement of work, the lead training records of each employee of the contractor.

Any and all work that may result in the disturbance of lead containing building materials must be coordinated through the Owner's Maintenance & Operations Department. A signed copy of this correspondence must be on file prior to beginning work, along with all current insurance certificates.

THE UNDERSIGNED HEREBY ACKNOWLEDGES, UNDER PENALTY OF PERJURY, THAT HE OR SHE HAS RECEIVED NOTIFICATION OF POTENTIAL LEAD BASED MATERIALS ON THE OWNER'S PROPERTY, AS WELL AS THE EXISTENCE OF APPLICABLE LAWS, RULES AND REGULATIONS GOVERNING WORK WITH, AND DISPOSAL OF, SUCH MATERIALS WITH WHICH IT MUST COMPLY.

THE UNDERSIGNED ALSO WARRANTS THAT HE OR SHE HAS THE AUTHORITY TO SIGN ON BEHALF OF AND BIND THE CONTRACTOR. THE OWNER MAY REQUIRE PROOF OF SUCH AUTHORITY.

_____
Contractor's Name

_____
Street Address

_____
Telephone Number License Number

_____
Typed or Printed Name of Signatory Title

_____
Signature

_____
REM of Company (If Applicable)

Subscribed and sworn before me

This ____ day of _____20

_____
Notary Public in and for the State of California

My Commission Expires: _____

(SEAL)

END OF SECTION

EXHIBIT E

PLANS

MEDIA COMMUNICATIONS BUILDING REMODEL

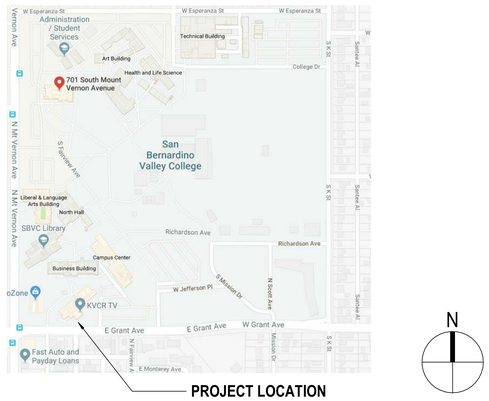
SAN BERNARDINO VALLEY COLLEGE

701 SOUTH MOUNT VERNON AVE
SAN BERNARDINO, CALIFORNIA 92410

DSA SUBMITTAL

DECEMBER 21, 2018

VICINITY MAP



PROJECT TEAM

OWNER

SAN BERNARDINO COMMUNITY
COLLEGE DISTRICT
114 SOUTH DEL ROSA AVE
SAN BERNARDINO, CA 92408
KEITH BIRKFELD
909.382.4094

ARCHITECT

DLR GROUP
1650 SPRUCE ST. #300
RIVERSIDE, CA 92507
LEIGH ANNE JONES
951.682.0470

MECHANICAL ENGINEER

DCGA ENGINEERS, INC.
4750 ONTARIO MILLS PKWY
ONTARIO, CA 91764
CHRIS VILLALOBOS
909.987.0017

ELECTRICAL ENGINEER

DCGA ENGINEERS, INC.
4750 ONTARIO MILLS PKWY
ONTARIO, CA 91764
TONY RAMIREZ
909.987.0017

STRUCTURAL ENGINEER

KNA ENGINEERS
9931 MUIRLANDS BLVD.
IRVINE, CA 96218
LEIGH ANNE JONES
LARRY KAPRIELIAN
949.462.3200

PROJECT INFORMATION

PROJECT DATA FROM ORIGINAL DESIGN (EXISTING)

GROSS AREA: 18,253 SF

DATE OF CONSTRUCTION: 2008

OCCUPANCY: B, A-3

BUILDING TYPE: V, NON-RATED (FULLY SPRINKLED)

NUMBER OF STORIES: 1

LAST DSA APPLICATION: 04-109146

SCOPE OF WORK (NEW)

GROSS AREA: 1,915 SF

INTERIOR RENOVATION OF MEDIA COMMUNICATIONS BUILDING A# 04-109146, INCLUDING:

- THE DEMOLITION AND CONSTRUCTION OF WALLS WITHIN THE INTERIOR SPACES BROADCAST MC172 AND SOUND CONTROL MC143. NEW CEILINGS AND LED LIGHTING
  NO CHANGE IN SPACES FUNCTION OR OCCUPANCY IS TO OCCUR.
  MECHANICAL DUCTS RE-ROUTE TO REFLECT PARTITION UPDATES. NO NEW EQUIPMENT REQUIRED.
- NEW RECEPTION MILLWORK IN LOBBY MC100.
- NEW FINISHES INCLUDING PAINTED WALLS, WALL BASE AND FLOOR FINISH AS INDICATED IN FINISH PLAN.
- NEW FURNITURE WITH ELECTRICAL AND DATA UPGRATES.

SHEET INDEX

.GENERAL.

0.0	COVER SHEET
0.10	SYMBOLS AND ABBREVIATIONS
0.20	ACCESSIBILITY DETAILS
0.22	ACCESSIBILITY NOTES & MOUNTING HEIGHTS
0.23	ACCESSIBILITY SIGNAGE DETAILS
0.40	CAMPUS AND SITE PLAN
0.50	LIFE SAFETY AND CODE ANALYSIS

General Total: 7

.ARCHITECTURAL.

A1.0	CONSTRUCTION GROUND FLOOR PLAN
A4.1	FINISH PLAN AND SCHEDULE
A5.1	POWER/DATA AND FURNITURE PLAN
A7.1	ENLARGED PLANS AND ELEVATIONS
A7.2	ENLARGED PLANS AND ELEVATIONS
A7.3	ENLARGED PLANS AND ELEVATIONS
A8.1	PARTITION TYPES & DETAILS
A9.1	DOOR SCHEDULE & DOOR/FRAME DETAILS
A11.1	CEILING FRAMING DETAILS

Architectural Total: 9

.MECHANICAL.

M0.1	MECHANICAL GENERAL NOTES, ABBREVIATIONS & SYMBOLS
M0.2	MECHANICAL SCHEDULES/ DETAILS
M2.0	MECHANICAL DEMOLITION FLOOR PLAN
M2.1	MECHANICAL PLAN

Mechanical Total: 4

.ELECTRICAL.

E0.1	ELECTRICAL GENERAL NOTES
E0.2	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E0.3	ELECTRICAL SINGLE LINE DIAGRAM
E2.0	ELECTRICAL DEMOLITION PLAN
E2.1	LIGHTING PLAN
E2.2	POWER PLAN
E2.3	COMMUNICATION PLAN
E2.4	FIRE ALARM PLAN
E3.1	FIRE ALARM NOTES AND SYMBOL LIST
E3.2	FIRE ALARM RISER DIAGRAM AND CALCULATIONS
E3.3	FIRE ALARM WIRING DIAGRAMS AND DETAILS
E4.1	ELECTRICAL DETAILS
E5.1	PANEL SCHEDULES
E6.1	TITLE 24

Electrical Total: 14

OVERALL SET TOTAL: 34

GENERAL NOTES

ALL WORK SHALL CONFORM TO 2016 TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR).

THE SCOPE OF WORK IS CLEARLY INDICATED ON DRAWINGS.

FABRICATION AND INSTALLATION OF DEFERRED SUBMITTAL ITEMS SHALL NOT BE STARTED UNTIL CONTRACTOR'S DRAWINGS, SPECIFICATIONS, AND ENGINEERING CALCULATIONS FOR ACTUAL SYSTEMS TO BE INSTALLED HAVE BEEN ACCEPTED AND SIGNED BY THE ARCHITECT OR STRUCTURAL ENGINEER AND APPROVED BY THE DSA.

CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE AN ADDENDUM OR A CONSTRUCTION CHANGED DOCUMENT (CCD) APPROVED BY THE DIVISION OF THE STATE ARCHITECT, AS REQUIRED BY SECTION 4-338, PART 1, TITLE 24, CCR.

A "DSA CERTIFIED" PROJECT INSPECTOR CLASS 3 CERTIFICATION, EMPLOYED BY THE DISTRICT (OWNER) AND APPROVED BY THE DSA

A DSA ACCEPTED TESTING LABORATORY DIRECTLY EMPLOYED BY THE DISTRICT (OWNER) SHALL CONDUCT ALL THE REQUIRED TEST AND INSPECTIONS FOR THE PROJECT.

THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS IS THAT THE WORK OF THE ALTERATION, REHABILITATION OR RECONSTRUCTION IS TO BE IN ACCORDANCE WITH TITLE 24, CCR. SHOULD ANY EXISTING CONDITIONS SUCH AS DETERIORATION OR NON-COMPLYING CONSTRUCTION BE DISCOVERED WHICH IS NOT COVERED BY THE CONTRACT DOCUMENTS WHEREIN THE FINISHED WORK WILL NOT COMPLY WITH TITLE 24, CCR, A CONSTRUCTION CHANGE DOCUMENT (CCD), OR A SEPARATE SET OF PLANS AND SPECIFICATIONS, DETAILING AND SPECIFYING THE REQUIRED WORK SHALL BE SUBMITTED TO AND APPROVED BY DSA BEFORE PROCEEDING WITH THE WORK. (SECTION 4-317(C), PART 1, TITLE 24, CCR).

GRADING PLANS, DRAINAGE IMPROVEMENTS, ROAD AND ACCESS REQUIREMENTS AND ENVIRONMENTAL HEALTH CONSIDERATIONS SHALL COMPLY WITH ALL LOCAL ORDINANCES.

FIRE SAFETY DURING DEMOLITION AND CONSTRUCTION SHALL COMPLY WITH CBC CHAPTER 33 AND CFC CHAPTER 33.

STATEMENT OF GENERAL CONFORMANCE

FOR ARCHITECTS/ ENGINEERS WHO UTILIZE PLANS, INCLUDING BUT NOT LIMITED TO SHOP DRAWINGS, PREPARED BY OTHER LICENSED DESIGN PROFESSIONALS AND/OR CONSULTANTS.

FOR THE FOLLOWING DRAWINGS OR SHEETS:

ALL STRUCTURAL, MECHANICAL, PLUMBING, ELECTRICAL, AV AND TECHNOLOGY DRAWINGS PER "SHEET INDEX" ON SHEET 0.0 HAVE BEEN PREPARED BY OTHER DESIGN PROFESSIONALS OR CONSULTANTS WHO ARE LICENSED AND/AUTHORIZED TO PREPARE SUCH DRAWINGS IN THIS STATE. THESE DRAWINGS OR SHEETS HAVE BEEN EXAMINED BY ME FOR:

DESIGN INTENT AND APPEARS TO MEET THE APPROPRIATE REQUIREMENTS OF TITLE 24, CCR, AND THE PROJECT SPECIFICATIONS AND IS ACCEPTABLE FOR INCORPORATION INTO THE CONSTRUCTION OF THIS PROJECT.

THIS STATEMENT OF GENERAL CONFORMANCE SHALL NOT BE CONSTRUED AS RELEIVING ME OF MY RIGHTS, DUTIES, AND RESPONSIBILITIES UNDER SECTION 17302 AND 81138 OF THE EDUCATION CODE AND SECTIONS 4-306, 4-341, AND 4-344 OF THE TITLE 24, PART 1. (TITLE 24, PART 1, SECTION 4-317(B)).

PARTIAL LIST OF APPLICABLE CODES & STANDARDS

2016 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24 C.C.R.

2016 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24 C.C.R.

2016 CALIFORNIA ELECTRICAL CODE (CEC), PART 3, TITLE 24 C.C.R.

2016 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24 C.C.R.

2016 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24 C.C.R.

2016 CALIFORNIA ENERGY CODE, PART 6, TITLE 24 C.C.R.

2016 CALIFORNIA FIRE CODE, PART 9, TITLE 24 C.C.R.

2016 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 C.C.R.

2016 CALIFORNIA STANDARD CODE, PART 12, TITLE 24 C.C.R.

TITLE 19 C.C.R. PUBLIC SAFETY, STATE MARSHAL REGULATIONS

NFPA 13 STANDARD FOR THE INSTALLATION OF SPRINKLER SYSTEMS (CA AMENDED)	2016 EDITION
NFPA 14 STANDARD FOR THE INSTALLATION OF STANDPIPE AND HOSE SYSTEMS	2013 EDITION
NFPA 17 STANDARD FOR DRY CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 17A STANDARD FOR WET CHEMICAL EXTINGUISHING SYSTEMS	2013 EDITION
NFPA 20 STANDARD FOR THE INSTALLATION OF STATIONARY PUMPS FOR FIRE PROTECTION	2016 EDITION
NFPA 22 STANDARD FOR WATER TANKS FOR PRIVATE FIRE PROTECTION	2013 EDITION
NFPA 24 STANDARD FOR THE INSTALLATION OF PRIVATE FIRE SERVICE MAINS AND THEIR APPURTENANCES	2016 EDITION
NFPA 72 NATIONAL FIRE ALARM AND SIGNALING CODE (CA AMENDED)	2016 EDITION
NFPA 80 STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES	2016 EDITION
NFPA 2001 STANDARD ON CLEAN AGENT FIRE EXTINGUISHING SYSTEMS	2015 EDITION
UL 300 STANDARD FOR FIRE TESTING OF FIRE EXTINGUISHING SYSTEMS FOR COMMERCIAL COOKING EQUIP.	2015 (R2010)
UL 464 AUDIBLE SIGNALING DEVICES FOR FIRE ALARM AND SIGNALING SYSTEMS, INCLUDING ACCESSORIES	2003 EDITION
UL 521 STANDARD FOR HEAT DETECTORS FOR FIRE PROTECTIVE SIGNALING SYSTEMS	1999 EDITION
UL 1971 STANDARD FOR SIGNALING DEVICES FOR THE HEARING IMPAIRED	2002 EDITION
ICC 300 STANDARD FOR BLEACHERS, FOLDING AND TELESCOPIC SEATING AND GRANDSTANDS	2012 EDITION

FOR A COMPLETE LIST OF APPLICABLE NFPA STANDARDS REFER TO 2016 CBC (SFM) CHAPTER 35 AND CALIFORNIA CODE CHAPTER 80.

SEE CALIFORNIA BUILDING CODE, CHAPTER 35, FOR STATE OF CALIFORNIA AMENDMENTS TO THE NFPA STANDARDS.

ALL PARTS OF THE 2016 CALIFORNIA BUILDING CODE BECOME EFFECTIVE JANUARY 1, 2017 EXCEPT THE EFFECTIVE DATE FOR THE USE OF THE 2016 BUILDING ENERGY EFFICIENCY STANDARDS (TITLE 24, PART 1, CHAPTER 10) IS FEBRUARY 25, 2016 AND THE EFFECTIVE DATE FOR THE USE OF THE CALIFORNIA ADMINISTRATIVE CODE (TITLE 24, PART 1, CHAPTER 4) IS JANUARY 20, 2016.

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

COVER SHEET

0.0
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

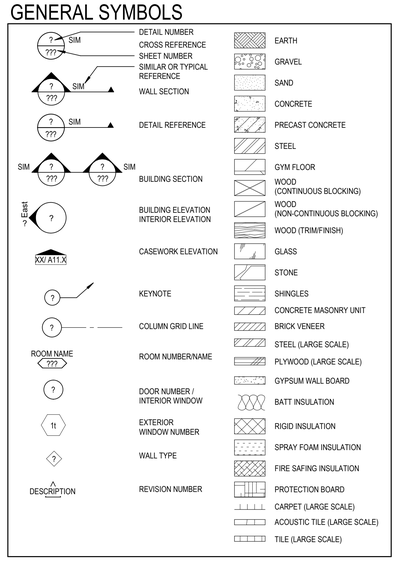
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ABBREVIATIONS

#	NUMBER	EWC	ELECTRIC WATER COOLER	NFPA	NATIONAL FIRE PROTECTION ASSOCIATION	UR	URINAL
&	AND	EXIST	EXISTING	NIC	NOT IN CONTRACT	US	UTILITY SHELF
@	AT	EXP	EXPANSION	NOM	NOMINAL	UTIL	UTILITY
		EXP	EXPOSED	NTS	NOT TO SCALE		
AB	ANCHOR BOLT	EXT	EXTERIOR	NWC	NORMAL WEIGHT CONCRETE	VB	VAPOR BARRIER
AB	AIR BARRIER					VB	VINYL BASE
ABS	ASBESTOS	F	FABRIC	O to O	OUT TO OUT	VCB	VENTED COVE BASE
ACC	ADA ACCESSIBLE	F.O.	FACE OF	OA	OVERALL	VERT	VERTICAL
ACR	ACRYLIC	F.V.	FIELD VERIFY	OC	ON CENTER	VEST	VESTIBULE
AD	ACCESS DOOR	FAB	FABRICATE(D)	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED	VF	VINYL FLOOR
ADA	AMERICANS WITH DISABILITY ACT	FB	FACE BRICK	OFF	OFFICE	VOC	VOLUTILE ORGANIC COMPOUND
ADDN	ADDITION OR ADDITIONAL	FD	FLOOR DRAIN	OFOI	OWNER FURNISHED OWNER INSTALLED	VOL	VOLUME
ADJ	ADJUSTABLE	FDN	FOUNDATION	OPG(S)	OPENING(S)	VP	VENEER PLASTER
ADJT	ADJACENT	FE	FIRE EXTINGUISHER	OPP	OPPOSITE	VT	VINYL TILE
ADMIN	ADMINISTRATION	FEC	FIRE EXTINGUISHER CABINET	OSHA	OPERATIONAL SAFETY AND HEALTH ADMINISTRATION	VWC	VINYL WALL COVERING
AED	AUTOMATED EXTERNAL DEFIBRILLATIORS	FF	FINISH FLOOR	OTB	OPEN TO BELOW		
AFF	ABOVE FINISHED FLOOR	FH	FIRE HYDRANT	OVFL	OVERFLOW	W	WEST
AFG	ABOVE FINISHED GRADE	FHC	FIRE HOSE CABINET	OVHD	OVERHEAD	W	WIDE
AHJ	AUTHORITY HAVING JURISDICTION	FIG	FIGURE			W/	WITH
AL	ALUMINUM	FIN	FINISHED	P	PAINT	W/O	WITHOUT
ALT	ALTERNATE	FIX	FIXTURE	PAN B	PANIC BOLT	WB	WALL BASE
ALUM	ALUMINUM	FL	FLOOR	PAR	PARALLEL	WC	WATER CLOSET
ANCH	ANCHOR	FLASH	FLASHING	PB	PARTICLE BOARD	WC	WALL COVERING
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	FLEX	FLEXIBLE	PC	PRECAST CONCRETE	WCL	WATER CLOSET/LAVATORY COMBINATION
AP	ACCESS PANEL	FLG	FLOORING	PCD	PAPER CUP DISPENSER	WD	WOOD
APC	ACOUSTIC PANEL CEILING	FLM	FULL LENGTH MIRROR	PCT	PORCELAIN CERAMIC TILE	WDF	WOOD FLOORING
APPROX	APPROXIMATE	FLUOR	FLUORESCENT	PD	PANIC DEVICE	WDW	WINDOW
ARCH	ARCHITECTURAL	FO	FINISH OPENING	PENT	PENTHOUSE	WG	POLISHED WIRE GLASS
ASPH	ASPHALT	FOC	FACE OF CONCRETE	PERF	PERFORATED	WI	WROUGHT IRON
AUTO	AUTOMATIC	FOF	FACE OF FINISH	PERP	PERPENDICULAR	WOM	WALK OFF MAT
AVG	AVERAGE	FOM	FACE OF MASONRY	PG	PATTERN GLASS	WR	WASTE RECEPTACLE
AWP	ACOUSTIC WALL PANEL	FOS	FACE OF STUD	PIC	PORTABLE INSTRUMENT CONNECTION	WRB	WEATHER RESISTANT BARRIER
		FOW	FACE OF WALL	PIG	PATTERN INSULATING GLASS	WW	WARM WHITE
B.O.	BOTTOM OF	FP	FIREPROOFING	PL	PLATE	WWF	WELDED WIRE FABRIC
BCS	BABY CHANGING STATION	FR	FIRE RESISTANT	PL	PROPERTY LINE		
BD	BOARD	FRP	FIBERGLASS REINFORCED PANEL	PL	PLASTIC LAMINATE	YD	YARD
BLDG	BUILDING	FRT	FIRE RESISTANCE TREATED	PLAM	PLASTIC LAMINATE		
BLK	BLOCK	FS	FLOOR SINK	PLBG	PLUMBING		
BLKG	BLOCKING	FSS	FOLDING SHOWER SEAT	PLYWD	PLYWOOD		
BLKHD	BULKHEAD	FT	FEET	PR	PAIR		
BM(S)	BEAM(S)	FTG	FOOTING	PREFAB	PREFABRICATED		
BOT	BOTTOM	FUT	FUTURE	PROJ	PROJECT(OR) (ION)		
BRDG	BRIDGING	FVC	FIRE VALVE CABINET	PS	PROJECTION SCREEN		
BRG	BEARING	FWC	FABRIC WALL COVERING	PT	POINT		
BRKT	BRACKET			PTD	PAPER TOWEL DISPENSER		
BSMT	BASEMENT	G	GROUT	PTD/R	COMBINATION TOWEL DISPENSER/RECEPTACLE		
BT	BATHTUB	GA	GAUGE	PTN	PARTITION		
BTWN	BETWEEN	GAL	GALLON	PVC	POLYVINYL CHLORIDE		
		GALV	GALVANIZED	PWL	SOUND POWER LEVEL		
C	CHANNEL	GB	GRAB BAR				
CAB	CABINET	GC	GENERAL CONTRACTOR	QT	QUARRY TILE		
CANT	CANTILEVER	GD	GARBAGE DISPOSAL	QTR RND	QUARTER ROUND		
CAP	CAPACITY	GEN	GENERAL	QTY	QUANTITY		
CBD	CHALKBOARD	GFA	GROSS FLOOR AREA				
CER	CERAMIC	GL	GLUE LAMINATED	RAD	RADIUS		
CF	CUBIC FEET	GL	GLASS	RB	RUBBER BASE		
CFCI	CONTRACTOR FURNISHED CONTRACTOR INSTALLED	GMP	GUARANTTED MAXIMUM PRICE	RC	REMOTE CONTROL		
CFSF	COLD-FORMED STEEL FRAMING	GOVT	GOVERNMENT	RCP	REFLECTED CEILING PLAN		
CG	CLEAR FLOAT GLASS	GR	GUARD RAIL	RD	ROOF DRAIN		
CI	CAST IRON	GR	GRADE	REF	REFERENCE		
CIG	CLEAR INSULATING GLASS	GRS	GALVANIZED RIGID STEEL	REFL	REFLECTED		
CIP	CAST IN PLACE	GWB	GYPSUM WALL BOARD	REM	REMOVABLE		
CJ	CONTROL JOINT	GYP	GYPSUM	REQ(D)	REQUIRE(D)		
CJA	CONTROL JOINT ABOVE			RESIL	RESILIENT		
CL	CENTER LINE	H	HEIGHT	REV	REVISION(S)		
CLG	CEILING	HC	HOLLOW CORE	RF	RESILIENT FLOORING		
CLOS	CLOSET	HD	HAND DRYER	RF	RUBBER FLOOR		
CLR	CLEAR	HDBD	HARDBOARD	RFM	RECESSED FLOOR MAT		
CMU	CONCRETE MASONRY UNIT	HDR	HEADER	RH	ROBE HOOK		
COL	COLUMN	HDWD	HARDWOOD	RI&C	ROUGH IN AND CONNECT		
COM	COMMON	HDWR	HARDWARE	RM	ROOM		
COMB	COMBINATION	HM	HOLLOW METAL	RND	ROUND		
COMM	COMMUNICATIONS	HORIZ	HORIZONTAL				
COMPR	COMPRESSIBLE	HR	HOUR	S	SOUTH		
CONC	CONCRETE	HR	HANDRAIL	S	SINK		
CONF	CONFERENCE	HS	HARDWARE SET	SAT	SPRAYED ACOUSTIC TREATMENT		
CONFIG	CONFIGURATION	HSS	HOLLOW STRUCTURAL SHAPE	SAW	SOUND ABSORBING WALL UNITS		
CONN(S)	CONNECTION(S)	HVAC	HEATING VENTILATING AND AIR CONDITIONING	SB	SPLASH BLOCK		
CONST	CONSTRUCTION			SC	SOLID CORE		
CONT	CONTINUOUS	i.e.	THAT IS	SC	SHOWER CURTAIN		
CONTR	CONTRACT(OR)	IAW	IN ACCORDANCE WITH	SCD	SEAT COVER DISPENSER		
CORR	CORRIDOR	IBC	INTERNATIONAL BUIDLING CODE	SCH	SHOWER CURTAIN HOOK		
CP	COVER PLATE	ID	INSIDE DIAMETER	SCHED	SCHEDULE		
CPT	CARPET	IF	INSIDE FACE	SCR	SHOWER CURTAIN ROD		
CR	CHAIR RAIL	IJ	ISOLATION JOINT	SCT	STRUCTURAL CLAY TILE		
CS	COUNTERSINK	IJS	IN JOIST SPACE	SD	SOAP DISPENSER		
CST.J	CONSTRUCTION JOINT	IN	INCH	SECT	SECTION		
CSWK	CASEWORK	INC	INCLUDE(ING)	SECY	SECRETARY		
CT	CERAMIC TILE	INSUL	INSULATION	SG	SPANDRAL GLASS		
CTG	CLEAR TEMPERED FLOAT GLASS	INT	INTERIOR	SGL	SINGLE		
CTIG	CLEAR TEMPERED INSULATING GLASS			SH	SHOWER		
CTR	CENTER	JAN	JANITOR	SHM	SECURITY HOLLOW METAL		
CU	COPPER	JCT	JUNCTION	SHT	SHEET		
CU	CUBIC	JFB	JOINT FILLER BOARD	SIM	SIMILAR		
CU	COMBINATION UNIT	JST	JOIST	SLNT	SEALANT		
CV	CONDOM VENDOR	JT	JOINT	SM	SHEET METAL		
CY	CUBIC YARD			SND	SANITARY NAPKIN DISPOSAL		
CYL	CYLINDER	KCJ	KEYED CONSTRUCTION JOINT	SNV	SANITARY NAPKIN VENDOR		
		KD	KNOCKDOWN	SPEC	SPECIFICATION(S)		
D	DEPTH	KH	KITCHEN HOOD	SPL	SOUND PRESSURE LEVEL		
DB	DECIBEL	KIT	KITCHEN	SPL	SPECIAL		
DBL	DOUBLE			SQ	SQUARE		
DC	DUST COLLECTOR	L	ANGLE	SS	STAINLESS STEEL		
DEG	DEGREE	LAB	LABORATORY	SS	SOLID SURFACE		
DEMO	DEMOLISH OR DEMOLITION	LAM	LAMINATED	SSA	STORM SHELTER AREA		
DEPR	DEPRESS(ION)(ED)	LAV	LAVATORY	SSS	STAINLESS STEEL SHELF		
DEPT	DEPARTMENT	LB(S)	POUND(S)	ST	STONE		
DET	DETAIL	LBR	LUMBER	ST	STAIR		
DET	DETENTION	LDG	LOADING	STAG'D	STAGGERED		
DF	DRINKING FOUNTAIN	LF	LINEAR FOOT	STC	SOUND TRANSMISSION CLASS		
DG	DOOR GRILLE	LG	LENGTH (LONG)	STD	STANDARD		
DIA	DIAMETER	LG	LAMINATED GLASS	STGR	STRINGER		
DIAG	DIAGONAL	LIN	LINEAR	STL	STEEL		
DIM	DIMENSION	LINO	LINOLEUM	STOR	STORAGE		
DIV	SPECIFICATION DIVISION	LKR	LOCKER	STRUCT	STRUCTURAL		
DN	DOWN	LOC	LOCATION	SUBFL	SUBFLOOR		
DPFG	DAMPROOFING	LONG	LONGITUDINAL	SURF	SURFACE		
DR	DOOR	LSC	LIFE SAFETY CODE	SUSP	SUSPENDED		
DSN	DOWNSPOUT NOZZLE	LTG	LIGHTING	SV	SHEET VINYL		
DW	DISHWASHER	LV	LOUVER	SYM	SYMETRICAL		
DWG(S)	DRAWING(S)	LVT	LUXURY VINYL TILE				
DWL(S)	DOWEL(S)	LWC	LIGHT WEIGHT CONCRETE	T	TREAD		
DWR	DRAWER			T&G	TONGUE AND GROOVE		
		M	THOUSAND	T.O.	TOP OF		
E	EAST	MAG	MAGNETIC	TAN	TANGENT		
EA	EACH	MAINT	MAINTENANCE	TB	TOWEL BAR		
EA	EACH FACE	MAN	MANUAL	TBD	TACK BOARD		
EB	EXPANSION BOLT	MAS	MASONRY	TCP	TOILET COMPARTMENT PARTITION		
EC	ELECTRICAL CONTRACTOR	MATL	MATERIAL	TEMP	TERMPORARY		
EE	EACH END	MAX	MAXIMUM	TEMP	TEMPORARY		
EEW	EMERGENCY EYE WASH	MB	MOP BASIN	TERR	TERRAZZO		
EEWS	EMERGENCY EYE WASH SHOWER	MBD	MARKER BOARD	TG	TINTED FLOAT GLASS		
EFF	EFFICIENCY	MBH	MOP/BROOM HOLDER	TH	THRESHOLD		
EJ	EXPANSION JOINT	MC	MEDICINE CABINET	TI	TENANT IMPROVEMENT		
EL	ELEVATION	MECH	MECHANICAL	TIG	TINTED INSULATING GLASS		
ELAS	ELASTOMERIC	MEMB	MEMBRANE	TMR	TILT MIRROR UNIT		
ELEC	ELECTRICAL	MEZZ	MEZZANINE	TOP	TOP OF PAVING		
ELEV	ELEVATOR	MFR	MANUFACTURER	TRANS	TRANSVERSE		
EMER	EMERGENCY	MH	MANHOLE	TT	TERRAZZO TILE		
ENCL	ENCLOSURE	MIN	MINIMUM	TTD	TOILET TISSUE DISPENSER		
ENG	ENGINEER	MISC	MISCELLANEOUS	TTG	TINTED TEMPERED FLOAT GLASS		
ENTR	ENTRANCE	MR/S	MIRROR WITH SHELF	TTIG	TINTED TEMPERED INSULATING GLASS		
EQ	EQUAL	MTD	MOUNTED	TW	TACK WALL		
EQUIP	EQUIPMENT	MTG	MOUNTING	TYP	TYPICAL		
EQUIV	EQUIVALENT	MUL	MULLION				
ERF	EPOXY RESIN FLOORING			UL	UNDERWRITERS LABORATORIES		
EUI	ENERGY USE INTENSITY	N	NORTH	UNEX	UNEXCAVATED		
EW	EACH WAY	NA	NOT APPLICABLE	UNFIN	UNFINISHED		
		NC	NOISE CRITERIA	UNO	UNLESS NOTED OTHERWISE		

GENERAL SYMBOLS



SITE SYMBOLS

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

SYMBOLS AND ABBREVIATIONS
MEDIA COMMUNICATIONS BUILDING REMODEL

0.10
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

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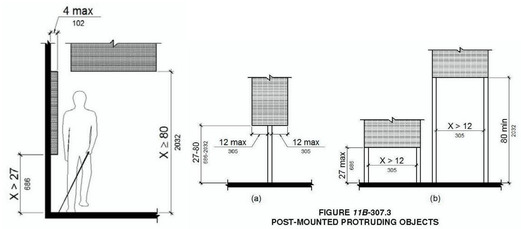


FIGURE *11B*-307.2
LIMITS OF PROTRUDING OBJECTS

FIGURE *11B*-307.3
POST-MOUNTED PROTRUDING OBJECTS

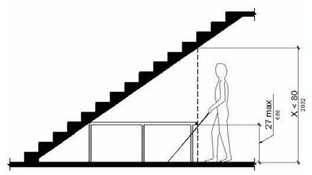
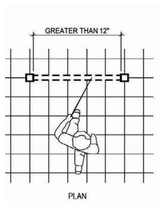
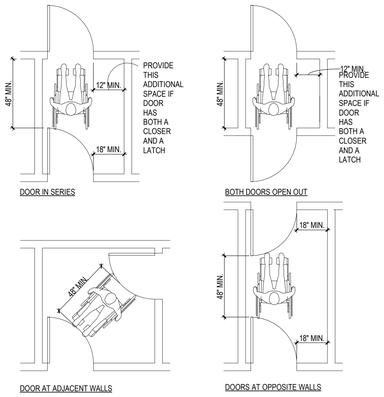


FIGURE *11B*-307.4
VERTICAL CLEARANCE

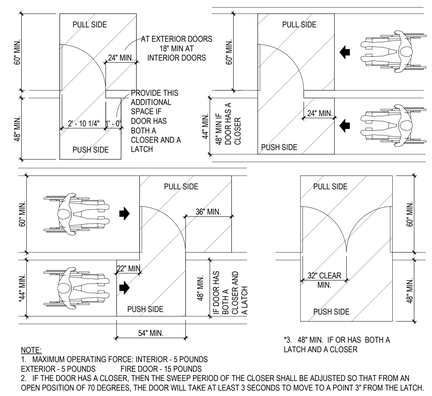


PLAN

13 DETAILS FOR OBSTRUCTIONS
0.20 NO SCALE

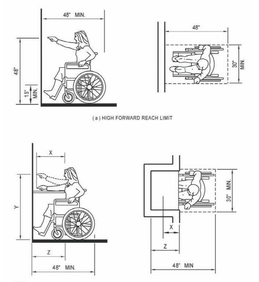


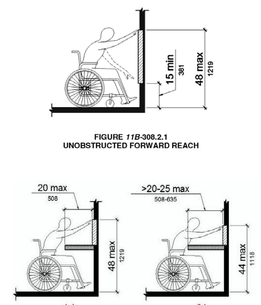
10 DOOR CLEARANCE @ VESTIBULE
0.20 SCALE: 1/4" = 1'-0"



NOTE:
1. MAXIMUM OPERATING FORCE: INTERIOR - 5 POUNDS
EXTERIOR - 5 POUNDS FIRE DOOR - 15 POUNDS
2. IF THE DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 70 DEGREES, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3" FROM THE LATCH.

9 DOOR CLEARANCES
0.20 SCALE: 1/4" = 1'-0"





NOTE :
X SHALL BE LESS THAN OR EQUAL TO 25 INCHES Z SHALL BE GREATER THAN OR EQUAL TO X. WHEN X IS LESS THAN 20 INCHES, THEN Y SHALL BE 48 INCHES MAXIMUM. WHEN X IS 20 TO 25 INCHES, THEN Y SHALL BE 44 INCHES MAXIMUM.

FORWARD REACH

FIGURE *11B*-308.2.1
UNOBSTRUCTED FORWARD REACH

FIGURE *11B*-308.2.2
OBSTRUCTED HIGH FORWARD REACH

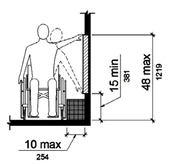


FIGURE *11B*-308.3.1
UNOBSTRUCTED SIDE REACH

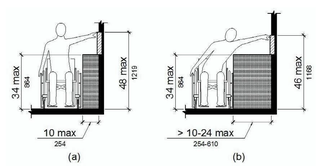
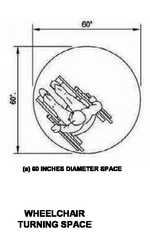


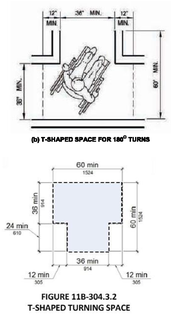
FIGURE *11B*-308.3.2
OBSTRUCTED HIGH SIDE REACH

8 REACH RANGES
0.20 NO SCALE



(a) 60 INCHES DIAMETER SPACE

WHEELCHAIR TURNING SPACE



(b) T-SHAPED SPACE FOR 180° TURNS

FIGURE 11B-304.3.2
T-SHAPED TURNING SPACE

Convention	Description
36 914	dimension showing English units (in inches unless otherwise specified) above the line and SI units (in millimeters unless otherwise specified) below the line
6 152	dimension for small measurements
33-36 838-914	dimension showing a range with minimum - maximum
min	minimum
max	maximum
>	greater than
≥	greater than or equal to
<	less than
≤	less than or equal to
	boundary of clear floor space or maneuvering clearance
	centerline
	a permitted element or its extension
	direction of travel or approach
	a wall, floor, ceiling or other element cut in section or plan
	a highlighted element in elevation or plan
	location zone of element, control or feature

FIGURE 11B-104
GRAPHIC CONVENTION FOR FIGURES

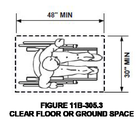


FIGURE 11B-305.3
CLEAR FLOOR OR GROUND SPACE

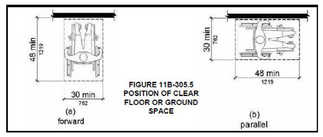


FIGURE 11B-305.5
POSITION OF CLEAR FLOOR OR GROUND SPACE

7 VARIOUS ACCESSIBILITY DETAILS
0.20 NO SCALE

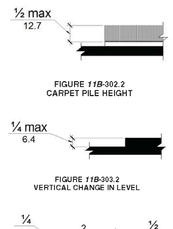
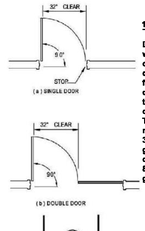


FIGURE *11B*-302.2
CARPET PILE HEIGHT

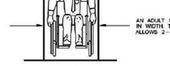
FIGURE *11B*-303.2
VERTICAL CHANGE IN LEVEL



FIGURE *11B*-303.3
BEVELED CHANGE IN LEVEL



(b) DOUBLE DOOR

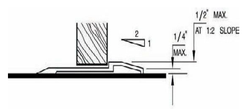


(c) PASSAGE CLEARANCE

AN ADULT SIZE WHEELCHAIR MEASURES 27 INCHES IN WIDTH. THE REQUIRED 32 INCH CLEAR OPENING ALLOWS 2 - 1/2 INCHES OR EACH SIDE FOR HANDS.

11B-404.2.3

Door openings shall provide a clear width of 32 inches minimum. Clear openings of doorways with swinging doors shall be measured between the face of the door and the stop, with the door open 90 degrees. Openings more than 24 inches deep shall provide a clear opening of 38 inches minimum. There shall be no projections into the required clear opening width lower than 34 inches above the finish floor or ground. Projections into the clear opening width between 34 inches and 80 inches above the finish floor or ground shall not exceed 4 inches.



11B-404.2.5
THRESHOLDS, IF PROVIDED AT DOORWAYS, SHALL BE 1/2 INCH HIGH MAXIMUM. RAISED THRESHOLDS AND CHANGES IN LEVEL AT DOORWAYS SHALL COMPLY WITH SECTIONS 11B-302 AND 11B-303.

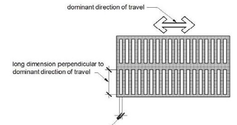


FIGURE *11B*-302.3
ELONGATED OPENINGS IN FLOOR OR GROUND SURFACES

6 ACCESSIBLE ROUTES
0.20 NO SCALE

TABLE 11B-703.3.1
BRAILLE DIMENSIONS

MEASUREMENT RANGE	MINIMUM IN INCHES MAXIMUM IN INCHES
Dot base diameter	0.059 – 0.063
Distance between two dots in the same cell	0.100
Distance between corresponding dots in adjacent cells	0.300
Dot height	0.025 – 0.037
Distance between corresponding dots from one cell directly below	0.395 – 0.400

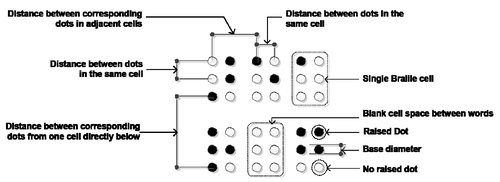


FIGURE 11B-703.3.1
BRAILLE MEASUREMENT

4 BRAILLE MEASUREMENT
0.20 NO SCALE

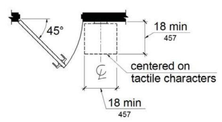


FIGURE *11B*-703.4.2
LOCATION OF TACTILE SIGNS AT DOORS

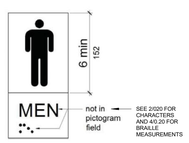


FIGURE *11B*-703.6.1
PICTOGRAM FIELD

TABLE *11B-703.5.5*
VISUAL CHARACTER HEIGHT

HEIGHT TO FINISH FLOOR OR GROUND FROM BASELINE OF CHARACTER	HORIZONTAL VIEWING DISTANCE	MINIMUM CHARACTER HEIGHT
40 inches (*1016* mm) to less than or equal to 70 inches (*1778* mm)	less than 72 inches (*1829* mm)	$^{3}/_{8}$ inch (*15.9* mm)
	72 inches (*1829* mm) and greater	$^{3}/_{8}$ inch (*15.9* mm), plus $^{1}/_{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 72 inches (*1829* mm)
Greater than 70 inches (*1778* mm) to less than or equal to 120 inches (*3048* mm)	less than 180 inches (*4572* mm)	2 inches (51 mm)
	180 inches (*4572* mm) and greater	2 inches (51 mm), plus $^{1}/_{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 180 inches (*4572* mm)
greater than 120 inches (*3048* mm)	less than 21 feet (*6401* mm)	3 inches (*76* mm)
	21 feet (*6401* mm) and greater	3 inches (*76* mm), plus $^{1}/_{8}$ inch (3.2 mm) per foot (305 mm) of viewing distance above 21 feet (*6401* mm)

3 VISUAL CHARACTER HT
0.20 NO SCALE

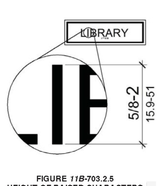


FIGURE *11B*-703.2.5
HEIGHT OF RAISED CHARACTERS

11B-703 SIGNS

11B-703.1 GENERAL. SIGNS SHALL COMPLY WITH SECTION 11B- 703. WHERE BOTH VISUAL AND TACTILE CHARACTERS ARE REQUIRED, EITHER ONE SIGN WITH BOTH VISUAL AND TACTILE CHARACTERS, OR TWO SEPARATE SIGNS, ONE WITH VISUAL, AND ONE WITH TACTILE CHARACTERS, SHALL BE PROVIDED.

11B-703.1.1 PLAN REVIEW AND INSPECTION. SIGNS AS SPECIFIED IN SECTION 11B-703, OR IN OTHER SECTIONS OF THIS CODE, WHEN INCLUDED IN THE CONSTRUCTION OF NEW BUILDINGS OR FACILITIES, OR WHEN INCLUDED, ALTERED OR REPLACED DUE TO ADDITIONS, ALTERATIONS OR RENOVATIONS TO EXISTING BUILDINGS OR FACILITIES, AND WHEN A PERMIT IS REQUIRED, SHALL COMPLY WITH SECTIONS 11B- 703.1.1.1 AND 11B-703.1.1.2.

11B-703.1.1.1 PLAN REVIEW. PLANS, SPECIFICATIONS OR OTHER INFORMATION INDICATING COMPLIANCE WITH THESE REGULATIONS SHALL BE SUBMITTED TO THE ENFORCING AGENCY FOR REVIEW AND APPROVAL.

11B-703.1.1.2 INSPECTION. SIGNS AND IDENTIFICATION DEVICES SHALL BE FIELD INSPECTED AFTER INSTALLATION AND APPROVED BY THE ENFORCING AGENCY PRIOR TO THE ISSUANCE OF A FINAL CERTIFICATE OF OCCUPANCY PER CHAPTER 1, DIVISION II, SECTION 111, OR FINAL APPROVAL WHERE NO CERTIFICATE OF OCCUPANCY IS ISSUED. THE INSPECTION SHALL INCLUDE, BUT NOT BE LIMITED TO, VERIFICATION THAT BRAILLE DOTS AND CELLS ARE PROPERLY SPACED AND THE SIZE, PROPORTION AND TYPE OF RAISED CHARACTERS ARE IN COMPLIANCE WITH THESE REGULATIONS.

2 ADA - SIGNS
0.20 NO SCALE

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

ACCESSIBILITY DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

0.20
75-18608-00
12/21/2018
Issue Date
Revision 1 12/19/2018

DLR Group
Architecture Engineering Planning Interiors

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12/20/2018 4:56:33 PM

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12/20/2018 4:56:34 PM

1/22 1 ACCESSIBLE MOUNTING HEIGHTS
SCALE: 3/8" = 1'-0"

GENERAL NOTES

1. CALLOUTS ON PLANS INDICATE TYP. ITEMS. PROVIDE ALL ITEMS SHOWN FOR A COMPLETE INSTALLATION.
2. PROVIDE INSULATION AT ALL EXPOSED PIPES.
3. ALL ACCESSIBLE CLEARANCES ARE MEASURED TO FACE OF FINISH.

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0.22
75-18608-00
12/21/2018
Revisions
Revision 1 12/19/2018

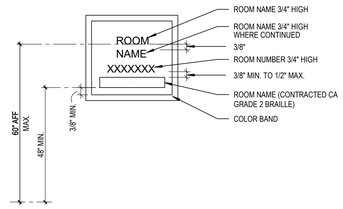
ACCESSIBILITY NOTES & MOUNTING HEIGHTS

MEDIA COMMUNICATIONS BUILDING REMODEL

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30824
STATE OF CALIFORNIA
REGISTERED
01-11-2019

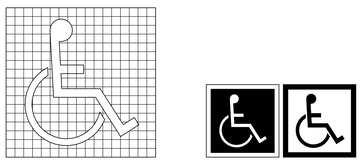
DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410



NOTES:
COMPLY WITH CBC 11B- 703.2.1 FOR RAISED CHARACTERS AND PICTORIAL SYMBOL SIGNS TEXT TO BE TACTILE, RAISED 1/32" MIN.
REFER TO DETAIL 25/0.23 FOR CHARACTER PROPORTIONS.
REFER TO DETAIL 20/0.23 FOR BRAILLE SPACING TEMPLATE.
REFER TO DETAIL 3/0.20 FOR VISUAL CHARACTER HEIGHT.

23/0.23 ROOM SIGNAGE
SCALE: 3" = 1'-0"



(a) SYMBOL PROPORTIONS

(b) DISPLAY CONDITIONS

THESE DIAGRAMS ILLUSTRATE THE SPECIFIC REQUIREMENTS OF THESE REGULATIONS & ARE INTENDED ONLY AS AN AID FOR BUILDING DESIGN & CONSTRUCTION

CBC FIGURE 11B-6 - INTERNATIONAL SYMBOL OF ACCESSIBILITY

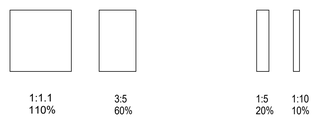
NOTE:
THE SYMBOL SHALL CONSIST OF A WHITE FIGURE ON A BLUE BACKGROUN AS INDICATED IN CBC 11B-703.2.1

24/0.23 INTERNATIONAL SYMBOL OF ACCESSIBILITY 'ISA'
SCALE: 3" = 1'-0"

ALL LETTERS MEASURED MUST BE UPPERCASE. AFTER CHOOSING A TYPESTYLE TO TEST, BEGIN BY PRINTING THE LETTER "I", "X", AND "O" AT 1 INCH HIGH. PLACE THE TEMPLATE'S 1:1.1 SQUARE OVER THE "X" OR "O". WHICHEVER IS NARROWER. IF THE CHARACTER IS NOT WIDER THAN 1 INCH, NOR NARROWER THAN 3:5 RECTANGLE, THE PROPORTIONS ARE CORRECT. USE THE 1:5 RECTANGLE TO DETERMINE IF THE STROKE OF THE "I" IS TO BROAD, AND THE 1:10 RECTANGLE TO SEE IF IT IS TOO NARROW. IF ALL THE TESTS ARE PASSED, THE TYPE STYLE IS COMPLIANT WITH PROPORTION CODE.

CHARACTERS SHALL BE SELECTED FROM FONTS WHERE THE WIDTH OF THE UPPERCASE LETTER "O" IS 60 PERCENT MINIMUM AND 110 PERCENT MAXMUN OF THE HEIGHT OF THE UPPERCASE LETTER "I".

TEMPLATE FOR CHECKING CHARACTER AND STROKE WIDTH TO HIGH PROPORTIONS:



25/0.23 CHARACTER PROPORTIONS
SCALE: 3" = 1'-0"

1" SQUARE SHOWN

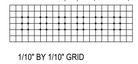


WIDTH-TO-HEIGHT CHARACTER PROPROTIONS TEMPLATE.

BRAILLE: CALIFORNIA GRADE 2 BRAILLE SHALL BE USED WHEREVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. DOTS SHALL BE 1/10 INCH (2.54mm) SPACE BETWEEN CELLS, MEASURED IN THE SECOND COLUMN OF DOTS IN THE FIRST CELL TO THE FIRST COLUMN OF DOTS IN SEOND CELL. DOTS SHALL BE RAISED MINIMUM OF 1/40 INCH (0635mm) ABOVE BACKGROUND.



ROUNDED OR DOMED CALIFORNIA BRAILLE DOTS. EACH DISTINCT AND SEPARATE. DOTS WITH STRAIGHT SIDES AND FLAT TOPS ARE NOT ACCEPTABLE.



BRAILLE SPACING TEMPLATE PER TITLE 24

20/0.23 SIGNAGE TEMPLATES
SCALE: 3" = 1'-0"

1 CHARACTER TYPE: CHARACTERS ON SIGNS SHALL BE RAISED 1/32 INCH (0.794 mm) MINIMUM AND SHALL BE SANS SERIF UPPERCASE CHARACTERS ACCOMPANIED BY GRADE 2 BRAILLE. (SEE NOTE 5 BELOW)

2 CHARACTER SIZE: RAISED CHARACTERS, SHALL BE MINIMUM OF 5/8 INCH (15.9 mm) AND MAXIMUM OF 2 INCH(51mm) HEIGHT. 11B-703.2.5

3 FINISH AND CONTRAST: CONTRAST BETWEEN CHARACTERS, SYMBOLS AND THEIR BACKGROUND MUST BE 70% MINIMUM AND HAVE A NON-GLARE FINISH. 11B-703.7.1

4 PROPORTIONS: CHARACTERS ON SIGNS SHALL HAVE A WIDTH-TO-HEIGHT RATIO OF BETWEEN 3:5 AND 1:1 AND A STROKE WIDTH-TO-HEIGHT RATION OF BETWEEN 1:5 AND 1:10

5 BRAILLE: CALIFORNIA GRADE 2 BRAILLE SHALL BE USED WHERE EVER BRAILLE IS REQUIRED IN OTHER PORTIONS OF THESE STANDARDS. BOTS SHALL BE 1/10 INCH (2.54mm) ON CENTER ON EACH CELL WITH 2/10 INCH SPACE BETWEEN CELLS, MEASURED IN THE SECOND COLUMN OF DOTS IN THE FIRST CELL TO THE FIRST \COLUMN OF DOTS IN SECOND CELL. DOTS SHALL BE RAISED M INIMUM OF 1/40 INCH(0635 mm) ABOVE BACKGROUND.

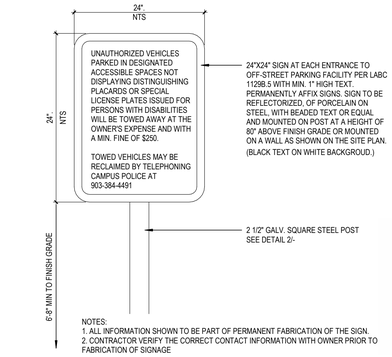
NOTE:
SEE SHEET 0.22 FOR TYPICAL MOUNTING HEIGHTS.

6 ATTACH SIGN USING FLATHEAD COUNTERSUNK SCREW TO SOLID BACKING & ADHESIVE TO BACK.

7 PLATE OF 1/8 INCH THICK PHOTO SENSITIZED ACRYLIC ETCHED TO FORM A SINGLE PLAQUE. SIGNS WILL BE (2) COLOR SIGN WITH LIGHT BACKGROUND & DARK CHARACTERS. COLORS TO BE DETERMINED BY ARCHITECT PRIOR TO INSTALLATION.

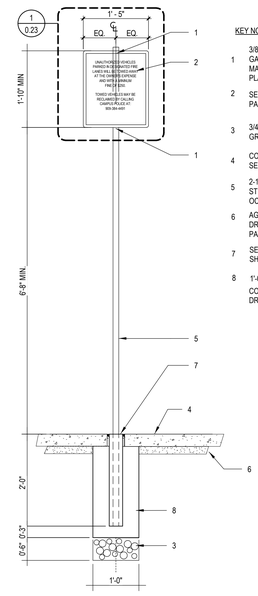
8 ALL LOCATIONS OF SIGNAGE SHALL BE REVIEWED BY OWNER BEFORE INSTALLATION.

5/0.23 SIGNAGE KEYNOTES
SCALE: 3" = 1'-0"



NOTES:
1. ALL INFORMATION SHOWN TO BE PART OF PERMANENT FABRICATION OF THE SIGN.
2. CONTRACTOR VERIFY THE CORRECT CONTACT INFORMATION WITH OWNER PRIOR TO FABRICATION OF SIGNAGE

1/0.23 TOW AWAY WARNING SIGN
SCALE: 1 1/2" = 1'-0"



KEY NOTES:

1 3/8" DIAMETER GALVANIZED ROUND HEAD MACHINE BOLTS. TYP.- 2 PLACES

2 SEE DETAIL 1/0.23 FOR TOW-AWAY PARKING SIGN,

3 3/4" DIAMETER WASHED DRAINAGE GRAVEL

4 CONCRETE SLAB OR AC PAVING, SEE PLAN

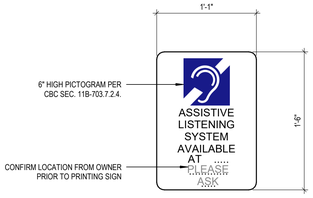
5 2-1/2"X2-1/2" SQUARE GALVANIZED STEEL PERFORATED POST (WHERE OCCURS- SEE PLANS)

6 AGGREGATE BASE PER CIVIL DRAWINGS WHERE NEW AC PAVING IS REQUIRED

7 SEAL AROUND POST WITH NON SHRINK GROUT OR SEALANT

8 1'-0" DIMETER CONCRETE FOOTING COMPACTED SUBGRADE, SEE CIVIL DRAWINGS.

2/0.23 PARKING TOW AWAY WARNING SIGN
SCALE: 3/4" = 1'-0"



NOTE:
THIS SIGN IS ASSISTING THE DEAF NOT THE BLIND - BRAIL NOT REQUIRED

14/0.23 ASSISTIVE LISTENING SYSTEM 'ALS'
SCALE: 1 1/2" = 1'-0"



Cleaner Air

FIGURE 11B-703.7.2.5 CLEANER AIR SYMBOL

Cleaner Air Symbol. Rooms, facilities and paths of travel that are accessible to and usable by people who are adversely impacted by airborne chemicals or particulate(s) and/or the use of electrical fixtures and/or devices shall be identified by the Cleaner Air Symbol complying with Figure 11B-703.7.2.5. This symbol is to be used strictly for publicly funded facilities or any facilities leased or rented by State of California, not concessionaires.



FIGURE 11B-703.7.2.2 INTERNATIONAL SYMBOL OF TTY

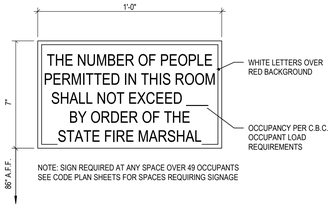
11B-703.7.2.2 International Symbol of TTY. The International Symbol of TTY shall comply with Figure 11B-703.7.2.2.



FIGURE 11B-703.7.2.3 VOLUME CONTROL TELEPHONE

Volume control telephones. Telephones with a volume control shall be identified by a pictogram of a telephone handset with radiating sound waves on a square field such as shown in Figure 11B-703.7.2.3

9/0.23 DETAILS FOR SIGNS
SCALE: 3/4" = 1'-0"



NOTE: SIGN REQUIRED AT ANY SPACE OVER 49 OCCUPANTS
SEE CODE PLAN SHEETS FOR SPACES REQUIRING SIGNAGE

4/0.23 MAX OCCUPANCY SIGN 'OLS'
SCALE: 3" = 1'-0"

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

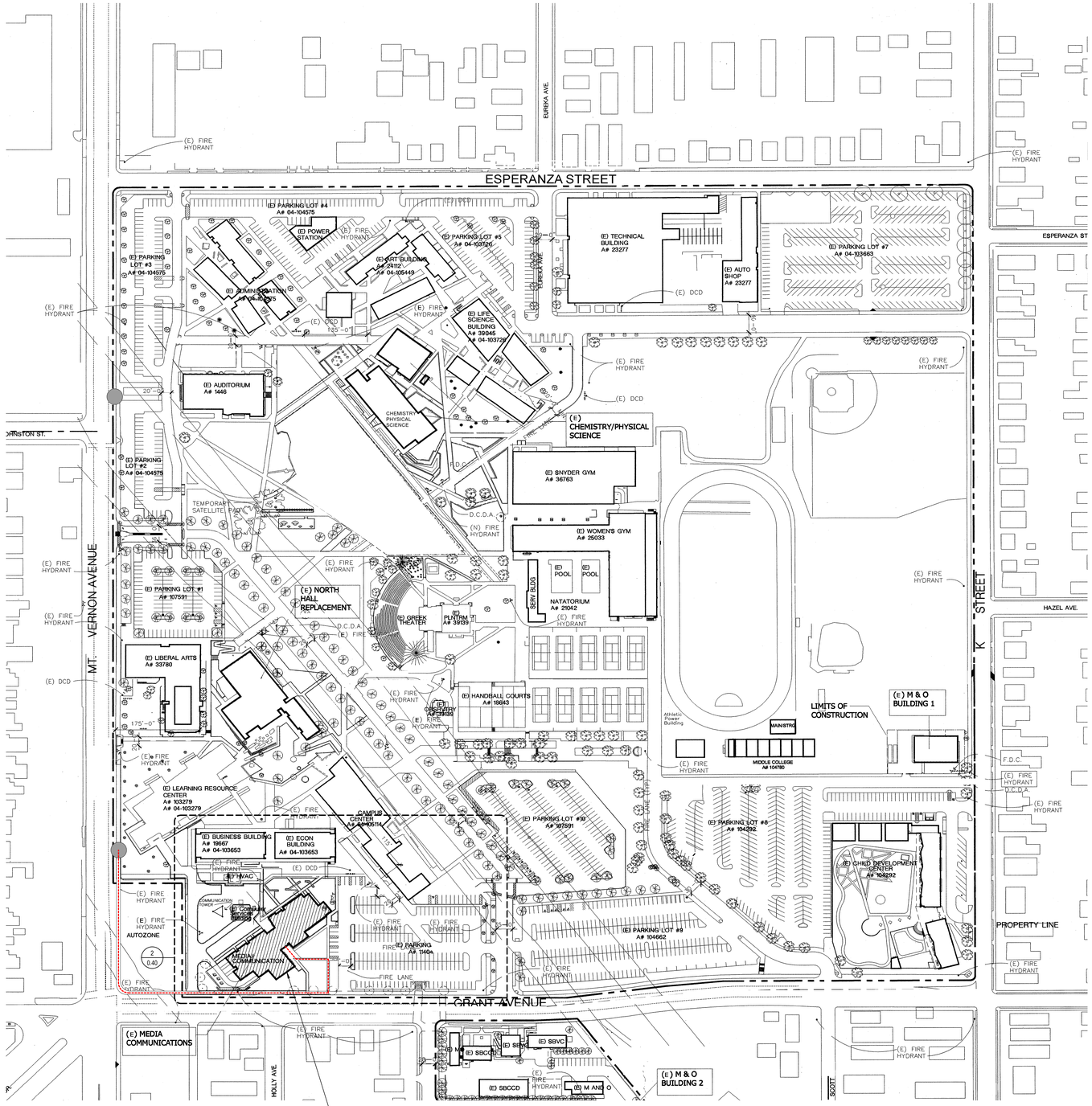
ACCESSIBILITY SIGNAGE DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

0.23
75-18608-00
12/21/2018
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PROJECT SCOPE OF WORK UNDER MEDIA COMMUNICATIONS BUILDING A# 04-109146.
AREA _ 18,253 SF
DATE OF CONSTRUCTION 2008
OCCUPANCY TYPE B & A3

1 / 0.40 CAMPUS & ACCESSIBILITY PLAN
SCALE: 1" = 100'-0"

SITE SYMBOLS

PROPERTY LINE
PATH OF ACCESSIBLE TRAVEL
PUBLIC TRANSPORTATION
(E) RESTROOMS
(E) FIRE HYDRANT
D.F. — (E) DRINKING FOUNTAIN. REFER TO A1.0 FOR (E) DETAIL

SITE PLAN NOTES

DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE STATEMENT:

The POT identified in these construction documents meets the requirements of the current applicable California Building Code (CBC) accessibility provisions for path of travel requirements for alterations, additions and structural repairs. As part of the design of this project, the POT was examined and any elements, components or portions of the POT that were determined to be noncompliant with the CBC have been identified and the corrective work necessary to bring them into compliance has been included within the scope of this project's work through details, drawings and specifications incorporated into these construction documents. Any noncompliant elements, components or portions of the POT that will not be corrected by this project based on valuation threshold limitations or a finding of unreasonable hardship are indicated in these construction documents.

During construction, if POT items within the scope of the project represented as CBC compliant are found to be nonconforming beyond reasonable construction tolerances, the items shall be brought into compliance with the CBC as a part of this project by means of a construction change document."

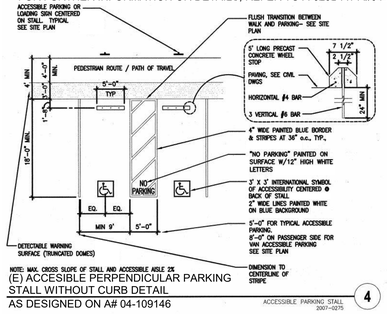
EXISTING SITE PLAN

Site plan provided below is based on the A# 04-109146.
(E) Parking calculations shown on site plan, are based on parking dedicated to this building (Media Communication Building).

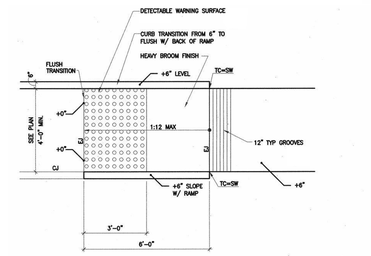
Per table 11B-208.2 Six (6) ADA spaces are required.
Per section 11B-208.2.4 One (1) van parking space should be provided every five(5) ADA stalls, therefore Two (2) van spaces are required.

Existing Accessible parking to comply with 11B-502.3.3 Marking.
Access aisles shall be marked with a blue painted borderline around their perimeter. The area within the blue borderlines shall be marked with hatched lines a maximum of 36" on center in a color contrasting with that of the aisle surface, preferably blue or white.
The words " No Parking" shall be painted on the surface within each access aisle in white letters a minimum of 12" in height and located to be visible from the adjacent vehicular way. Access aisle markings may extend beyond the minimum required length.

PARKING AND RAMP DETAIL BELOW TO SHOW CODE COMPLYING DIMENSIONS AND CLEARANCES WITH CBC 2016.
FOR FURTHER INFORMATION OR DETAILS, REFER TO A-020B AT A#04-109146



(E) ACCESIBLE PERPENDICULAR PARKING STALL WITHOUT CURB DETAIL
AS DESIGNED ON A# 04-109146
ACCESSIBLE PARKING STALL 2007-0275
4



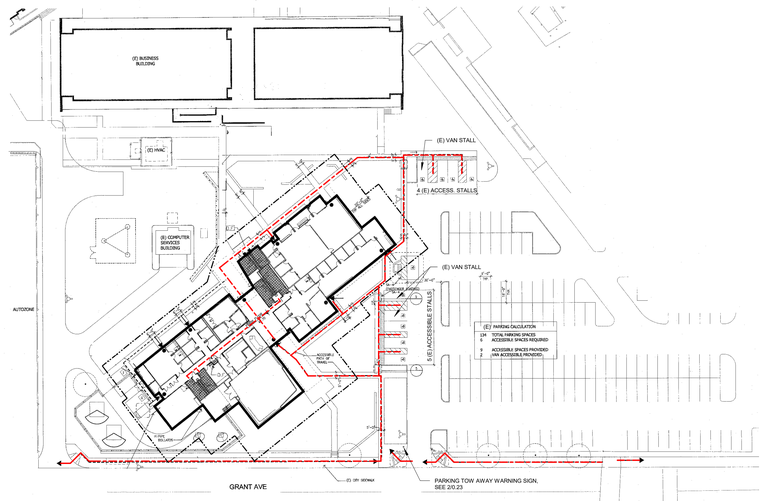
(E) ACCESIBLE RAMP DETAIL
AS DESIGNED ON A# 04-109146
ACCESSIBLE RAMP TYPE 2007-0275
5



(E) PARKING SIGN AT VAN STALL TO REMAIN INSTALLED AS PER SA-4/A-020B A# 04-109146
(E) VAN ACCESSIBLE PARKING SIGN TO COMPLY WITH 11B-502



(E) PARKING STALL STRIPING TO BE REPAINTED FOLLOWING 11B-502.3.3 MARKING & DSA RECOMMENDATION FOR AISLE HATCH TO BE PAINTED WHITE TO CREATE CONTRAST WITH ASPHALT. INTERNATIONAL ACCESSIBILITY SYMBOL BORDER ALSO TO BE PAINTED WHITE.



ALL DIMENSIONS ARE SHOWN AS PER A# 04-109146. GC TO VERIFY IN FIELD.
PROPERTY LINE SHOWN IN THIS PLAN AS ASSUMED ON A# 04-109146 SITE PLAN A-020A
(E) PARKING SIGN TO REMAIN. DETAIL 5/A-4 REFERS TO A# 04-109146 A-020B
ALL (E) PARKING STALLS TO REMAIN.
NO NEW PARKING TO BE ADDED.

N
2 / 0.40 SITE PLAN
SCALE: 1" = 50'-0"

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LEIGH ANNE JONES
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CAMPUS AND SITE PLAN

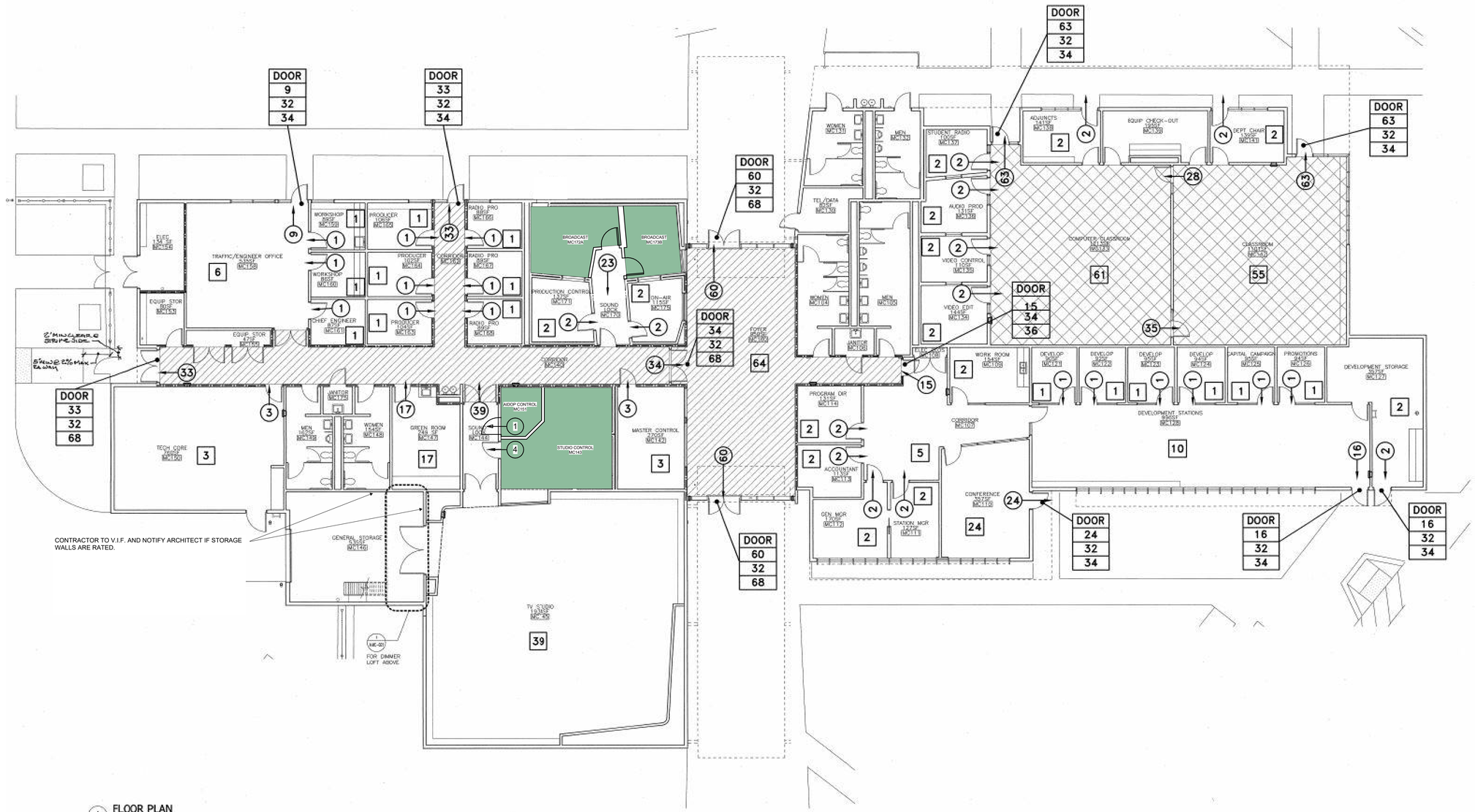
MEDIA COMMUNICATIONS BUILDING REMODEL

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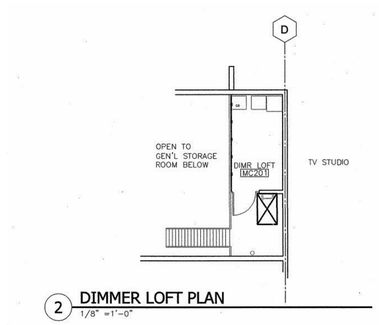
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1 FLOOR PLAN
1/8" =1'-0"



2 DIMMER LOFT PLAN
1/8" =1'-0"

LIFE SAFETY PLAN NOTES

A. LIFE SAFETY NOTES APPLY TO ALL SHEETS.
B. LIFE SAFETY PLAN IS BASED ON A# 04-109146
C. AREA OF SCOPE OF WORK MODIFYING ONLY THE (E) PLAN ON BROADCAST SPACE MC 173 AND STUDIO AND AUDIO CONTROL SPACES MC 143 & MC 151. OVERALL OCCUPANCY TO REMAIN AS A#04-109146.
D. ALL SPACES TO REMAIN WITH SAME OCCUPANCY TYPE AS SHOWN UNDER CODE ANALYSIS BELOW FROM A#04-109146.
E. ALL OCCUPANCY CALCULATIONS ARE REMAINING AS A# 04-109146.
F. PLUMBING CALCULATIONS REMAINING FROM A#04-109146.
G. ALL (E) DOOR SIGNAGE TO REMAIN.
H. ALL (E) DOORS TO COMPLY WITH CBC SECTION 11B-404.2.8
   a. CLOSER TO BE ADJUSTED AS REQUIRED TO COMPLY WITH 5 POUNDS MAX PRESURE.

LEGEND

OCCUPANT LOAD FACTORS

	SF/PERSON
CLASSROOM	20
OFFICE/ADMIN	100
STORAGE/CLOSET	300
LOUNGE/MEETING	15
VOCATIONAL	50
FOYER (OFFICE)	15

- EXIT COMPONENT
- OCCUPANT LOAD
- REQUIRED EXIT WIDTH (INCHES)
- PROVIDED EXIT WIDTH (INCHES)
- # OCCUPANT LOAD
- # OCCUPANT LOAD USING EXIT-ACCESS OR EXIT.
- 'B' OCCUPANCY (E spaces)
- 'A-3' OCCUPANCY (E spaces)
- 1-HOUR CORRIDOR (E spaces)
- 1-HOUR FIRE RESISTIVE WALL
- (E) " B" OCCUPANCY spaces affected

NOTE

PLUMBING FIXTURES

PER CPC 4.1 – COLLEGES & UNIVERSITIES

MEN			WOMEN		
FIXTURE TYPE	REQ.	PROVIDED	FIXTURE TYPE	REQ.	PROVIDED
WATER CLOSET	5	6	WATER CLOSET	7	7
URINAL	5	5			
LAVATORY	5	5	LAVATORY	5	6

(E) LIFE SAFETY PLAN & CODE ANALYSIS

SCALE: 1/8" = 1'-0"

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LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
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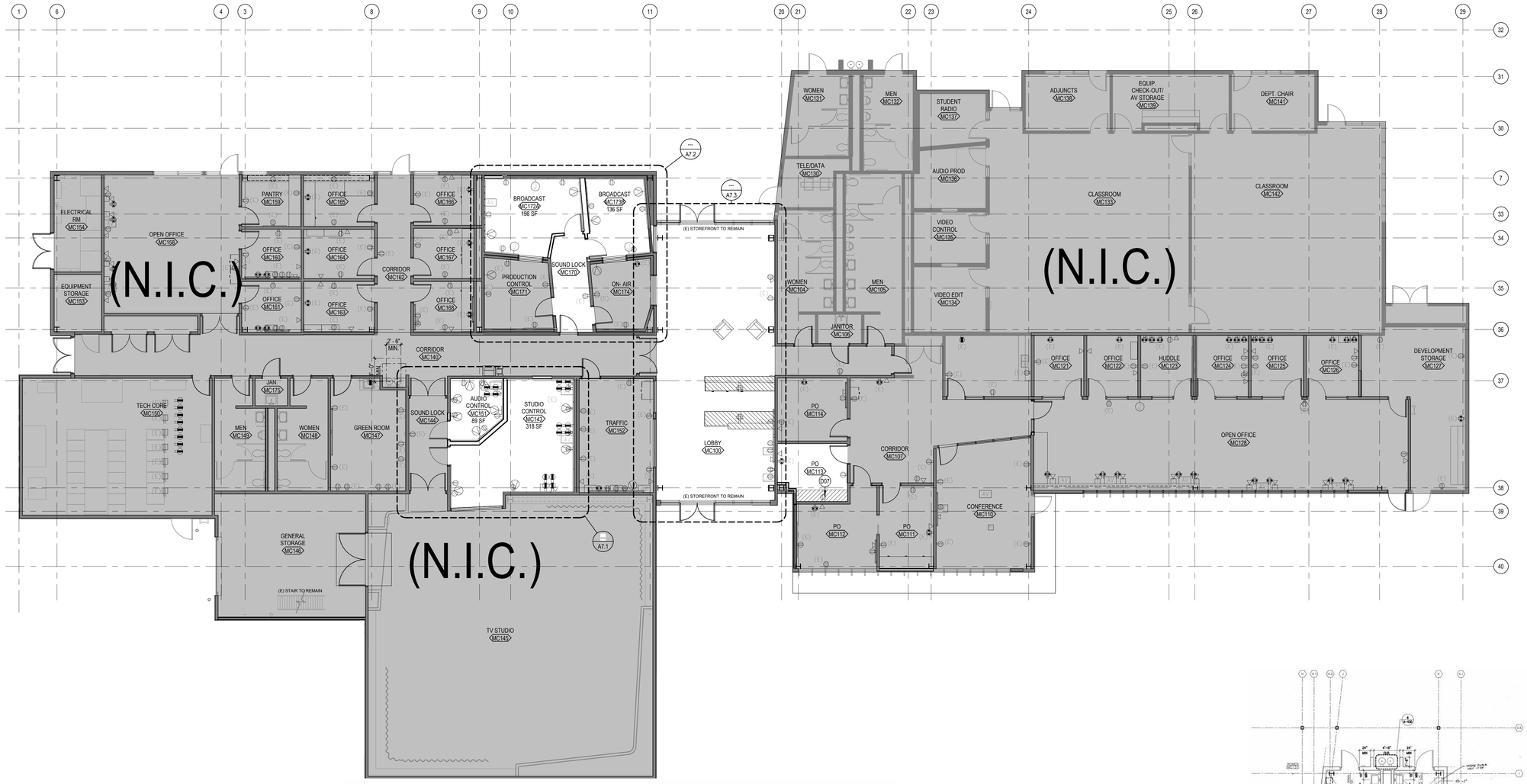
LIFE SAFETY AND CODE ANALYSIS
MEDIA COMMUNICATIONS BUILDING REMODEL

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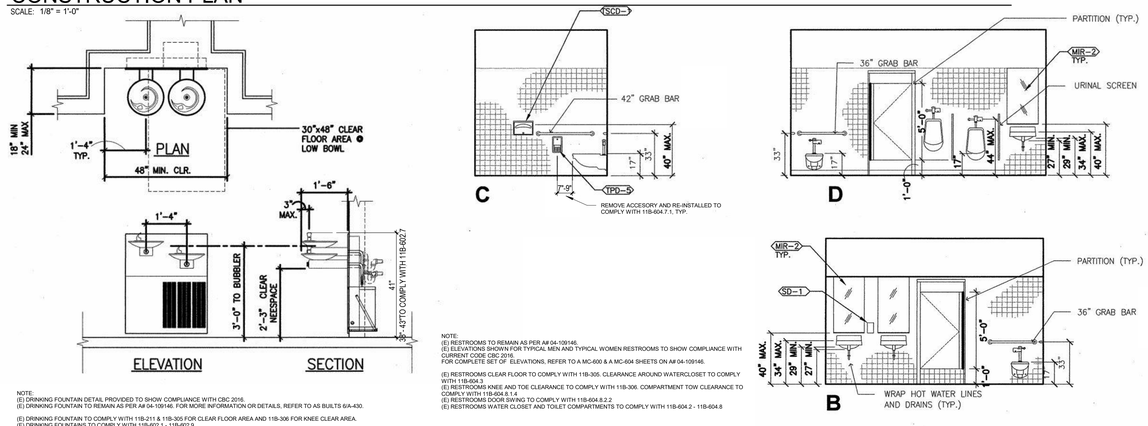
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N

CONSTRUCTION PLAN

SCALE: 1/8" = 1'-0"

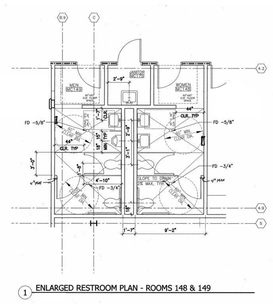


NOTE:
(E) DRINKING FOUNTAIN DETAIL PROVIDED TO SHOW COMPLIANCE WITH CBC 2016.
(E) DRINKING FOUNTAIN TO REMAIN AS PER A# 04-109146. FOR MORE INFORMATION OR DETAILS, REFER TO AS BUILTS 6/A-430.

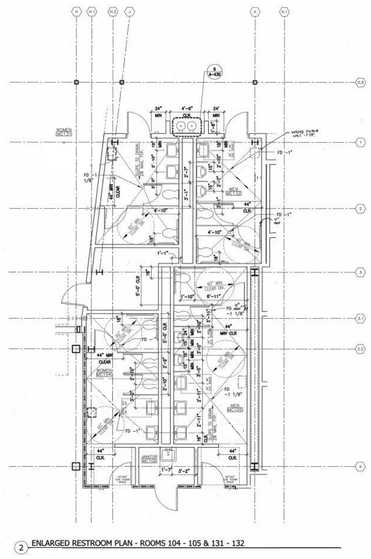
(E) DRINKING FOUNTAIN TO COMPLY WITH 11B-211 & 11B-305 FOR CLEAR FLOOR AREA AND 11B-306 FOR KNEE CLEAR AREA.
(E) DRINKING FOUNTAINS TO COMPLY WITH 11B-602.1 - 11B-602.9

NOTE:
(E) RESTROOMS TO REMAIN AS PER A# 04-109146.
(E) ELEVATIONS SHOWN FOR TYPICAL MEN AND TYPICAL WOMEN RESTROOMS TO SHOW COMPLIANCE WITH CURRENT CODE CBC 2016.
FOR COMPLETE SET OF ELEVATIONS, REFER TO A-MC-400 & A MC-404 SHEETS ON A# 04-109146.

(E) RESTROOMS CLEAR FLOOR TO COMPLY WITH 11B-305. CLEARANCE AROUND WATERCLOSET TO COMPLY WITH 11B-604.3
(E) RESTROOMS KNEE AND TOE CLEARANCE TO COMPLY WITH 11B-306. COMPARTMENT TOW CLEARANCE TO COMPLY WITH 11B-604.8.1.4
(E) RESTROOMS DOOR SWING TO COMPLY WITH 11B-604.8.2.2
(E) RESTROOMS WATER CLOSET AND TOILET COMPARTMENTS TO COMPLY WITH 11B-604.2 - 11B-604.8



1 ENLARGED RESTROOM PLAN - ROOMS 148 & 149



2 ENLARGED RESTROOM PLAN - ROOMS 104 - 105 & 131 - 132

NOTE:
(E) RESTROOMS TO REMAIN AS PER A# 04-109146.
(E) PLANS SHOWN FOR MEN AND WOMEN RESTROOMS TO SHOW COMPLIANCE WITH CURRENT CODE CBC 2016.
FOR MORE INFORMATION AND DETAILS, REFER TO A MC-204 ON A# 04-109146.

(E) RESTROOMS CLEAR FLOOR TO COMPLY WITH 11B-305. CLEARANCE AROUND WATERCLOSET TO COMPLY WITH 11B-604.3
(E) RESTROOMS KNEE AND TOE CLEARANCE TO COMPLY WITH 11B-306. COMPARTMENT TOW CLEARANCE TO COMPLY WITH 11B-604.8.1.4
(E) RESTROOMS DOOR SWING TO COMPLY WITH 11B-604.8.2.2
(E) RESTROOMS WATER CLOSET AND TOILET COMPARTMENTS TO COMPLY WITH 11B-604.2 - 11B-604.8

(E) DRINKING FOUNTAIN DETAIL

SCALE: 1/2" = 1'-0"

(E) BATHROOM TYPICAL ELEVATIONS FOR MEN AND WOMEN

SCALE: 1/4" = 1'-0"

(E) BATHROOM PLANS

SCALE: 1/8" = 1'-0"

CONSTRUCTION PLAN NOTES

A. CONSTRUCTION NOTES APPLY TO ALL SHEETS.
B. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF FINISHED WALL, UNLESS NOTED OTHERWISE.
C. GYPSUM BOARD AND PLASTER SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE REQUIRED; GC TO NOTIFY DLR GROUP OF LOCATIONS PRIOR TO CONSTRUCTION.
D. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL 2" X 10" CONTINUOUS FIRE RETARDANT TREATED WOOD BLOCKING OR 10" WIDE SHEET METAL BACKING IN STEEL STUD PARTITIONS FOR PROPER ANCHORAGE OF WALL ATTACHED ITEMS INCLUDING BUT NOT LIMITED TO THE FOLLOWING: GRAB BARS, CASEWORK, MILLWORK, TOILET ACCESSORIES, TOILET PARTITIONS, WALL MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, ETC.
E. WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE.
F. SEAL PENETRATIONS THROUGH FIRE-RESISTANCE-RATED CONSTRUCTION WITH THROUGH-PENETRATION FIRESTOP MATERIAL AS REQUIRED TO ACHIEVE RESPECTIVE FIRE-RESISTIVE RATING AND SMOKE STOPPAGE.
G. INCLUDE OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER FURNISHED AND CONTRACTOR INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND COORDINATE WITH OWNER TO ACCOMMODATE THESE ITEMS.
H. SEE ENLARGED PLAN FOR EXTENTS OF DEMOLITION
I. REFER TO DETAIL 9/0.20 FOR DOOR CLEARANCE INFORMATION.
J. FOR INTERIOR ELEVATION MOUNTING HEIGHT INFORMATION REFERENCE 1/0.22.
K. FOR EXISTING RATED WALLS REFER TO 0.50

CONSTRUCTION PLAN LEGEND

- NEW FULL HEIGHT PARTITION, REFER TO ENLARGED PLANS IN A7 SERIES FOR WALL TYPE. REFER TO A8.1 FOR WALL TYPES.
- EXISTING PARTITION TO REMAIN
- SWING DOOR IDENTIFIER. SEE DOOR SCHEDULE SHEET A 9.1.
- EXISTING MILLWORK TO REMAIN
- NEW MILLWORK; SEE DETAILS 22-25/ A8.1
- EXISTING MILLWORK TO BE DEMOLISHED
- EXISTING COLUMN TO REMAIN
- SHADED AREA NOT IN CONTRACT (NIC)
- (N) NEW
- (E) EXISTING
- XX MATERIAL FINISH TAG, SEE A4.1 FOR MORE INFORMATION

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CONSTRUCTION GROUND FLOOR PLAN
MEDIA COMMUNICATIONS BUILDING REMODEL

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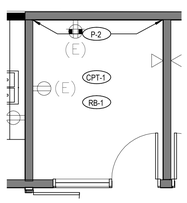
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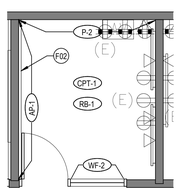


FINISH PLAN

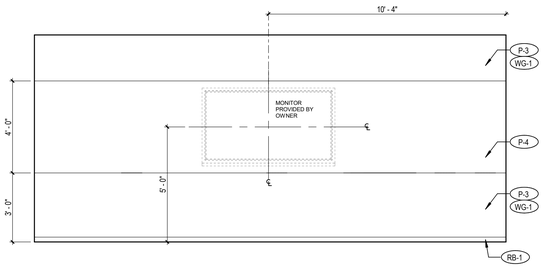
SCALE: 1/8" = 1'-0"



2 A4.1 TYP. OFFICE FINISH -2
SCALE: 1/4" = 1'-0"



3 A4.1 TYP. OFFICE FINISH - 1
SCALE: 1/4" = 1'-0"



4 A9.1 CONFERENCE MC110 - WEST
SCALE: 3/8" = 1'-0"

FINISH PLAN NOTES

A. NOT ALL FLOOR FINISHES ARE NOTED ON THE INTERIOR FINISH PLANS. SEE INTERIOR ELEVATIONS FOR ADDITIONAL INFORMATION.
B. FLOOR PATTERN DIMENSIONS AND LOCATIONS ARE APPROXIMATE. MINOR ADJUSTMENTS MAY BE MADE FOR LAYOUT AND TO MINIMIZE WASTE AS LONG AS THE DESIGN INTENT IN MAINTAINED.
C. FOR FLOOR TILE PRODUCTS, ADJUST LAYOUT AS NECESSARY TO AVOID USING CUT WIDTHS THAT EQUAL LESS THAN ONE-HALF OF A TILE AT ROOM PERIMETER.
D. ALL WALLS TO RECEIVE P-1 AND RB-1, U.O.N.; REFER TO FINISH SCHEDULE FOR FURTHER INFORMATION.
E. FOR CONFERENCE ROOM ASSISTIVE LISTENING SYSTEM REFER TO 14/0.23
F. FOR CONFERENCE ROOM ADA SIGNAGE, REFER TO 9/0.23
G. FOR FLOOR TRANSITIONS, REFER TO DETAIL 3/A9.1, U.N.O.

FINISH KEYNOTE

F01	EXISTING CONCRETE TO REMAIN, PROTECT IN PLACE. PROVIDE CLEAR, MATTE WATER BASED SEALANT (TYP.).
F02	ACOUSTIC WALL PANELS: 4'-0" HIGH BAND OF EQUALLY SIZED ACOUSTIC PANELS ACROSS FULL WALL MOUNTED AT 2'-10" AFF, AP-1.
F03	ADD ALTERNATE: REPLACE CEILING TILES WITH NEW. SPEC: 2X2 ARMSTRONG "CIRRUS" HIGH NRC SQUARE TILE (WHITE) SEE SPEC SECTION 09 51 13 FL.
F04	ADD ALTERNATE: DEMO (E) FLOOR AND INSTALL LVT-1 WITH RB-2, SEE FINISH SCHEDULE FOR PRODUCT INFORMATION.
F05	SEE 2/A4.1 FOR TYPICAL OFFICE FINISHES.
F06	INSTALL WINDOW FILM ON EXISTING DOOR GLAZING. WF-2, SEE FINISH SCHEDULE FOR MORE INFORMATION.
F07	SEE 3/A4.1 FOR TYPICAL OFFICE FINISHES.
F08	FINISH FLOOR TRANSITION TR-01. SEE DETAIL 13/A8.1 AND FINISH SCHEUDLE FOR FURTHER INFORMATION.
F09	FINISH FLOOR TRANSITION TR-02. SEE DETAIL 14/A8.1 AND FINISH SCHEUDLE FOR FURTHER INFORMATION.
F10	EXISTING FINISHES TO REMAIN.
F11	SAND AND PREP EXISTING CONCRETE FLOOR.STAIN AND SEAL CONCRETE TO MATCH ARCHITECTS SAMPLE: CON-2 SEE FINISH SCHEDULE FOR FURHTER INFORMATION.
F12	REMOVE EXISTING WINDOW SHADES AND INSTALL WINDOW FILM ON EXISTING INTERIOR GLAZING. SEE FINISH SCHEDULE FOR FURTHER INFORMATION.

FINISH SCHEDULE

CATEGORY	Keynote Number	Description	SPEC SECTION	Manufacturer	Style	Color/Finish	Contact Information	Installation/Notes	LOCATION
FLOOR FINISHES	(E) CON	EXISTING CONCRETE	N/A	N/A	N/A	N/A	N/A	PROTECT IN PLACE	THROUGHOUT
FLOOR FINISHES	CON-2	CONCRETE - MATCH TO SAMPLE	03 35 00	SCOFIELD	LITHOCHROME TINTURA STAIN	BLACK 0510	BOB TORRES (916) 715-2717; TORRES.BOB@US.SIKA.COM		CORRIDORS MC140, MC162 , MC144, AND MC158
FLOOR FINISHES	CPT-1	CARPET	09 68 13	SHAW	SEA EDGE TILE - 5T173; 24" X 24"	SKYLINE SILVER - 72503	GRACE KANG, (714) 392-8528; GRACE.KANG@SHAWINC.COM	QUARTER TURN INSTALLATION	THROUGHOUT
FLOOR FINISHES	CPT-2	CARPET	09 68 13	SHAW	SEA EDGE TILE - 5T173; 24" X 24"	SKYLINE RED -72502	GRACE KANG, (714) 392-8528; GRACE.KANG@SHAWINC.COM	QUARTER TURN INSTALLATION	THROUGHOUT
FLOOR FINISHES	LVT-1	LUXURY VINYL TILE	09 65 00	SHAW	SOLITUDE 0648V 6" X 48" PLANK	SMOKE 48506	GRACE KANG, (714) 392-8528; GRACE.KANG@SHAWINC.COM		GREEN ROOM / BREAK ROOM/ LOBBY
FLOOR FINISHES	RB-1	RUBBER BASE	09 65 13	BURKE	ACCORD - 4" HIGH BASE	701 BLACK	RALEIGH LIEBAN (310) 702-6032; RALEIGH_LIEBAN@MANNINGTON.COM	STRAIGHT AT CARPET, COVE AT ALL OTHER LOCATIONS	THROUGHOUT
FLOOR FINISHES	RB-2	RUBBER BASE	09 65 13	BURKE	ACCORD - 4" HIGH BASE	050 MOONBEAM	RALEIGH LIEBAN (310) 702-6032; RALEIGH_LIEBAN@MANNINGTON.COM	COVE BASE; USE WITH LVT-1	THROUGHOUT
FLOOR FINISHES	TR-1	RUBBER TRANSITION	09 65 13	BURKE		701 BLACK	RALEIGH LIEBAN (310) 702-6032; RALEIGH_LIEBAN@MANNINGTON.COM		THROUGHOUT
MILLWORK	PL-1	PLASTIC LAMINATE	06 41 16	LAMINART	3123-E	STUDIO ELM VELLUM FINISH	LETITIA FOX (310) 463-6823; LFOX@LAMINART.COM		RECEPTION DESK CABINETS & FRONT/BACK SURFACE
MILLWORK	PL-2	PLASTIC LAMINATE	12 36 23.13	LAMINART	2448-T	CHARCOAL GREY TEXTURED FINISH	LETITIA FOX (310) 463-6823; LFOX@LAMINART.COM		RECEPTION DESK TRANSACTION TOP & WATERFALL EDGE
MILLWORK	PL-3	PLASTIC LAMINATE	06 41 16	LAMINART	9202-E	PEARL WHITE VELLUM FINISH	LETITIA FOX (310) 463-6823; LFOX@LAMINART.COM		RECEPTION DESK WORKSURFACE
MISC.	WF-1	WINDOW FILM	08 87 00	METWEST	CUSTOM WINDOW FILM GRAPHIC	N/A	MO KHALFAN; (310) 829-5701; MO@METWEST.COM	GRAPHIC DESIGN PROVIDED BY VENDOR	THROUGHOUT
MISC.	WF-2	WINDOW FILM	08 87 00	METWEST	METROFROST	N/A	MO KHALFAN; (310) 829-5701; MO@METWEST.COM	N/A	SELECT P.O. SIDELIGHTS; SEE FINISH PLAN
WALL FINISHES	AP-1	ACOUSTIC WALL PANEL	09 77 23	KINETICS	HARDSIDE 2" PANEL; SQUARE EDGE	MAHARAM MODE SYCAMORE 466337-008	TYLER ADAMS (323) 230-5005; TADAMS@ACOUSTHETICS.COM	SEE DETAILS 31/A8.1	THROUGHOUT
WALL FINISHES	P-1	FIELD PAINT	09 91 23	DUNN EDWARDS	DEW340	WHISPER	LARRY LOO (800) 733-3866; LARRY.LOO@DUNNEDWARDS.COM		FIELD PAINT
WALL FINISHES	P-2	ACCENT PAINT	09 91 23	DUNN EDWARDS			LARRY LOO (800) 733-3866; LARRY.LOO@DUNNEDWARDS.COM		ACCENT PAINT; PRIVATE OFFICES
WALL FINISHES	P-3	ACCENT PAINT	09 91 23	DUNN EDWARDS	DET420	LADY IN RED	LARRY LOO (800) 733-3866; LARRY.LOO@DUNNEDWARDS.COM		ACCENT PAINT; OPEN OFFICE
WALL FINISHES	P-4	DRY ERASE PAINT	09 91 23	WOLF GORDON	WINK DRY ERASE COATING	CLEAR	RONNI MASSOK (800)347-0550; RONNIM@WOLF-GORDON.COM	INSTALL OVER P-1	ACCENT PAINT
WALL FINISHES	WG-1	WALL GRAPHIC	09 91 23	DESIGNTEX	CUSTOM WALL GRAPHIC	N/A	DONNA DAWSON (800) 221-1540; DDAWSON@DESIGNTEX.COM	PROVIDE LEVEL 5 WALL FINISH; GRAPHIC DESIGN PROVIDED BY VENDOR	SEE FINISH PLAN
WINDOW TREATMENT	WT-1	ROLLER SHADE	12 24 00	MECHOSHADE	ECOVEIL	0963 GREY 1% OPEN	JEAN-GUY POITRAS (213) 631-5001; JEANGUY@ARCHITYPE.NET		

FINISH PLAN LEGEND

- FLOOR FINISH TRANSITION SYMBOL
- XX-XX — FINISH KEY TAG; SEE FINISH SCHEDULE (THIS PAGE) FOR FURTHER DETAIL
- SHADED AREA NOT IN CONTRACT (N.I.C)
- FLOORING DIRECTION
- EXISTING MILLWORK TO REMAIN
- NEW MILLWORK

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LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

FINISH PLAN AND SCHEDULE
MEDIA COMMUNICATIONS BUILDING REMODEL

A4.1
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N

POWER/ DATA & FURNITURE PLAN

SCALE: 1/8" = 1'-0"

FURNITURE PLAN NOTES

A. ALL INTERIOR SPACES TO HAVE A 5% MINIMUM EMPLOYEE WORKSTATIONS TO BE HEIGHT ADJUSTABLE AND TO COMPLY WITH 11B-304:
   a. 60" DIA. TURNING SPACE.
   b. KNEE AND TOE CLEARANCE PER 11B-306.
B. PROVIDE PORTABLE ASSISTED LISTENING DEVICES FOR ALL CONFERENCE ROOMS/ASSEMBLY AREAS PER 11B-216.10, 11B-219 & 11B-706.
C. PROVIDE HEARING IMPAIRED SIGNAGE FOR PORTABLE LISTENING DEVICES STATING THESES DEVICES ARE AVAILABLE UPON REQUEST FOR EACH LOCATION.
D. REFER TO DETAIL 7/0.20 FOR ACCESSIBILITY CLEARANCES.
E. FOR REACH RANGE INFORMATION REFER TO DETAIL 8/0.20.

FURNITURE KEYNOTE

FR01	INDUSTRIAL SHELVING BASIS OF DESIGN: ULINE WIDE SPAN STORAGE RACK H-2981, 96" W X 36" D X 120" H.
FR02	INDUSTRIAL SHELVING BASIS OF DESIGN: ULINE WIDE SPAN STORAGE RACK H-2974, 60" W X 48" D X 120" H.
FR03	INDUSTRIAL SHELVING BASIS OF DESIGN: ULINE WIDE SPAN STORAGE RACK H-2970, 48" W X 48" D X 120" H.
FR04	INDUSTRIAL SHELVING BASIS OF DESIGN: ULINE WIDE SPAN STORAGE RACK H-2978, 72" W X 48" D X 120" H. SEE DETAIL 13/0.20 FOR OBSTRUCTIONS UNDER STAIRS.
FR05	FLOOR ANCHOR LOCATION. TYP (4) SEE FLOOR ANCHOR DETAIL 33/A8.1 EVERY 4'-0" MAX.
FR06	SIDE BY SIDE TIE PLATE CONNECTION, SEE DETAIL 33/A8.1 ELEVATION VIEW.

FURNITURE PLAN LEGEND

- XX-XX — FURNITURE KEY TAG
- NOT IN CONTRACT
- EXISTING MILLWORK TO REMAIN
- NEW MILLWORK

POWER/DATA PLAN NOTES

A. ALL ELECTRICAL WORK & OUTLETS TO CONFROM WTIH CURRENT CBC TITLE 24 ENERGY REQUIREMENTS.
B. FURNITURE SHOWN FOR REFERENCE ONLY. GENERAL CONTRACTOR & FURNITURE VENDOR TO COORDINATE QUANTITY AND CONFIGURATION OF OCCUPANCY-CONTROLLED POWER OUTLETS IN ALL FURNITURE SYSTEMS WITH INTEGRAL POWER OUTLETS. PROVIDE LOW VOLTAGE WIRING TO J-BOX LOCATIONS AS REQUIRED.
C. ALL OUTLETS SHOWN ON PLAN ARE NEW U.O.N. USE EXISTING IN LIEU OF PROVIDING NEW IF TIEHY ARE IN CLOSE PROXIMITY (+/- 18"), UNLESS AN EXACT DIMENSION IS PROVIDED.
D. PROVIDE 1-1/2" HOMERUN CONDUIT FROM TELEPHONE BACKBOARD TO BUILDING TELEPHONE ROOM IF NOT EXISTING. PROVIDE (2) QUAD DEDICATED ELECTRICAL OUTLETS & (1) TELE/DATA OUTLET AT TELEPHONE BACKBOARD IF NOT EXISTING U.O.N.
E. GENERAL CONTRACTOR TO VERIFY EXACT LOCATION OF NON-DIMENSIONED POWER/DATA, FLOOR OUTLETS AND WALL OUTLETS ARE ASSOCIATED WITH FURNITURE WITH ARCHITECT AND FURNITURE VENDOR PRIOR TO COMMENCEMENT OF ANY FLOOR CORING OR BOX ROUGH-INS.
F. COLOR OF WALL COVER PLATES FOR DEVICES SHALL BE AS FOLLOWS:
   a. GRAY COVER PLATES FOR COMPUTER DEDICATED CIRCUITS.
   b. WHITE COVER PLATES FOR ALL OTHER DEVICES AT WHITE WALLS.
   c. VERIFY WITH ARCHITECT FOR COVER PLATES AT COLORED ACCENT WALLS.

P/D KEYNOTE

POWER/DATA PLAN LEGEND

SYMBOL	DESCRIPTION
	QUAD RECEPTACLE; +18" AFF U.O.N.
	SPLIT QUAD RECEPTACLE: DUPLEX CONVENIENCE + DUPLEX ON DEDICATED CIRCUIT; +18" AFF U.O.N.
	DUPLEX RECEPTACLE; +18" AFF U.O.N.
	DUPLEX RECEPTACLE ON A DEDICATED CIRCUIT; + 18" AFF U.O.N.
GFCI	DUPLEX GROUND FAULT CIRCUIT INTERRUPTER RECEPTACLE; +18" AFF U.O.N.
#	ELECTRICAL J-BOX TO FEED FURNITURE SYSTEM - NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF WORKSTATIONS SERVED; +18" AFF U.O.N.
#	ELECTRICAL J-BOX TO FEED FURNITURE SYSTEM - NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF WORKSTATIONS SERVED; FLUSH FLOOR
	COMBINATION OF DUPLEX ELECTRICAL & TELE/DATA OUTLET; FLUSH FLOOR
	WALL AV J-BOX; VERIFY HEIGHT
	WALL TELEPHONE AND/OR DATA OUTLET; +18" AFF U.O.N.
#	TELE/DATA J-BOX TO FEED FURNITURE SYSTEM - NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF WORKSTATIONS SERVED; FLUSH FLOOR
#	TELE/DATA J-BOX TO FEED FURNITURE SYSTEM - NUMBER ADJACENT TO SYMBOL INDICATES NUMBER OF WORKSTATIONS SERVED; FLUSH FLOOR
AV	WALL AV J-BOX; VERIFY HEIGHT

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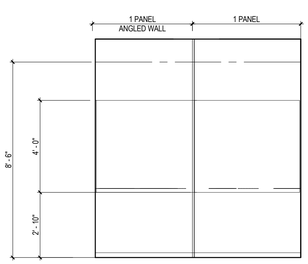
POWER/DATA AND FURNITURE PLAN
MEDIA COMMUNICATIONS BUILDING REMODEL

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Revisions

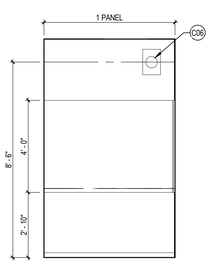
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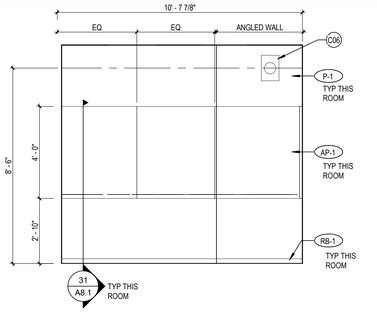
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23 A7.1 AUDIO CONTROL - C
SCALE: 3/8" = 1'-0"



24 A7.1 AUDIO CONTROL - B
SCALE: 3/8" = 1'-0"



25 A7.1 AUDIO CONTROL - A
SCALE: 3/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
B. CEILING HEIGHTS ARE AS NOTED ON THE REFLECTED CEILING PLAN UNLESS NOTED OTHERWISE.
C. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, ETC., SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE.
E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCED IN NOTE (D) IN ONE HALF OF THE TILE. DO NOT LOCATE DEVICE ON THE SCORE. FOR APC WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH ARCHITECT.
F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC. AT ACOUSTICAL PANEL CEILINGS.
G. PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS INDICATED ON THE DRAWINGS.
H. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   a. FACE OF FINISHED WALL
   b. FACE OF FINISHED BULKHEADS
   c. CENTERLINE OF COLUMNS
   d. CENTERLINE OF TEES

REFLECTED CEILING PLAN LEGEND

CEILING TYPES

ACT-1: 2' X 2' LAY-IN ACOUSTICAL CEILING TILE SYSTEM
CEILING TILE: ARMSTRONG "CIRRUS" SQUARE TILE (WHITE)
GRID: ARMSTRONG SILOUHETTE XL 9/16" — 41 / A11.1

XXX / XX'-XX" — CEILING TYPE AND HEIGHT

E — EXISTING TO REMAIN

LF1 — LED 2' X 2' LIGHT FIXTURE — 42 / A11.1

DEMOLITION PLAN NOTES

A. DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION SHEETS.
B. COORDINATE DEMOLITION AND PHASING EFFORTS WITH ARCHITECT AND OWNER'S REPRESENTATIVES. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS AND TO PROVIDE BUILDING USER'S SAFETY, EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH OWNER'S REPRESENTATIVE AND LANDLORD.
C. VERIFY EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS AND NOTIFY ARCHITECT OF DISCREPANCIES.
D. VERIFY AND MAINTAIN LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF SERVICE.
E. COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER, LANDLORD AND AS SPECIFIED.
F. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
G. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
H. PROVIDE PROTECTION FOR EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER TI CONTRACT.
I. REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINIS AND /OR CONDITION.
J. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WIT EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSUR ISOLATE DEMOLITION AND CONSTRUCTION WORK FROM GENERAL PUBLIC AND AS DEEMED NECESSARY BY OWNER CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH OWNER AND LANDLORD. MAINTAIN MEAN OF EGRESS THROUGHOUT THE WORK.
K. MAINTAIN A SECURE, DUST-PROOF, WEATHER-TIGHT ENCLOSURE.
L. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED; PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH-FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION.
M. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
N. CAP DISCONNECTED MECHANICAL PIPING LINES WITHIN WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
O. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.

DEMOLITION PLAN LEGEND

EXISTING NON-BEARING PARTITION TO BE DEMOLISHED
EXISTING PARTITION TO REMAIN
EXISTING DOOR & FRAME TO BE DEMOLISHED
EXISTING DOOR & FRAME TO REMAIN
AREA NOT IN CONTRACT (NIC)

DEMOLITION KEYNOTE

D01 DEMO EXISTING FLOOR FINISH, AND BASE. PREP FLOOR TO RECEIVE NEW SCHEDULED FINISHES.
D02 DEMO EXISTING CEILING AND LIGHT FIXTURES.
D04 REMOVE EXISTING ACOUSTIC WALL PANELS, PREP SURFACE TO RECEIVE NEW FINISH. ADD ALTERNATE: REMOVE (E) ACOUSTIC WALL PANELS AND SAVE FOR REUSE.
D06 REMOVE AND SAVE (E) DOOR SIGNAGE FOR REUSE.

CONSTRUCTION PLAN NOTES

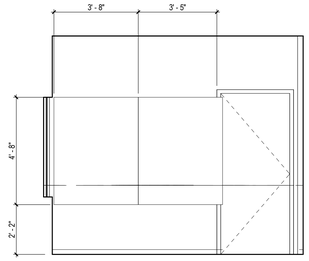
A. CONSTRUCTION NOTES APPLY TO ALL SHEETS.
B. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF FINISHED WALL, UNLESS NOTED OTHERWISE.
C. GYPSUM BOARD AND PLASTER SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE REQUIRED; GC TO NOTIFY DLR GROUP OF LOCATIONS PRIOR TO CONSTRUCTION.
D. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL 2" X 10" CONTINUOUS FIRE RETARDANT TREATED WOOD BLOCKING OR 10" WIDE SHEET METAL BACKING IN STEEL STUD PARTITIONS FOR PROPER ANCHORAGE OF WALL ATTACHED ITEMS INCLUDING BUT NOT LIMITED TO THE FOLLOWING: GRAB BARS, CASEWORK, MILLWORK, TOILET ACCESSORIES, TOILET PARTITIONS, WALL MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, ETC.
E. WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE.
F. SEAL PENETRATIONS THROUGH FIRE-RESISTANCE-RATED CONSTRUCTION WITH THROUGH-PENETRATION FIRESTOP MATERIAL AS REQUIRED TO ACHIEVE RESPECTIVE FIRE-RESISTIVE RATING AND SMOKE STOPPAGE.
G. INCLUDE OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER FURNISHED AND CONTRACTOR INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND COORDINATE WITH OWNER TO ACCOMMODATE THESE ITEMS.
H. SEE ENLARGED PLAN FOR EXTENTS OF DEMOLITION
I. REFER TO DETAIL 9/0.20 FOR DOOR CLEARANCE INFORMATION.
J. FOR INTERIOR ELEVATION MOUNTING HEIGHT INFORMATION REFERENCE 1/0.22.
K. FOR EXISTING RATED WALLS REFER TO 0.50

CONSTRUCTION PLAN LEGEND

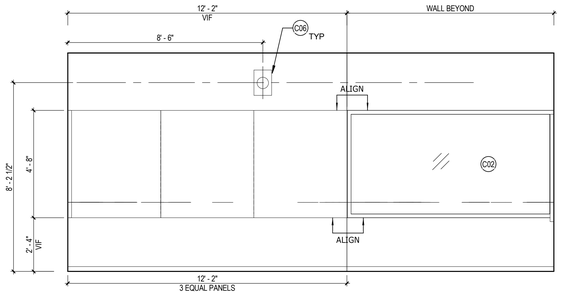
A — NEW FULL HEIGHT PARTITION, NON RATED, TYPE A. — 06 / A8.1
B — NEW FULL HEIGHT ACOUSTIC PARTITION, NON RATED, TYPE B. — 52 / A8.1
C — NEW FULL HEIGHT PARTITION, NON RATED, TYPE C. — 54 / A8.1
D — NEW FULL HEIGHT PARTITION, 1-HR RATED, TYPE D. — 53 / A8.1
EXISTING PARTITION TO REMAIN
SWING DOOR IDENTIFIER. SEE DOOR SCHEDULE SHEET A 9.1.
EXISTING MILLWORK TO REMAIN
NEW MILLWORK; SEE DETAILS 22-25/ A8.1
(E) FEC — RECESSED FIRE EXTINGUISHER CABINET
EXISTING COLUMN TO REMAIN
SHADED AREA NOT IN CONTRACT (NIC)
(N) NEW
(E) EXISTING
XX — MATERIAL FINISH TAG, SEE A4.1 FOR MORE INFORMATION

CONSTRUCTION KEYNOTE

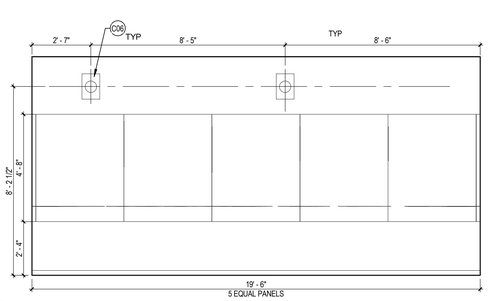
C01 ACOUSTIC WALL PANEL; SEE DETAIL 31/A8.1.
C02 EXISTING WINDOW TO REMAIN.
C06 WALL MOUNTED SPEAKER, MODEL: GENELEC 8341SAM/ MOUNT: K&M 24185; DET. 15/A8.1.
C10 PROVIDE NEW ROOM SIGNAGE TO MATCH EXISTING, REUSE EXISTING ROOM SIGNAGE WHERE POSSIBLE; DET. 23/0.23.



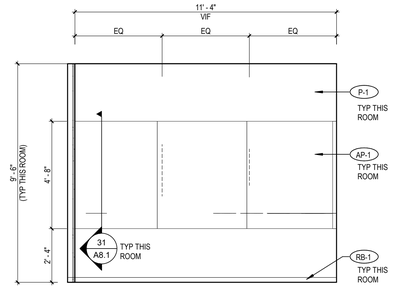
31 A7.1 STUDIO CONTROL -D
SCALE: 3/8" = 1'-0"



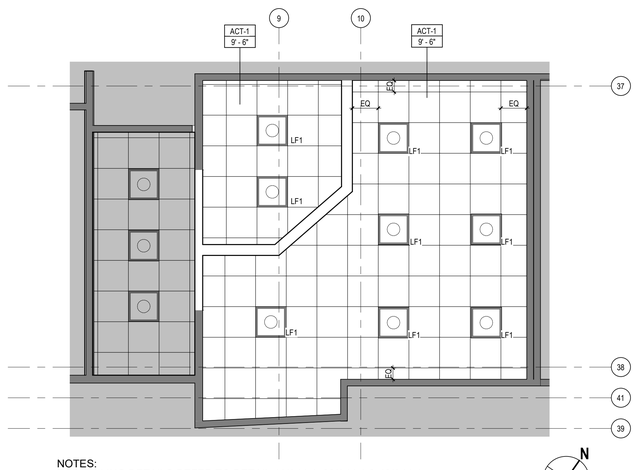
32 A7.1 STUDIO CONTROL -C
SCALE: 3/8" = 1'-0"



33 A7.1 STUDIO CONTROL - B
SCALE: 3/8" = 1'-0"

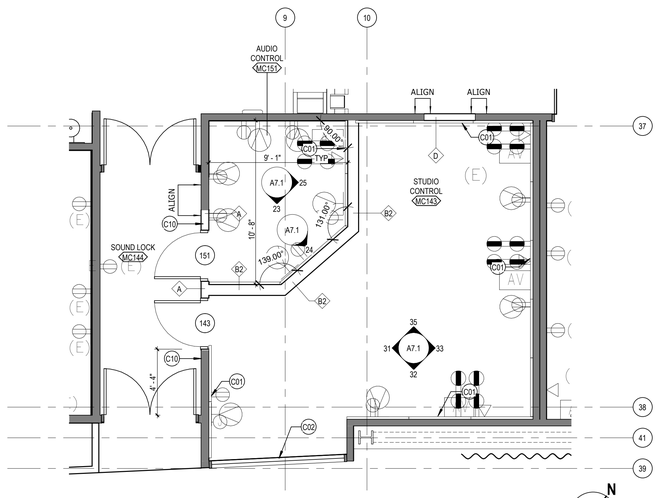


35 A7.1 STUDIO CONTROL - A
SCALE: 3/8" = 1'-0"

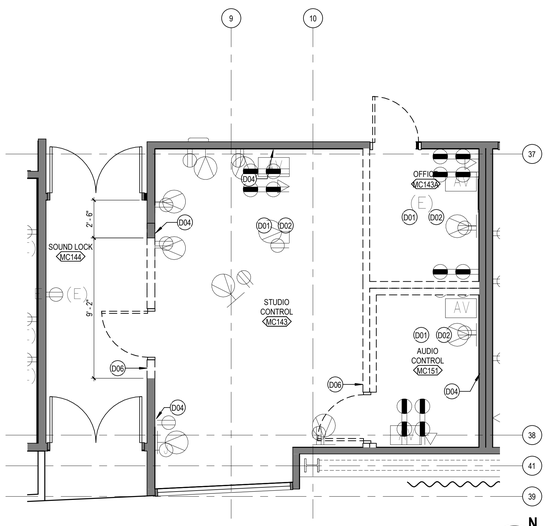


NOTES:
FOR CEILING DETAILS REFER TO DETAIL 16/A11.1, 22/A11.1 & 43/A11.1

51 A7.1 REFLECTED CEILING PLAN - AUDIO & STUDIO CONTROL
SCALE: 1/4" = 1'-0"



53 A7.1 CONSTRUCTION PLAN - AUDIO & STUDIO CONTROL
SCALE: 1/4" = 1'-0"



55 A7.1 DEMOLITION PLAN - AUDIO & STUDIO CONTROL
SCALE: 1/4" = 1'-0"

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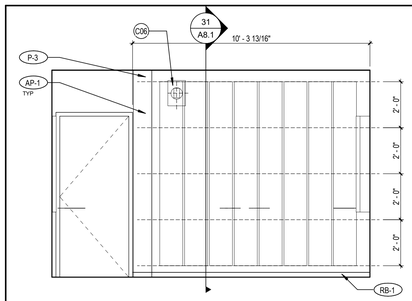
ENLARGED PLANS AND ELEVATIONS
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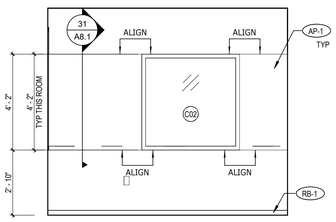
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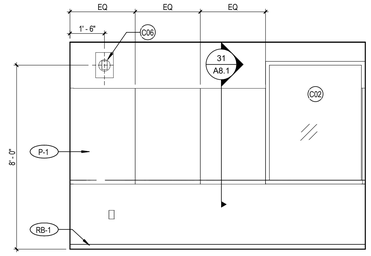
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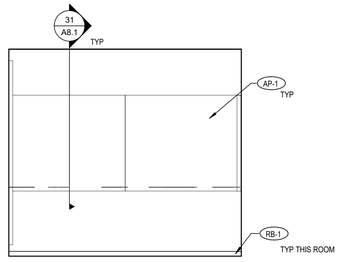
11 A7.2 BROADCAST 173 - D
SCALE: 3/8" = 1'-0"



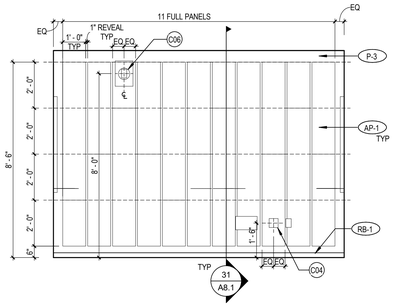
12 A7.2 BROADCAST 173 - C
SCALE: 3/8" = 1'-0"



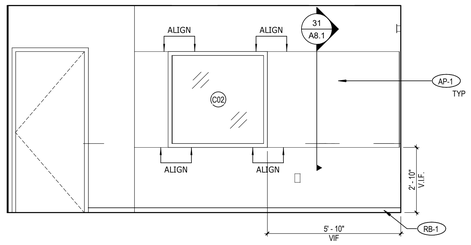
13 A7.2 BROADCAST 173 - B
SCALE: 3/8" = 1'-0"



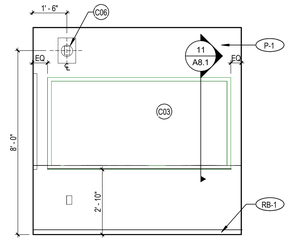
14 A7.2 BROADCAST 173 - A
SCALE: 3/8" = 1'-0"



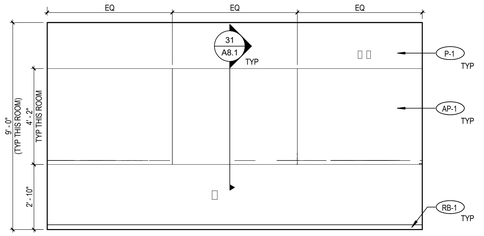
21 A7.2 BROADCAST 172 - D
SCALE: 3/8" = 1'-0"



22 A7.2 BROADCAST 172 - C
SCALE: 3/8" = 1'-0"



23 A7.2 BROADCAST 172 - B
SCALE: 3/8" = 1'-0"



24 A7.2 BROADCAST 172 - A
SCALE: 3/8" = 1'-0"

REFLECTED CEILING PLAN NOTES:

A. REFLECTED CEILING PLAN GENERAL NOTES APPLY TO ALL REFLECTED CEILING PLAN SHEETS.
B. CEILING HEIGHTS ARE AS NOTED ON THE REFLECTED CEILING PLAN UNLESS NOTED OTHERWISE.
C. ALL CEILING GRIDS/PANELS SHALL BE CENTERED IN EACH ROOM UNLESS NOTED OTHERWISE.
D. ALL ELECTRICAL FIXTURES, SPEAKERS, SMOKE AND THERMAL DETECTORS, MECHANICAL GRILLES, SPRINKLER HEADS, ETC., SHALL BE CENTERED BETWEEN CEILING GRIDS UNLESS NOTED OTHERWISE.
E. IN ACOUSTICAL CEILING PANELS WITH SCORE IN THE CENTER, CENTER DEVICES REFERENCED IN NOTE (D) IN ONE HALF OF THE TILE. DO NOT LOCATE DEVICE ON THE SCORE. FOR APC WITH MULTIPLE SCORED PATTERNS, COORDINATE LOCATION WITH ARCHITECT.
F. PROVIDE SUSPENSION SYSTEM AROUND ELECTRICAL FIXTURES, MECHANICAL GRILLES, DIFFUSERS, ETC. AT ACOUSTICAL PANEL CEILINGS.
G. PROVIDE SEISMIC BRACING FOR SUSPENDED CEILINGS OR AS INDICATED ON THE DRAWINGS.
H. ALL DIMENSIONS ON REFLECTED CEILING PLANS ARE ACTUAL AND ARE TO THE FOLLOWING UNLESS NOTED OTHERWISE:
   a. FACE OF FINISHED WALL
   b. FACE OF FINISHED BULKHEADS
   c. CENTERLINE OF COLUMNS
   d. CENTERLINE OF TEES

REFLECTED CEILING PLAN LEGEND

CEILING TYPES

ACT-1: 2' X 2' LAY-IN ACOUSTICAL CEILING TILE SYSTEM
CEILING TILE: ARMSTRONG "CIRRUS" SQUARE TILE (WHITE)
GRID: ARMSTRONG SILOUHETTE XL 9/16"
41 / A11.1

XXX / XX'-XX" — CEILING TYPE AND HEIGHT

E — EXISTING TO REMAIN

LF1 — LED 2' X 2' LIGHT FIXTURE 42 / A11.1

DEMOLITION PLAN NOTES

A. DEMOLITION GENERAL NOTES APPLY TO ALL DEMOLITION SHEETS.
B. COORDINATE DEMOLITION AND PHASING EFFORTS WITH ARCHITECT AND OWNER'S REPRESENTATIVES. EVERY EFFORT SHALL BE MADE TO MINIMIZE DISRUPTION OF OWNER'S OPERATIONS AND TO PROVIDE BUILDING USER'S SAFETY. EXCESSIVE NOISE OR VIBRATION SHALL BE PRE-APPROVED AND COORDINATED WITH OWNER'S REPRESENTATIVE AND LANDLORD.
C. VERIFY EXISTING CONDITIONS, DIMENSIONS, AND ELEVATIONS AND NOTIFY ARCHITECT OF DISCREPANCIES.
D. VERIFY AND MAINTAIN LOCATION OF EXISTING POWER, COMMUNICATION AND DATA CABLES TO PREVENT INTERRUPTION OF SERVICE.
E. COORDINATE DISRUPTION OF UTILITY SERVICES WITH OWNER, LANDLORD AND AS SPECIFIED.
F. EXISTING MATERIALS SHALL NOT BE REUSED UNLESS NOTED OTHERWISE OR AS AUTHORIZED BY ARCHITECT.
G. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
H. PROVIDE PROTECTION FOR EXISTING BUILDING MATERIALS AND EQUIPMENT FROM DAMAGE DUE TO DEMOLITION OR CONSTRUCTION-RELATED INCIDENT PERFORMED UNDER T CONTRACT.
I. REPAIR OR REPLACE ITEMS DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING FINIS AND /OR CONDITION.
J. CONSTRUCT TEMPORARY CONSTRUCTION PARTITIONS WIT EXISTING BUILDING WHICH OFFER A ONE-HOUR ENCLOSUR ISOLATE DEMOLITION AND CONSTRUCTION WORK FROM GENERAL PUBLIC AND AS DEEMED NECESSARY BY OWNER CODE OFFICIAL HAVING JURISDICTION. COORDINATE LOCATIONS WITH OWNER AND LANDLORD. MAINTAIN MEAN OF EGRESS THROUGHOUT THE WORK.
K. MAINTAIN A SECURE, DUST-PROOF, WEATHER-TIGHT ENCLOSURE.
L. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED; PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION.
M. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
N. CAP DISCONNECTED MECHANICAL PIPING LINES WITHIN WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
O. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.

DEMOLITION PLAN LEGEND

- EXISTING NON-BEARING PARTITION TO BE DEMOLISHED
- EXISTING PARTITION TO REMAIN
- EXISTING DOOR & FRAME TO BE DEMOLISHED
- EXISTING DOOR & FRAME TO REMAIN
- AREA NOT IN CONTRACT (NIC)

DEMOLITION KEYNOTE

D01 DEMO EXISTING FLOOR FINISH, AND BASE. PREP FLOOR TO RECEIVE NEW SCHEDULED FINISHES.
D02 DEMO EXISTING CEILING AND LIGHT FIXTURES.
D04 REMOVE EXISTING ACOUSTIC WALL PANELS. PREP SURFACE TO RECEIVE NEW FINISH. ADD ALTERNATE: REMOVE (E) ACOUSTIC WALL PANELS AND SAVE FOR REUSE.

CONSTRUCTION PLAN NOTES

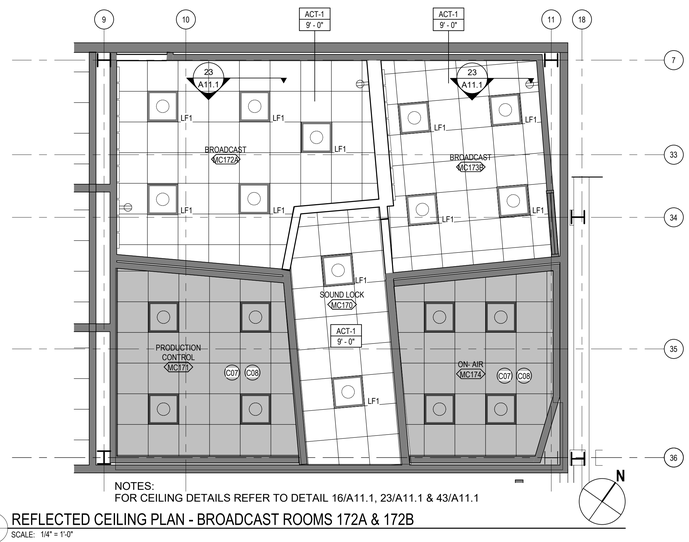
A. CONSTRUCTION NOTES APPLY TO ALL SHEETS.
B. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF FINISHED WALL, UNLESS NOTED OTHERWISE.
C. GYPSUM BOARD AND PLASTER SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE REQUIRED; GC TO NOTIFY DLR GROUP OF LOCATIONS PRIOR TO CONSTRUCTION.
D. GENERAL CONTRACTOR SHALL FURNISH AND INSTALL 2" X 10" CONTINUOUS FIRE RETARDANT TREATED WOOD BLOCKING OR 10" WIDE SHEET METAL BACKING IN STEEL STUD PARTITIONS FOR PROPER ANCHORAGE OF WALL ATTACHED ITEMS INCLUDING BUT NOT LIMITED TO THE FOLLOWING: GRAB BARS, CASEWORK, MILLWORK, TOILET ACCESSORIES, TOILET PARTITIONS, WALL MOUNTED FIXTURES, MARKER BOARDS, TACK BOARDS, DOOR STOPS, AUDIO VISUAL BRACKETS, ETC.
E. WALLS OF FIRE-RESISTANCE-RATED CONSTRUCTION SHALL EXTEND TO UNDERSIDE OF FLOOR OR ROOF DECK ABOVE.
F. SEAL PENETRATIONS THROUGH FIRE-RESISTANCE-RATED CONSTRUCTION WITH THROUGH-PENETRATION FIRESTOP MATERIAL AS REQUIRED TO ACHIEVE RESPECTIVE FIRE-RESISTIVE RATING AND SMOKE STOPPAGE.
G. INCLUDE OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER FURNISHED AND CONTRACTOR INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND COORDINATE WITH OWNER TO ACCOMMODATE THESE ITEMS.
H. SEE ENLARGED PLAN FOR EXTENTS OF DEMOLITION
I. REFER TO DETAIL 9/0.20 FOR DOOR CLEARANCE INFORMATION.
J. FOR INTERIOR ELEVATION MOUNTING HEIGHT INFORMATION REFERENCE 1/0.22.
K. FOR EXISTING RATED WALLS REFER TO 0.50

CONSTRUCTION PLAN LEGEND

- NEW FULL HEIGHT PARTITION, NON RATED, TYPE A. (A / 9A.1)
- NEW FULL HEIGHT ACOUSTIC PARTITION, NON RATED, TYPE B. (B / 9B.1)
- NEW FULL HEIGHT PARTITION, NON RATED, TYPE C. (C / 54 A8.1)
- NEW FULL HEIGHT PARTITION, 1-HR RATED, TYPE D. (D / 53 A8.1)
- EXISTING PARTITION TO REMAIN
- SWING DOOR IDENTIFIER. SEE DOOR SCHEDULE SHEET A 9.1.
- EXISTING MILLWORK TO REMAIN
- NEW MILLWORK; SEE DETAILS 22-25/ A8.1
- (E) FEC — RECESSED FIRE EXTINGUISHER CABINET
- EXISTING COLUMN TO REMAIN
- SHADED AREA NOT IN CONTRACT (NIC)
- (N) NEW
- (E) EXISTING
- XX — MATERIAL FINISH TAG, SEE A4.1 FOR MORE INFORMATION

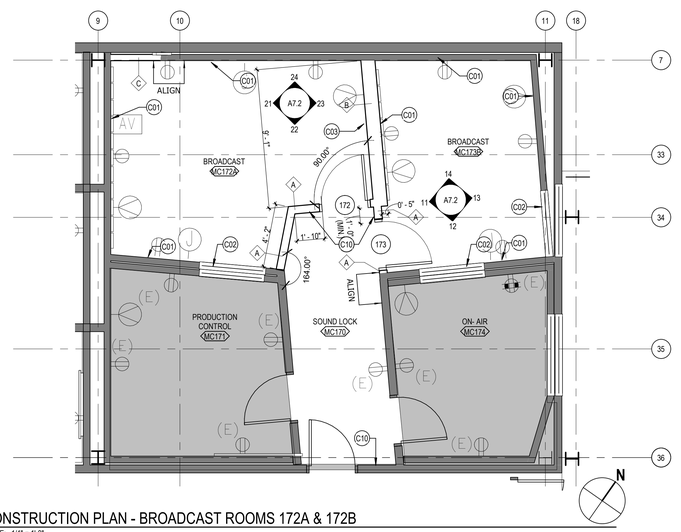
CONSTRUCTION KEYNOTE

C01 ACOUSTIC WALL PANEL; SEE DETAIL 31/A8.1.
C02 EXISTING WINDOW TO REMAIN.
C03 WALL MOUNTED MARKER BOARD; DET. 11/A8.1.
C04 WALL MOUNTED MONITOR; DET.12/A8.1.
C06 WALL MOUNTED SPEAKER, MODEL: GENELEC 8341SAM/ MOUNT: K&M 24185; DET. 15/A8.1.
C07 EXISTING CEILING AND LIGHTING TO REMAIN.
C08 ADD ALTERNATE: REPLACE CEILING TILES WITH NEW ACT-1.
C10 PROVIDE NEW ROOM SIGNAGE TO MATCH EXISTING, REUSE EXISTING ROOM SIGNAGE WHERE POSSIBLE; DET. 23/0.23.

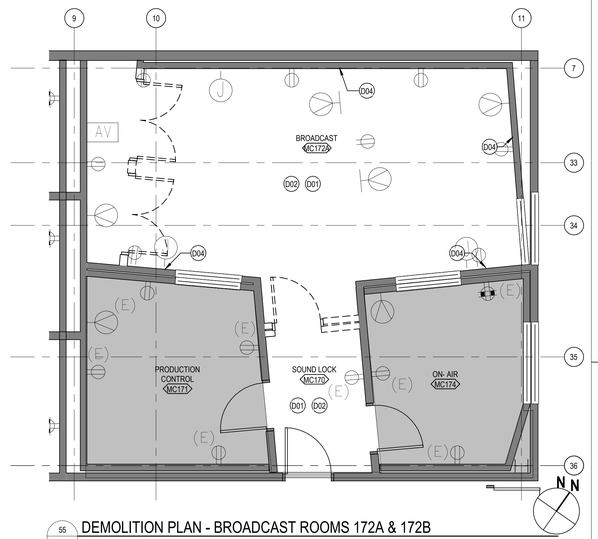


NOTES:
FOR CEILING DETAILS REFER TO DETAIL 16/A11.1, 23/A11.1 & 43/A11.1

51 A7.2 REFLECTED CEILING PLAN - BROADCAST ROOMS 172A & 172B
SCALE: 1/4" = 1'-0"



53 A7.2 CONSTRUCTION PLAN - BROADCAST ROOMS 172A & 172B
SCALE: 1/4" = 1'-0"



55 A7.2 DEMOLITION PLAN - BROADCAST ROOMS 172A & 172B
SCALE: 1/4" = 1'-0"

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SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
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RENEWAL DATE
STATE OF CALIFORNIA

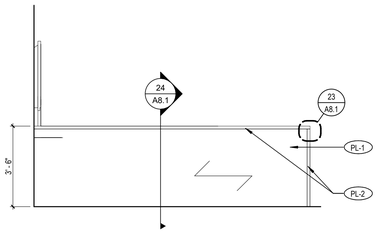
ENLARGED PLANS AND ELEVATIONS
MEDIA COMMUNICATIONS BUILDING REMODEL

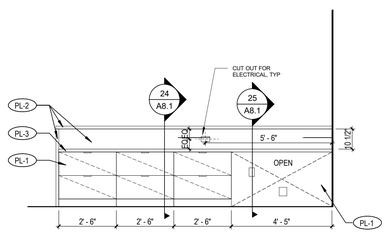
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12/21/2018
Revisions

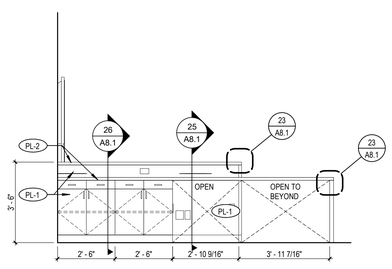
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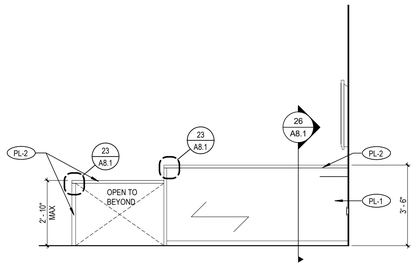
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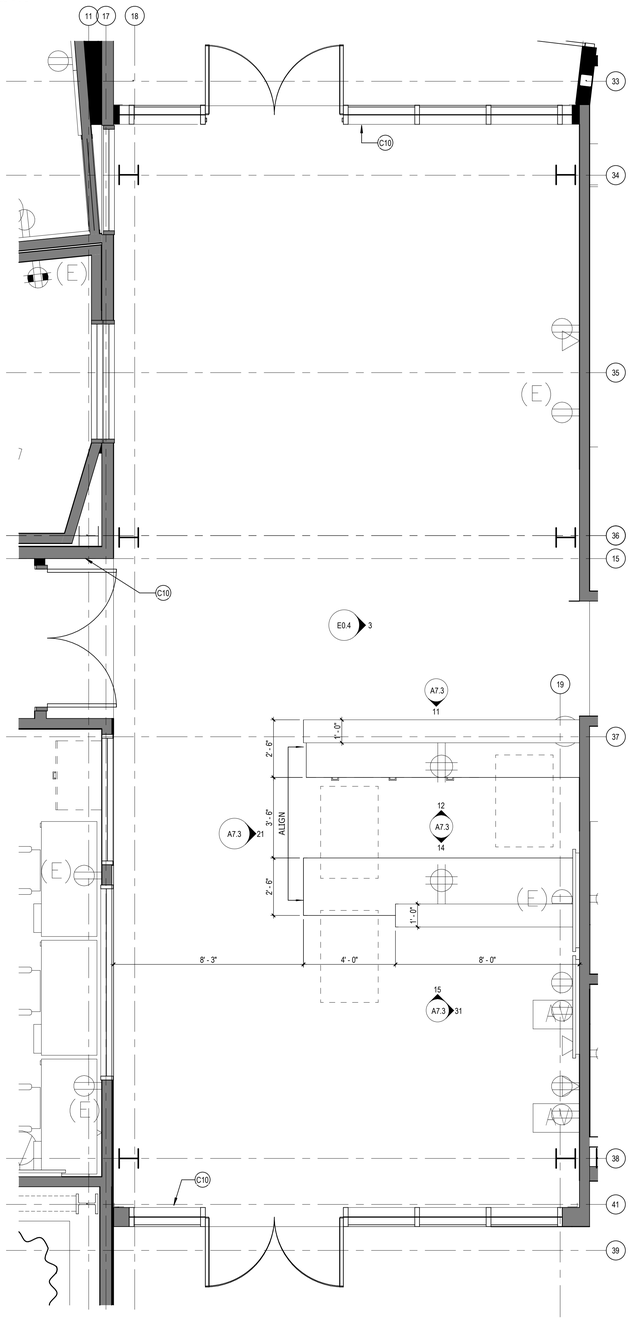




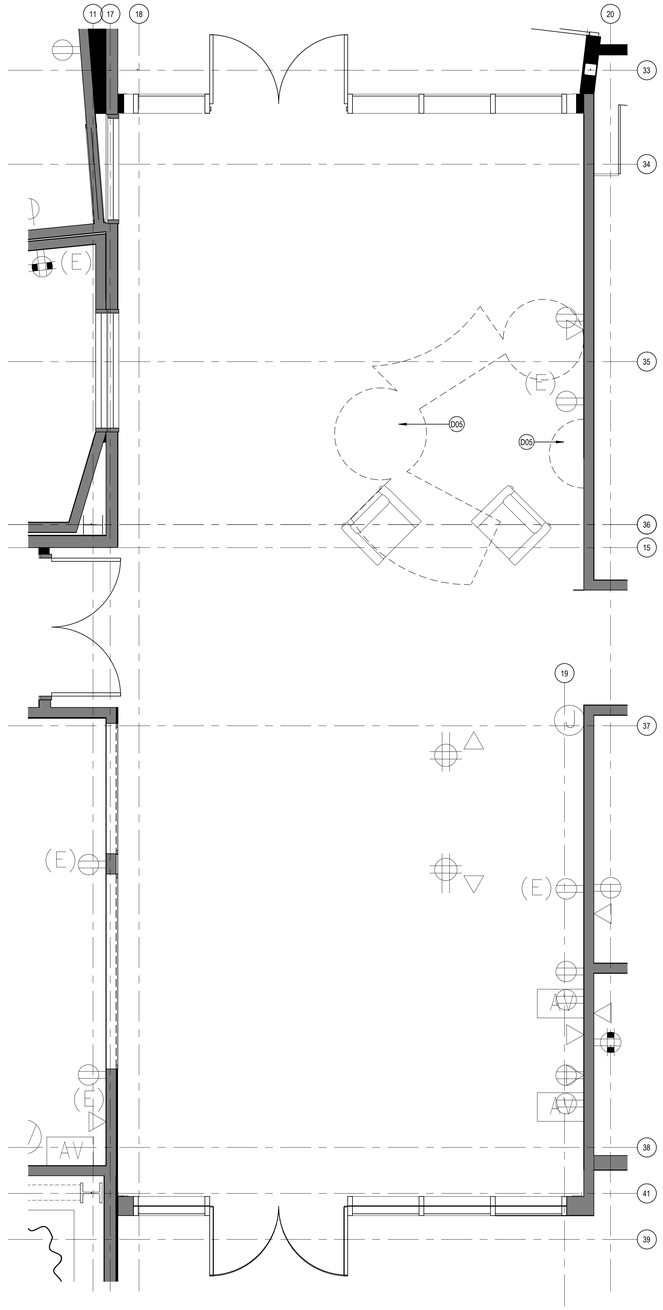


11 RECEPTION DESK - D
A7.3 SCALE: 3/8" = 1'-0"

12 RECEPTION DESK - C
A7.3 SCALE: 3/8" = 1'-0"

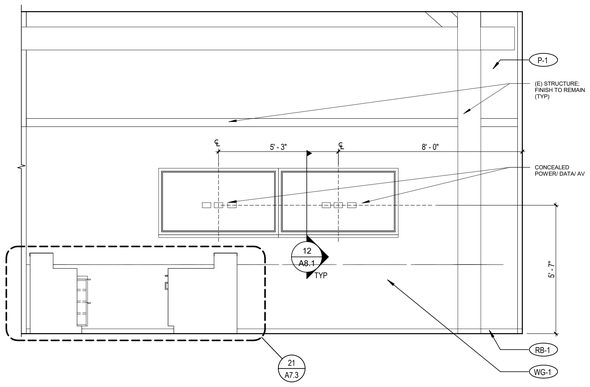


14 RECEPTION DESK - B
A7.3 SCALE: 3/8" = 1'-0"



15 RECEPTION DESK -A
A7.3 SCALE: 3/8" = 1'-0"

21 RECEPTION DESK - E
A7.3 SCALE: 3/8" = 1'-0"



31 FOYER MC100 - EAST
A7.3 SCALE: 3/8" = 1'-0"

52 PLAN - LOBBY
A7.3 SCALE: 3/8" = 1'-0"

54 DEMO PLAN - LOBBY
A7.3 SCALE: 3/8" = 1'-0"

DEMOLITION PLAN NOTES

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K. MAINTAIN A SECURE, DUST-PROOF, WEATHER-TIGHT ENCLOSURE.
L. WHERE PLASTER/STUD WALLS ARE INDICATED TO BE REMOVED; PREPARE ADJACENT WALLS TO RECEIVE NEW PATCH/FINISH BY SAWCUTTING ADJACENT PLASTER FINISH A MINIMUM OF 12 INCHES BEYOND DEMOLITION.
M. PATCH FLOOR, WALL AND CEILING PENETRATIONS RESULTING FROM REMOVAL OR REROUTING OF NEW OR EXISTING PIPING, DUCTWORK, CONDUIT, ETC. AS REQUIRED TO MAINTAIN FIRE SEPARATIONS. MATCH FINISH OF NEW OR EXISTING ADJACENT SURFACES.
N. CAP DISCONNECTED MECHANICAL PIPING LINES WITHIN WALL OR FLOOR. PATCH AND FINISH AS REQUIRED TO MATCH NEW OR EXISTING ADJACENT SURFACES.
O. SEE MECHANICAL AND ELECTRICAL DRAWINGS AND NOTES FOR FURTHER SEQUENCING AND SCOPE OF WORK.

DEMOLITION KEYNOTE

D05 DEMO EXISTING RECEPTION DESK.

DEMOLITION PLAN LEGEND

- EXISTING NON-BEARING PARTITION TO BE DEMOLISHED
- EXISTING PARTITION TO REMAIN
- EXISTING DOOR & FRAME TO BE DEMOLISHED
- EXISTING DOOR & FRAME TO REMAIN
- AREA NOT IN CONTRACT (NIC)

CONSTRUCTION PLAN NOTES

A. CONSTRUCTION NOTES APPLY TO ALL SHEETS.
B. ALL DIMENSIONS ARE ACTUAL AND ARE TO FACE OF FINISHED WALL, UNLESS NOTED OTHERWISE.
C. GYPSUM BOARD AND PLASTER SURFACES SHALL BE ISOLATED WITH CONTROL JOINTS WHERE REQUIRED; GC TO NOTIFY DLR GROUP OF LOCATIONS PRIOR TO CONSTRUCTION.
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G. INCLUDE OWNER-FURNISHED AND INSTALLED ITEMS AND OWNER FURNISHED AND CONTRACTOR INSTALLED ITEMS IN THE CONSTRUCTION SCHEDULE, AND COORDINATE WITH OWNER TO ACCOMMODATE THESE ITEMS.
H. SEE ENLARGED PLAN FOR EXTENTS OF DEMOLITION
I. REFER TO DETAIL 9/0.20 FOR DOOR CLEARANCE INFORMATION.
J. FOR INTERIOR ELEVATION MOUNTING HEIGHT INFORMATION REFERENCE 1/0.22.
K. FOR EXISTING RATED WALLS REFER TO 0.50

CONSTRUCTION KEYNOTE

C10 PROVIDE NEW ROOM SIGNAGE TO MATCH EXISTING, REUSE EXISTING ROOM SIGNAGE WHERE POSSIBLE. DET. 23/0.23.

CONSTRUCTION PLAN LEGEND

- A — NEW FULL HEIGHT PARTITION, NON RATED, TYPE A. (56 / A8.1)
- B — NEW FULL HEIGHT ACOUSTIC PARTITION, NON RATED, TYPE B. (55 / A8.1)
- C — NEW FULL HEIGHT PARTITION, NON RATED, TYPE C. (54 / A8.1)
- D — NEW FULL HEIGHT PARTITION, 1-HR RATED, TYPE D. (53 / A8.1)
- EXISTING PARTITION TO REMAIN
- SWING DOOR IDENTIFIER, SEE DOOR SCHEDULE SHEET A 9.1.
- EXISTING MILLWORK TO REMAIN
- NEW MILLWORK; SEE DETAILS 22-25/ A8.1
- (E) FEC — RECESSED FIRE EXTINGUISHER CABINET
- EXISTING COLUMN TO REMAIN
- SHADED AREA NOT IN CONTRACT (NIC)
- (N) NEW
- (E) EXISTING
- XX — MATERIAL FINISH TAG, SEE A4.1 FOR MORE INFORMATION

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LICENSED ARCHITECT
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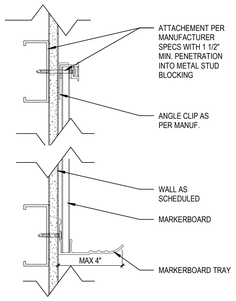
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Revisions

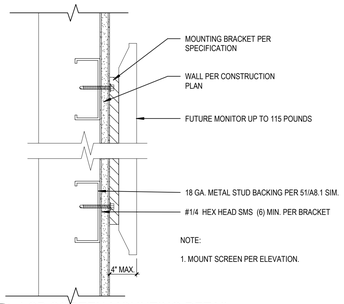
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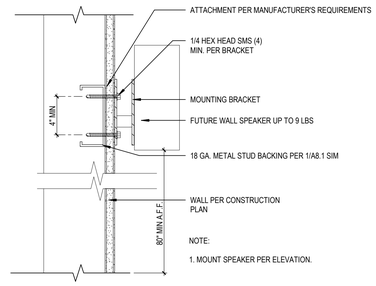
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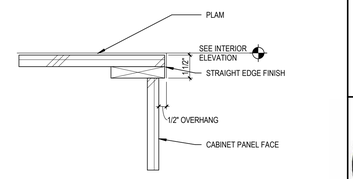
11 A8.1 MARKERBOARD ATTACHMENT - SURFACE MTD
SCALE: 3" = 1'-0"



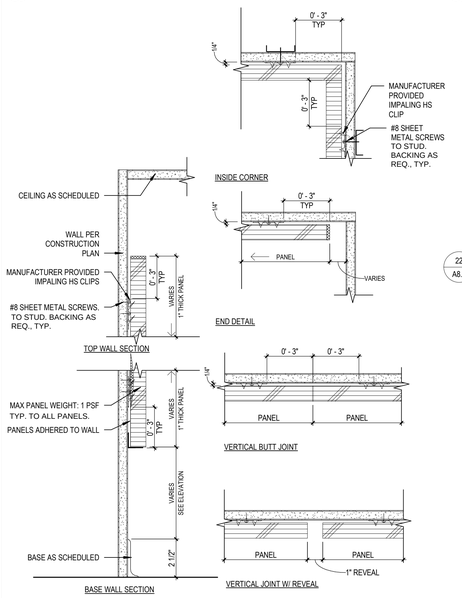
12 A8.1 LCD SCREEN MOUNTING DETAIL
SCALE: 3" = 1'-0"



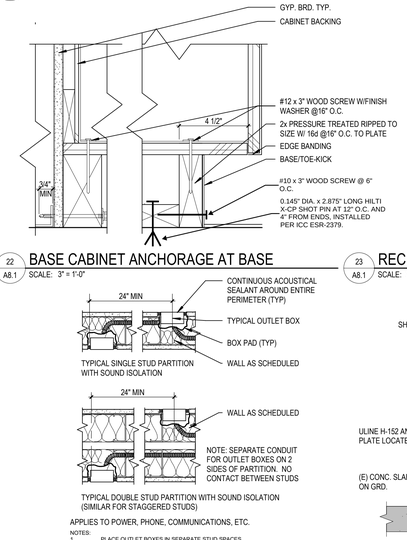
15 A8.1 SPEAKER MOUNTING DETAIL
SCALE: 3" = 1'-0"



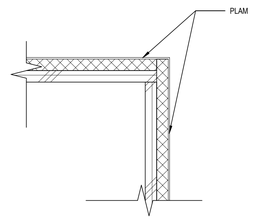
16 A8.1 COUNTERTOP DETAIL
SCALE: 3" = 1'-0"



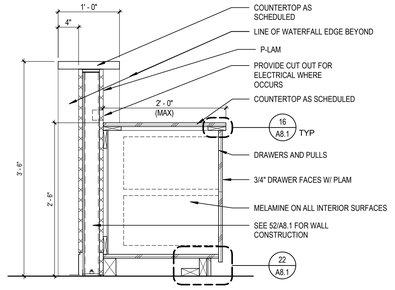
31 A8.1 ACOUSTIC FABRIC PANEL DETAILS, ENLARGED PLANS AND SECTIONS
SCALE: 3" = 1'-0"



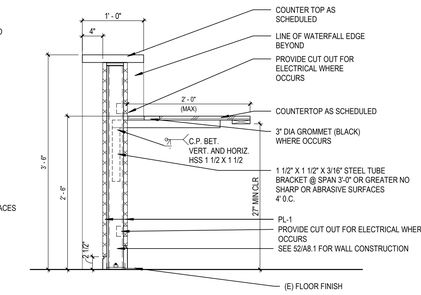
22 A8.1 BASE CABINET ANCHORAGE AT BASE
SCALE: 3" = 1'-0"



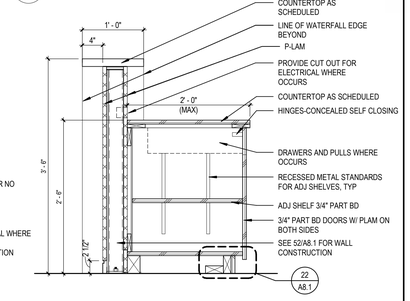
23 A8.1 RECEPTION DESK DETAIL 4
SCALE: 3" = 1'-0"



24 A8.1 RECEPTION DESK - SECTION 3
SCALE: 1" = 1'-0"

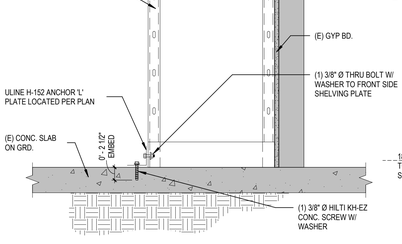


25 A8.1 RECEPTION DESK - SECTION 2
SCALE: 1" = 1'-0"

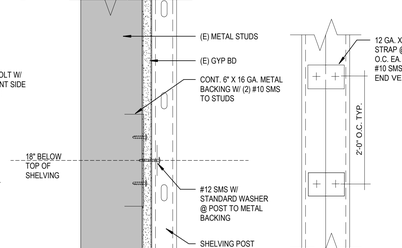


26 A8.1 RECEPTION DESK - SECTION 1
SCALE: 1" = 1'-0"

32 A8.1 TYP OUTLET BOX INSTALL
SCALE: 1 1/2" = 1'-0"

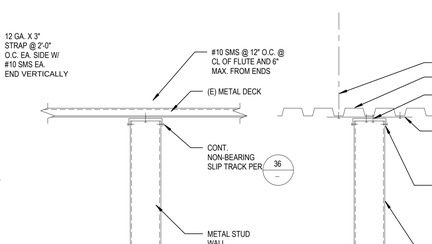


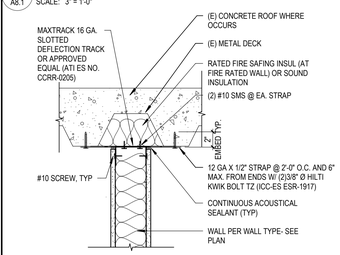
FLOOR ANCHOR DETAIL (A)



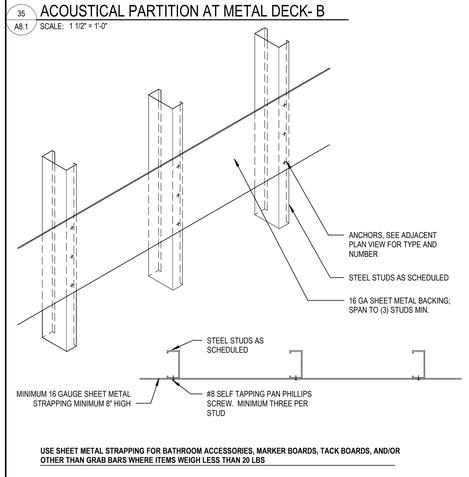
WALL ATTACHMENT- SECTION (B)

SIDE BY SIDE ATTACHMENT-ELEVATION (C)



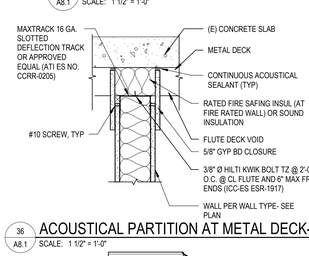


35 A8.1 ACOUSTICAL PARTITION AT METAL DECK- B
SCALE: 1 1/2" = 1'-0"

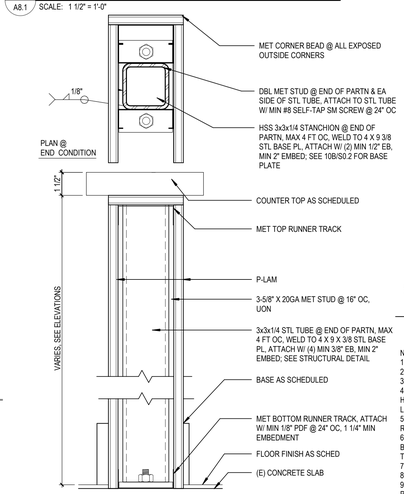


USE SHEET METAL STRAPPING FOR BATHROOM ACCESSORIES, MARKER BOARDS, TACK BOARDS, AND/OR OTHER THAN GRAB BARS WHERE ITEMS WEIGH LESS THAN 20 LBS

51 A8.1 TYPICAL BLOCKING IN FRAME WALLS
SCALE: 1 1/2" = 1'-0"

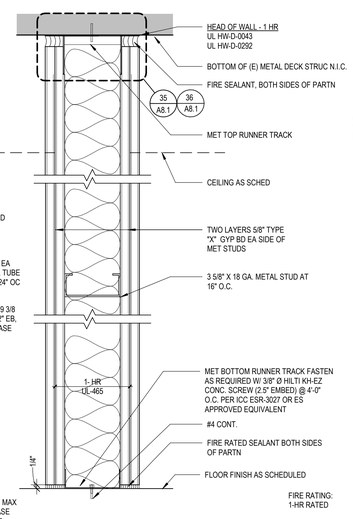


36 A8.1 ACOUSTICAL PARTITION AT METAL DECK- A
SCALE: 1 1/2" = 1'-0"



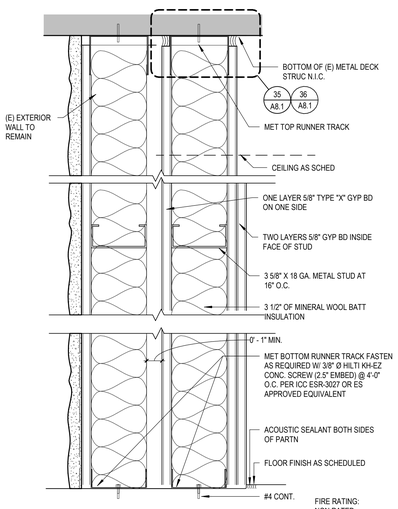
52 A8.1 LOW HEIGHT PARTITION - TYPE E
SCALE: 3" = 1'-0"

33 A8.1 STORAGE FURNITURE ATTACHMENT DETAILS
SCALE: 3" = 1'-0"



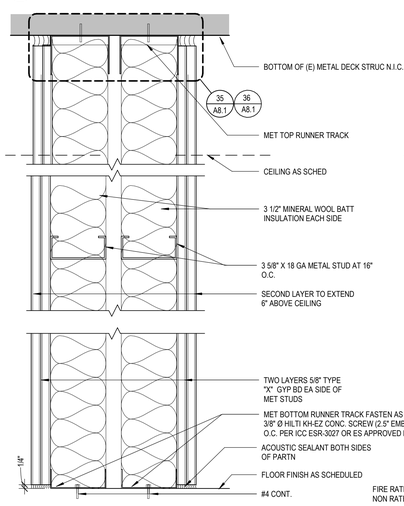
NOTES:
1. ALL GYPSUM BOARD SHEETS TO RUN VERTICALLY.
2. TAPE OUTER JOINTS OF GYPSUM BOARD ONLY, INCLUDING JOINTS ABOVE THE CEILING LINE.
3. NO JOINTS EXCEPT AT STUDS.
4. STUD SIZES SHOWN ARE MINIMUM. LARGER SIZES MAY BE REQUIRED BASED ON HEIGHTS AND LOADING. TO MAXIMIZE ACOUSTICAL PERFORMANCE, STUD GA. SHOULD BE AS LIGHT AS POSSIBLE AND STUD SPACING SHOULD BE MAXIMIZED.
5. DRYWALL SCREW EDGE AND FIELD SPACING PER GYPSUM BOARD MANUFACTURER'S RECOMMENDATIONS. ALL SCREWS SHALL PENETRATE STUDS.
6. FIBERGLASS BATT INSTALLATION SHALL BE Owens-Corning FIBERGLASS NOISE BARRIER BATTS, OCF FRICTION FIT BUILDING INSULATION OR APPROVED EQUAL. FIBERGLASS THICKNESS TO EQUAL STUD DEPTH.
7. STAGGER JOINTS OF GYPSUM BOARD WHERE MULTIPLE LAYERS OCCUR.
8. DO NOT GLUE MULTIPLE LAYERS OF GYPSUM BOARD TOGETHER.
9. LINEAR AIR SLOTS OR WINDOW SHADE POCKETS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS IN ACOUSTICALLY SENSITIVE AREAS.

53 A8.1 FULL HEIGHT PARTITION (ACOUSTIC/ RATED) - TYPE D
SCALE: 3" = 1'-0"



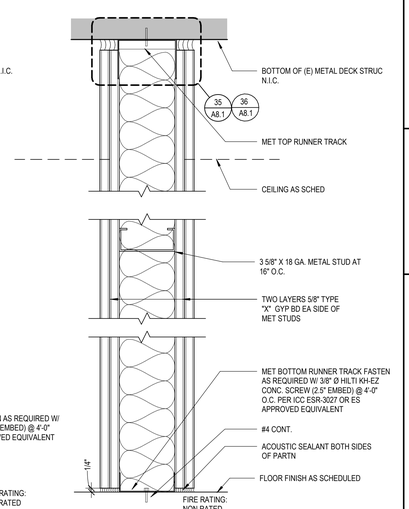
NOTES:
1. ALL GYPSUM BOARD SHEETS TO RUN VERTICALLY.
2. TAPE OUTER JOINTS OF GYPSUM BOARD ONLY, INCLUDING JOINTS ABOVE THE CEILING LINE.
3. NO JOINTS EXCEPT AT STUDS.
4. STUD SIZES SHOWN ARE MINIMUM. LARGER SIZES MAY BE REQUIRED BASED ON HEIGHTS AND LOADING. TO MAXIMIZE ACOUSTICAL PERFORMANCE, STUD GA. SHOULD BE AS LIGHT AS POSSIBLE AND STUD SPACING SHOULD BE MAXIMIZED.
5. DRYWALL SCREW EDGE AND FIELD SPACING PER GYPSUM BOARD MANUFACTURER'S RECOMMENDATIONS. ALL SCREWS SHALL PENETRATE STUDS.
6. FIBERGLASS BATT INSTALLATION SHALL BE Owens-Corning FIBERGLASS NOISE BARRIER BATTS, OCF FRICTION FIT BUILDING INSULATION OR APPROVED EQUAL. FIBERGLASS THICKNESS TO EQUAL STUD DEPTH.
7. STAGGER JOINTS OF GYPSUM BOARD WHERE MULTIPLE LAYERS OCCUR.
8. DO NOT GLUE MULTIPLE LAYERS OF GYPSUM BOARD TOGETHER.
9. NO MECHANICAL TIES BETWEEN OPPOSITE SIDES OF PARTITION. 1" MINIMUM GAP SHOULD BE PROVIDED BETWEEN THE ROWS OF STUDS.
10. LINEAR AIR SLOTS OR WINDOW SHADE POCKETS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS IN ACOUSTICALLY SENSITIVE AREAS.

54 A8.1 FURRED WALL @ (E) EXTERIOR WALL - TYPE C
SCALE: 3" = 1'-0"



NOTES:
1. ALL GYPSUM BOARD SHEETS TO RUN VERTICALLY.
2. TAPE OUTER JOINTS OF GYPSUM BOARD ONLY, INCLUDING JOINTS ABOVE THE CEILING LINE.
3. NO JOINTS EXCEPT AT STUDS.
4. STUD SIZES SHOWN ARE MINIMUM. LARGER SIZES MAY BE REQUIRED BASED ON HEIGHTS AND LOADING. TO MAXIMIZE ACOUSTICAL PERFORMANCE, STUD GA. SHOULD BE AS LIGHT AS POSSIBLE AND STUD SPACING SHOULD BE MAXIMIZED.
5. DRYWALL SCREW EDGE AND FIELD SPACING PER GYPSUM BOARD MANUFACTURER'S RECOMMENDATIONS. ALL SCREWS SHALL PENETRATE STUDS.
6. FIBERGLASS BATT INSTALLATION SHALL BE Owens-Corning FIBERGLASS NOISE BARRIER BATTS, OCF FRICTION FIT BUILDING INSULATION OR APPROVED EQUAL. FIBERGLASS THICKNESS TO EQUAL STUD DEPTH.
7. STAGGER JOINTS OF GYPSUM BOARD WHERE MULTIPLE LAYERS OCCUR.
8. DO NOT GLUE MULTIPLE LAYERS OF GYPSUM BOARD TOGETHER.
9. NO MECHANICAL TIES BETWEEN OPPOSITE SIDES OF PARTITION. 1" MINIMUM GAP SHOULD BE PROVIDED BETWEEN THE ROWS OF STUDS.
10. LINEAR AIR SLOTS OR WINDOW SHADE POCKETS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS IN ACOUSTICALLY SENSITIVE AREAS.

55 A8.1 FULL HEIGHT PARTITION (ACOUSTIC) - TYPE B1/B2
SCALE: 3" = 1'-0"



NOTES:
1. ALL GYPSUM BOARD SHEETS TO RUN VERTICALLY.
2. TAPE OUTER JOINTS OF GYPSUM BOARD ONLY, INCLUDING JOINTS ABOVE THE CEILING LINE.
3. NO JOINTS EXCEPT AT STUDS.
4. STUD SIZES SHOWN ARE MINIMUM. LARGER SIZES MAY BE REQUIRED BASED ON HEIGHTS AND LOADING. TO MAXIMIZE ACOUSTICAL PERFORMANCE, STUD GA. SHOULD BE AS LIGHT AS POSSIBLE AND STUD SPACING SHOULD BE MAXIMIZED.
5. DRYWALL SCREW EDGE AND FIELD SPACING PER GYPSUM BOARD MANUFACTURER'S RECOMMENDATIONS. ALL SCREWS SHALL PENETRATE STUDS.
6. FIBERGLASS BATT INSTALLATION SHALL BE Owens-Corning FIBERGLASS NOISE BARRIER BATTS, OCF FRICTION FIT BUILDING INSULATION OR APPROVED EQUAL. FIBERGLASS THICKNESS TO EQUAL STUD DEPTH.
7. STAGGER JOINTS OF GYPSUM BOARD WHERE MULTIPLE LAYERS OCCUR.
8. DO NOT GLUE MULTIPLE LAYERS OF GYPSUM BOARD TOGETHER.
9. LINEAR AIR SLOTS OR WINDOW SHADE POCKETS SHOULD NOT PENETRATE SLAB-TO-SLAB PARTITIONS IN ACOUSTICALLY SENSITIVE AREAS.

56 A8.1 FULL HEIGHT PARTITION (ACOUSTIC) - TYPE A
SCALE: 3" = 1'-0"

46 A8.1 PARTITION TOP DETAILS
SCALE: 1" = 1'-0"

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701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

PARTITION TYPES & DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

A8.1
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

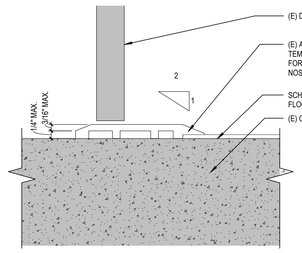
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DOOR AND FRAME SCHEDULE

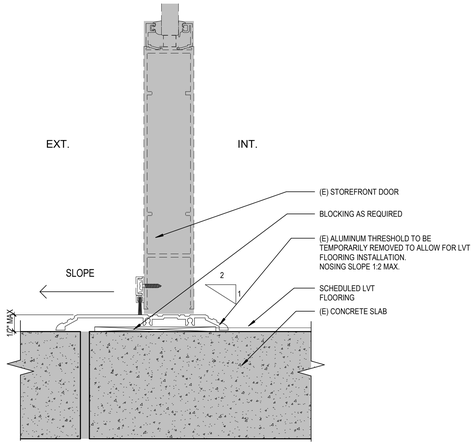
NUMBER	PANEL NO. OF PANELS	PANEL WIDTH	PANEL HEIGHT	PANEL THICKNESS	PANEL MATERIAL	PANEL GLASS	PANEL TYPE	FRAME MATERIAL	FRAME TYPE	HARDWARE SET	FIRE RATING	DETAILS HEAD	DETAILS JAMB LEFT	DETAILS JAMB RIGHT	DETAILS SILL	COMMENTS
143	1	3' - 0"	7' - 0"	1 3/4"	WD	GL-01	A	HM	1	183	--	1/A9.1	1/A9.1	1/A9.1	1/A9.1	ACOUSTICAL STC 35; MATCH (E) SPEC
151	1	3' - 0"	7' - 0"	1 3/4"	WD	GL-01	A	HM	1	183	--	1/A9.1	1/A9.1	1/A9.1	1/A9.1	ACOUSTICAL STC 35; MATCH (E) SPEC
172	1	3' - 0"	7' - 0"	1 3/4"	WD	GL-01	A	HM	1	183	--	1/A9.1	1/A9.1	1/A9.1	1/A9.1	ACOUSTICAL STC 45; MATCH (E) SPEC
173	1	3' - 0"	7' - 0"	1 3/4"	WD	GL-01	A	HM	1	183	--	1/A9.1	1/A9.1	1/A9.1	1/A9.1	ACOUSTICAL STC 45; MATCH (E) SPEC

NOTE: NEW DOOR HARDWARE TO MATCH EXISTING; SEE SPEC SECTION 08 71 00
ALL NEW DOOR FINISHES TO MATCH EXISTING DOOR FINISH



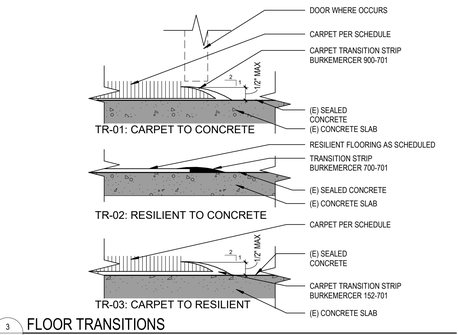
NOTE: ALL THRESHOLDS TO COMPLY WITH CBC SECTION 11B-404.2.5
ALL RAISED THRESHOLDS AND CHANGES IN LEVEL AT DOORWAYS SHALL COMPLY WITH SECTION 11B-302 AND 11B-303.

5 A9.1 THRESHOLD TRANSITION
SCALE: 6" = 1'-0"

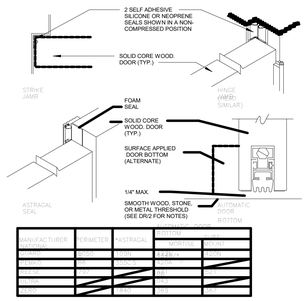


NOTE: ALL THRESHOLDS TO COMPLY WITH CBC SECTION 11B-404.2.5
ALL RAISED THRESHOLDS AND CHANGES IN LEVEL AT DOORWAYS SHALL COMPLY WITH SECTION 11B-302 AND 11B-303.

4 A9.1 THRESHOLD TRANSITION - ENTRY DOOR
SCALE: 6" = 1'-0"



3 A9.1 FLOOR TRANSITIONS
SCALE: 3" = 1'-0"

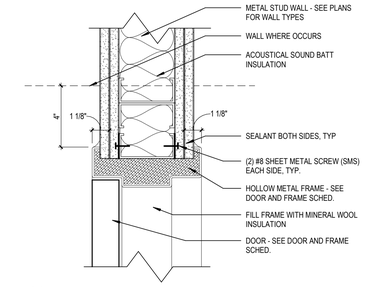


MANUFACTURER	MINUTE	STRIKE	HEAD	HINGE JAMB	STRIKE JAMB
NGP	5/8"	1/2"	1/2"	1/2"	1/2"
PEMKO	5/8"	1/2"	1/2"	1/2"	1/2"
ZERO	5/8"	1/2"	1/2"	1/2"	1/2"

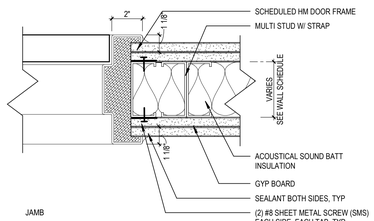
* NO ACOUSTICAL TEST DATA FROM MANUFACTURER ALTERNATE FOR HOLLOW METAL DOORS

1. INSTALL DOOR IN FRAME WITH 1/8" MAX. TOLERANCE @ HEAD, HINGE & STRIKE JAMB.
2. PERIMETER SEAL SHALL ALWAYS BE MIN. SEMI COMPRESSED WITH DOOR CLOSED.
3. 1/8" TOLERANCE @ PERIMETER IS GREATER THAN 1/8" & DOOR CANNOT BE ADJUSTCED, REPLACE WITH 1/2" SEAL
4. MIN. OVERLAP OF 1/4" SEAL
5. ALL GAPS @ INTERSECTION OF STRAIGAL & AUTOMATIC DOOR BOTTOM SHALL BE SEALED.
6. FOR DOUBLE INTERCONNECTING DOORS PROVIDE PERIMETER SEALS AND AUTOMATIC DOOR BOTTOMS ON BOTH SIDES.
7. IF REQUIRED, SUBSTITUTE A SURFACE APPLIED AUTOMATIC DOOR BOTTOM WITH REESE 521 OR EQUAL.

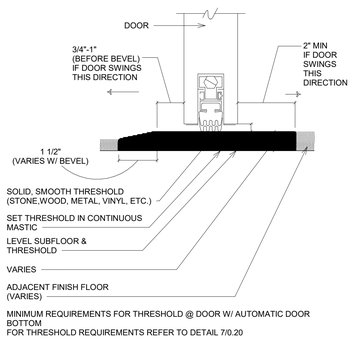
DOOR SEAL DETAILS



HEAD



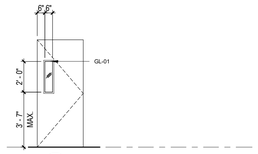
JAMB



MINIMUM REQUIREMENTS FOR THRESHOLD @ DOOR W/ AUTOMATIC DOOR BOTTOM
FOR THRESHOLD REQUIREMENTS REFER TO DETAIL 7/0.20

1 A9.1 INTERIOR HOLLOW METAL DOOR AT METAL FRAME WALL
SCALE: 6" = 1'-0"

DOOR TYPE ELEVATIONS



A
VISION LITE IN WD DOOR

NOTE, MATCH ORIGINAL DESIGN INTENT:
1. DOOR DESIGN BASED ON MARSHFIELD WOOD DOORS
2. FRAME DESIGN BASED ON CECO HOLLOW METAL SECTIONS
3. SOUND CONTROL DOORS BASED ON OVERLY, KRIEGER & TRUSTLE (WOOD STC 35)
4. GL-01: 1/4" CLEAR LAMINATED GLASS (1/8"-0.030" PYB-1/8")

DOOR FRAME TYPE ELEVATIONS



1
HOLLOW METAL FRAME

DOOR HARDWARE GROUPS

NEW DOOR HARDWARE TO MATCH EXISTING - SEE SPEC SECTION 08 71 00

DOOR/ FRAME/ HARDWARE NOTES

1. DOOR DESIGN BASED ON EXISTING DOORS
2. FRAME DESIGN BASED ON EXISTING DOORS
3. SOUND CONTROL DOORS BASED ON EXISTING DOORS

DOOR/ FRAME ABB. LEGEND

P-XX	PAINT - SEMI- GLOSS FINISH
PL	PLASTIC LAMINATE
HM	HOLLOW METAL DOOR & FRAME ASSEMBLY

GENERAL NOTES

A. FOR INFORMATION REGARDING

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SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
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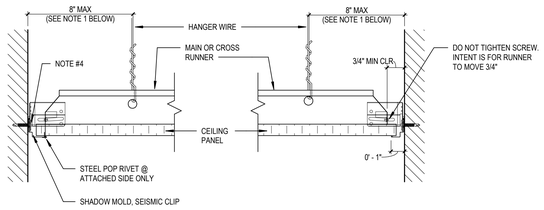
DOOR SCHEDULE & DOOR/FRAME DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

A9.1
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

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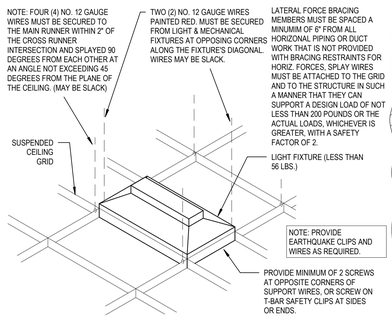


ATTACHED JOINT **FREE JOINT**

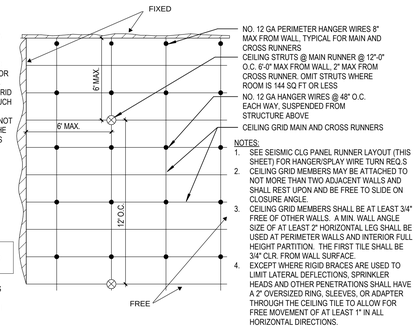
NOTES:

1. PROVIDE #12 GAGE HANGER WIRES AT THE ENDS OF ALL MAIN AND CROSS RUNNERS WITHIN EIGHT (8) INCHES OF THE SUPPORTOR WITHIN ONE-FOURTH (1/4) OF THE LENGTH OF THE END TEE, WHICHEVER IS LESS, FOR TE PERIMETER OF THE CEILING AREA. PERIMETER WIRES ARE NOT REQUIRED WHEN THE LENGTH OF THE END TEE IS EIGHT (8) INCHES OR LESS.
2. (1) #10 SMS TO 20 GA MIN WALL STUD @ 24" OC.

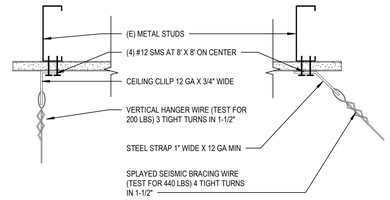
43 A11.1 CEILING PERIMETER
SCALE: 3" = 1'-0"



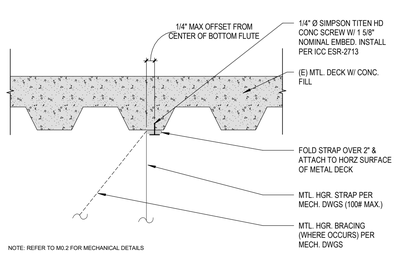
42 A11.1 LIGHT FIXTURE AT SUSPENDED CEILING TILE
SCALE: 12" = 1'-0"



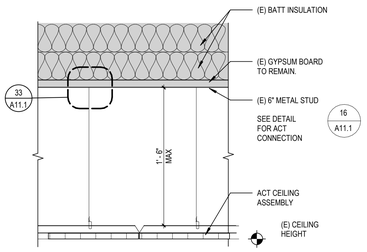
41 A11.1 SEISMIC COMPRESSION STRUT PLAN @ SUSP APC
SCALE: 1" = 1'-0"

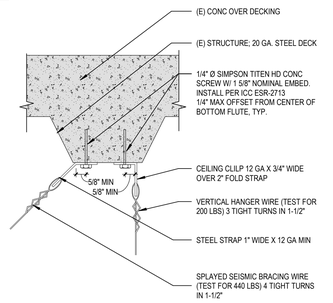


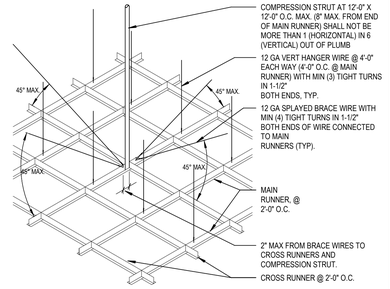
33 A11.1 SEISMIC CEILING BRACING/HANGING WIRE AT ACOUSTIC CLG
SCALE: 3" = 1'-0"



NOTE: REFER TO M0.2 FOR MECHANICAL DETAILS





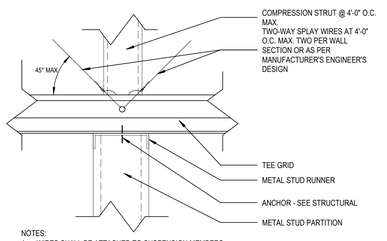


1 A11.1 DUCT STRAP CONNECTION
SCALE: 1 1/2" = 1'-0"

23 A11.1 (E) ACOUSTICAL CEILING ASSEMBLY
SCALE: 1 1/2" = 1'-0"

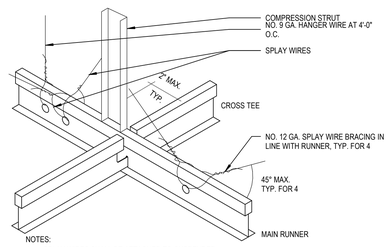
22 A11.1 SEISMIC CEILING BRACING/HANGING WIRE AT STR
SCALE: 3" = 1'-0"

21 A11.1 SEISMIC CLG PANEL RUNNER LAYOUT
SCALE: NTS



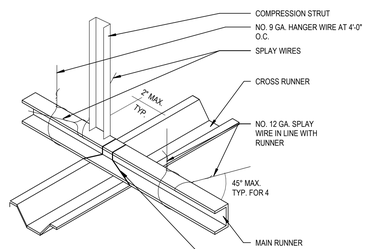
NOTES:
1. WIRES SHALL BE ATTACHED TO SUSPENSION MEMBERS WITH A MINIMUM OF FOUR TURNS IN 1 1/2".
2. MAXIMUM PARTITION HEIGHT - 10 FEET.
3. MAXIMUM PARTITION WEIGHT - 15 PSF.

A - PARTITION BRACING DETAIL

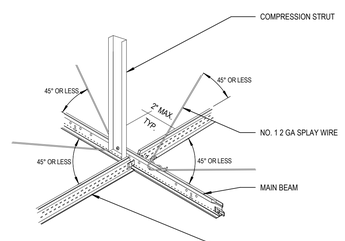


NOTES:
1. SPLAY WIRES SHALL BE ATTACHED TO SUSPENDED MEMBERS WITH MINIMUM OF THREE TURNS IN 1 1/2".
2. VERTICAL STRUT SHALL BE INSTALLED AT EACH SET OF SPLAY WIRES - 200 POUND DESIGN FORCE

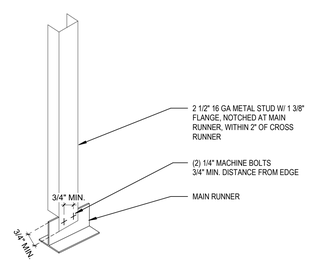
B - FOUR-WAY TEE BRACING DETAIL
@ SUSPENDED GYPSUM BOARD CEILING



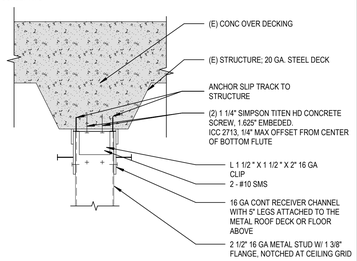
C - FOUR-WAY CHANNEL BRACING
DETAIL @ SUSPENDED GYPSUM
BOARD CEILING



D - GRID BRACING DETAIL
@ ACOUSTIC PANEL
CEILING



E - COMPRESSION STRUT
ATTACHMENT @ MAIN RUNNER



E - COMPRESSION STRUT
ATTACHMENT @ STRUCTURE

16 A11.1 TYPICAL SEISMIC BRACING AT CEILING
SCALE: 3" = 1'-0"

SUSPENDED CEILING NOTES - CA

METAL SUSPENSION SYSTEMS FOR LAY-IN PANEL CEILINGS - DSA IR 25-2.13 (rev. 09-21-15)

SECTION 1 - CEILING SYSTEM GENERAL NOTES:

1.01 CEILING SYSTEM COMPONENTS SHALL COMPLY WITH ASTM C635-07 AND SECTION 5.1 OF ASTM E580-10a.

1.02 THE CEILING GRID SYSTEM MUST BE RATED HEAVY DUTY AS DEFINED BY ASTM C635-08.

1.03 CEILING SYSTEMS. THE FOLLOWING CEILING SYSTEM(S) IS/ARE PART OF THE SCOPE OF THIS PROJECT: SEE SCHEDULE ON A12.11

1.04 SEISMIC WALL CLIP: ARMSTRONG TO BE USED
MANUFACTURER'S MODEL: BERC2

1.05 CEILING PANELS SHALL NOT SUPPORT ANY LIGHT FIXTURES, AIR TERMINALS OR DEVICES.

1.06 FOR CEILING INSTALLATIONS UTILIZING ACOUSTICAL TILE PANELS OF MINERAL OR GLASS FIBER, IT IS NOT MANDATORY TO PROVIDE 3/4" CLEARANCE BETWEEN THE ACOUSTICAL TILE PANELS AND THE WALL ON THE SIDES OF THE CEILING WHICH ARE FREE TO SLIP. FOR ALL OTHER CEILING PANEL TYPES, PROVIDE 3/4" CLERANCE BETWEEN THE CEILING PANEL AND THE WALL ON THE SIDES OF THE CEILING FREE TO SLIP.

SECTION 2 - MATERIALS:

2.01 CEILING WIRE SHALL BE CLASS 1 ZINC COATED (GALVANIZED) CARBON STEEL CONFORMING TO ASTM A641-09a. WIRE SHALL BE #12 GAGE (0.106 INCHES IN DIAMETER) WITH SOFT TEMPER AND MINIMUM TENSILE STRENGTH = 70 KSI.

2.02 GALVANIZED SHEET STEEL (INCLUDING THAT USED FOR METAL STUD AND TRACK COMPRESSION STRUTS/POST) SHALL CONFORM TO ASTM A653-11, OR OTHER EQUIVALENT SHEET STEEL LISTED IN SECTION A2.1 OF THE NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS 2007, INCLUDING SUPPLEMENT 2 DATED 2010 (AISI S100-07/S2-10). MATERIAL 43 MIL (18 GAGE) AND LIGHTER SHALL HAVE A MINIMUM YIELD STRENGTH OF 33 KSI. MATERIAL 54 MIL (16 GAGE) AND HEAVIER SHALL HAVE A MINIMUM YIELD STRENGTH OF 50 KSI

2.03 ELECTRICAL METALLIC TUBE (EMT) SHALL BE ANSI C80.3/UL 797 CARBON STEEL WITH G90 GALVANIZING. EMT SHALL HAVE MINIMUM YIELD STRENGTH (Fy) OF 30 KSI AND MINIMUM ULTIMATE STRENGTH (Fu) OF 48 KSI.

SECTION 3 - ATTACHMENT OF HANGER AND BRACING WIRES:

3.01 SEPARATE ALL CEILING HANGER AND BRACING WIRES AT LEAST SIX (6) INCHES FROM ALL UNBRACED DUCTS, PIPES, CONDUIT, ETC.

3.02 HANGER AND BRACING WIRES SHALL NOT ATTACH TO OR BEND AROUND OBSTRUCTIONS INCLUDING BUT NOT LIMITED TO: PIPING, DUCTWORK, CONDUIT AND EQUIPMENT.

3.03 HANGER WIRES THAT ARE MORE THAN ONE (HORIZONTAL) IN SIX (VERTICAL) OUT OF PLUMB SHALL HAVE COUNTER-SLOPING WIRES.

3.04 SLACK SAFETY WIRES SHALL BE CONSIDERED HANGER WIRES FOR INSTALLATION AND TESTING REQUIREMENTS.

3.05 HANGER AND BRACING WIRE ANCHORAGE TO THE STRUCTURE SHALL BE INSTALLED IN SUCH A MANNER THAT THE DIRECTION OF THE ANCHORAGE ALIGNS CLOSELY WITH THE DIRECTION OF THE WIRE. (E.G. BRACING WIRE CEILING CLIPS MUST BE BENT AS SHOWN IN THE DETALS AND ROTATED AS REQUIRED TO ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE. SCREW EYES IN WOOD MUST BE INSTALLED SO THEY ALIGN CLOSELY WITH THE DIRECTION OF THE WIRE, ETC.).

SECTION 4 - FASTENERS AND WELDING:

4.01 SHEET METAL SCREWS SHALL COMPLY WITH ASTM C1513-10, ASM B18.6.4-89 (R2005). PENETRATION OF SCREWS THROUGH JOINED MATERIAL SHALL NOT BE LESS THAN THREE EXPOSED THREADS.

4.02 EXPANSION ANCHORS SHALL BE:

4.03 POWER-ACTUATED FASTENERS SHALL BE:

4.04 IF NOT OTHERWISE SPECIFIED IN THE EVALUATION REPORT, POWER-ACTUATED FASTENERS INSTALLED IN STEEL SHALL BE INSTALLED SO THE ENTIRE POINTED END OF THE FASTENER IS DRIVEN THROUGH THE STEEL MEMBER.

4.05 POWER-ACTUATED FASTENERS IN CONCRETE ARE NOT PERMITTED FOR BRACING WIRES.

4.06 CONCRETE REINFORCEMENT AND PRESTRESSING TENDONS SHALL BE LOCATED BY NON-DESTRUCTIVE MEANS PRIOR TO INSTALLING POST-INSTALLED ANCHOR.

4.07 WELDING SHALL BE IN ACCORDANCE WITH AWS D1.3 USING E60XX SERIES ELECTRODES.

SECTION 5 - TESTING: ALL FIELD TESTING MUST BE PERFORMED IN THE PRESENCE OF THE PROJECT INSPECTOR.

5.01 POST-INSTALLED ANCHORS IN CONCRETE USED TO SUPPORT HANGER WIRES SHALL BE TESTED AT A FREQUENCY OF 10 PERCENT. POWER ACTUATED FASTENERES IN CONCRETE SHALL BE FIELD TESTED FOR 200 LBS. IN TENSION. ALL OTHER POST-INSTALLED ANCHORS IN CONCRETE SHALL BE TESTED IN ACCORDANCE WITH CBC SECTION 1913A.7.

6.02 SURFACE MOUNTED LIGHT FIXTURES SHALL BE ATTACHED TO THE MAIN RUNNER WITH AT LEAST TWO POSITIVE CLAMPING DEVICES. THE CLAMPING DEVICE SHALL COMPLETELY SURROUND THE SUPPORTING CEILING RUNNER AND BE MADE OF STEEL WITH A MINIMUM THICKNESS OF #14 GAGE. ROTATIONAL SPRING CATCHES DO NOT COMPLY. A #12 GAGE SLACK SAFETY WIRE SHALL BE CONNECTED FROM EACH CLAMPING DEVICE TO THE STRUCTURE ABOVE. PROVIDE ADDITIONAL SUPPORTS WHEN LIGHT FIXTURES ARE EIGHT (8) FT. OR LONGER OR EXCEED 56 LB. MAXIMUM SPACING BETWEEN SUPPORTS SHALL NOT EXCEED EIGHT (8) FEET.

6.03 LIGHT FIXTURES WEIGHING LESS THAN OR EQUAL TO 10 LB SHALL HAVE A MINIMUM OF ONE (1) #12 GAGE SLACK SAFETY WIRE CONNECTED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE.

6.05 LIGHT FIXTURES WEIGHING GREATER THAN 10 LB BUT LESS THAN OR EQUAL TO 56 LBS MAY BE SUPPORTED DIRECTLY ON THE CEILING RUNNERS, BUT THEY SHALL HAVE A MINIMUM OF TWO (2) #12 GAGE SLACK SAFETY WIRES CONNECTED FROM THE FIXTURE HOUSING AT DIAGONAL CORNERS TO THE STRUCTURE ABOVE.

EXCEPTION: ALL LIGHT FIXTURES GREATER THAN TWO BY FOUR FEET WEIGHING LESS THAN 56 LBS. SHALL HAVE A #12 GAGE SLACK SAFETY WIRE AT EACH CORNER.

6.06 ALL LIGHT FIXTURES WEIGHING GREATER THAN 56 LB SHALL BE INDEPENDENTLY SUPPORTED BY NOT LESS THAN FOUR (4) TAUT #12 GAGE WIRES (ONE AT EACH CORNER) ATTACHED FROM THE FIXTURE HOUSING TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS. THE FOUR (4) TAUT # 12 GAGE WIRES OR OTHER APPROVED HANGERS, INCLUDING THEIR ATTACHMENT TO THE STRUCTURE ABOVE, SHALL BE CAPABLE OF SUPPORTING FOUR (4) TIMES THE WEIGHT OF THE FIXTURE.

SECTION 7 - SERVICES WITHIN THE CEILING:

7.01 ALL FLEXIBLE SPRINKLER HOSE FITTING MOUNTING BRACKETS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES SHALL BE POSITIVELY ATTACHED TO THE CEILING SUSPENSION SYSTEMS BY MECHANICAL MEANS. SCREWS OR APPROVED FASTENERS ARE REQUIRED. A MINIMUM OF TWO ATTACHMENTS ARE REQUIRED AT EACH COMPONENT.

7.02 CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING LESS THAN OR EQUAL TO 20 LB SHALL HAVE ONE (1) #12 GAGE SLACK SAFETY WIRE ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.

7.03 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 20 LB BUT LESS THAN OR EQUAL TO 56 LB SHALL HAVE TWO (2) # 12 GAGE SLACK SAFETY WIRES (AT DIAGONAL CORNERS) CONNECTED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE.

7.04 FLEXIBLE SPRINKLER HOSE FITTINGS, CEILING-MOUNTED AIR TERMINALS OR OTHER SERVICES WEIGHING MORE THAN 56 LB SHALL BE SUPPORTED DIRECTLY FROM THE STRUCTURE ABOVE BY NOT LESS THAN FOUR (4) TAUT #12 GAGE WIRES ATTACHED FROM THE TERMINAL OR SERVICE TO THE STRUCTURE ABOVE OR OTHER APPROVED HANGERS.

SECTION 8 - OTHER DEVICES WITHIN THE CEILING:

8.01 ALL LIGHTWEIGHT MISCELLANEOUS DEVICES, SUCH AS STROBE LIGHTS, OCCUPANCY SENSORS, SPEAKERS, EXIT SIGNS, ETC. SHALL BE ATTACHED TO THE CEILING GRID. IN ADDITION, DEVICES WEIGHING MORE THAN 10 LBS SHALL HAVE A #12 GAGE SLACK SAFETY WIRE ANCHORED TO THE STRUCTURE ABOVE. DEVICES WEIGHING MORE THAN 20 LBS SHALL BE SUPPORTED FROM THE STRUCTURE ABOVE .

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30083
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

CEILING FRAMING DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

A11.1
75-18608.00
12/21/2018
Permit Set
Revision 1 12/30/2018

DLR Group
Architecture Engineering Planning Interiors

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GENERAL NOTES

1. PROJECT RECORD DOCUMENTS. USE A COMPUTER AIDED DRAFTING (CAD) SYSTEM IN THE PREPARATION OF RECORD DRAWINGS FOR THIS PROJECT. ACCEPTABLE CAD SYSTEMS SHALL BE CAPABLE OF PRODUCING FILES COMPATIBLE WITH THE LATEST VERSION OF AUTOCAD IN DWG OR DXF FORMAT. OWNER'S CONSULTANT WILL FURNISH CAD BACKGROUNDS FOR USE BY THE CONTRACTOR AFTER CONSTRUCTION IS 90% COMPLETE EXCEPT WHERE PROHIBITED BY CONTRACT.

2. ALL ELECTRICAL PREFABRICATED EQUIPMENT SHALL BE DESIGNED AND CONSTRUCTED IN SUCH A MANNER THAT ALL PORTIONS, ELEMENTS, SUB-ASSEMBLIES AND/OR PARTS OF SAID EQUIPMENT, AND THE EQUIPMENT AS A WHOLE INCLUDING ITS ATTACHMENTS, WILL RESIST A LOAD WHICH EXCEEDS THE FORCE LEVEL USED TO RESTRAIN AND ANCHOR THE EQUIPMENT TO THE SUPPORTING STRUCTURE.

3. ALL ELECTRICAL MATERIALS AND EQUIPMENT SHALL BE NEW AND SHALL BE LISTED BY UNDERWRITER'S LABORATORIES (UL) AND BEAR THEIR LABEL, OR LISTED AND CERTIFIED BY A NATIONALLY RECOGNIZED TESTING AUTHORITY, WHERE UL DOES NOT HAVE A LISTING. CUSTOM MADE EQUIPMENT SHALL HAVE COMPLETE TEST DATA SUBMITTED BY THE MANUFACTURER ATTESTING TO ITS SAFETY. IN ADDITION, THE MATERIALS, EQUIPMENT, AND INSTALLATION SHALL COMPLY WITH THE REQUIREMENTS OF THE FOLLOWING:

   AMERICAN SOCIETY OF TESTING MATERIALS (ASTM)
   INSULATED POWER CABLE ENGINEERS ASSOCIATION (IPCEA)
   NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA) AMERICAN STANDARD ASSOCIATION (ASA)
   NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)
   AMERICAN NATIONAL STANDARD INSTITUTE (ANSI)
   CALIFORNIA ELECTRICAL CODE (CEC) – LATEST EDITION CALIFORNIA CODE OF REGULATIONS TITLE 24 (CCR)
   INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE) ALL LOCAL CODES HAVING JURISDICTION.

   WHERE THE CODES HAVE DIFFERENT LEVELS OF REQUIREMENTS, THE MOST STRINGENT RULE SHALL APPLY.

4. THE CONTRACTOR SHALL VISIT THE SITE INCLUDING ALL AREAS INDICATED ON THE DRAWINGS. HE SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH THE EXISTING CONDITIONS AND BY SUBMITTING A BID, ACCEPTS THE CONDITIONS UNDER WHICH HE SHALL BE REQUIRED TO PERFORM HIS WORK.

5. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO OBTAIN A COMPLETE SET OF CONTRACT DOCUMENTS AND ADDENDA (DRAWINGS AND SPECIFICATIONS.) HE SHALL CHECK THE CONTRACT DOCUMENTS OF THE OTHER TRADES AND DETERMINE HIS RESPONSIBILITIES. FAILURE TO DO SO SHALL NOT RELEASE THE CONTRACTOR FROM COMPLETING ALL RESPONSIBLE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.

6. SECURE AND PAY FOR ALL PERMITS, FEES, CHARGES, AND INCIDENTAL COSTS NECESSARY FOR EXECUTION AND COMPLETION OF ELECTRICAL WORK, INCLUDING ALL CHARGES BY STATE, COUNTY AND LOCAL GOVERNMENTAL AGENCIES.

7. ALL ELECTRICAL WORK REFERENCED HEREIN SHALL BE COORDINATED WITH OTHER TRADES AND SITE CONDITIONS. ANY COSTS TO INSTALL WORK TO ACCOMPLISH SAID COORDINATION WHICH DIFFERS FROM THE WORK AS SHOWN ON THE CONTRACT DOCUMENTS SHALL BE INCURRED BY THE CONTRACTOR. ANY DISCREPANCIES, AMBIGUITIES OR CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT DURING BID TIME FOR CLARIFICATION. ANY SUCH CONFLICTS NOT CLARIFIED PRIOR TO BID SHALL BE SUBJECT TO THE INTERPRETATION OF THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

8. PROVIDE TEMPORARY POWER FACILITIES AND CONNECTIONS FOR ALL FEEDERS, BRANCH CIRCUITS, OR SIGNAL AND COMMUNICATIONS SYSTEMS BEING DISCONNECTED IN ORDER TO MAINTAIN SYSTEMS IN OPERATION.

9. ALL INTERRUPTION OF ELECTRICAL POWER SHALL BE KEPT TO A MINIMUM. HOWEVER, WHEN AN INTERRUPTION IS NECESSARY, THE SHUTDOWN MUST BE COORDINATED WITH THE OWNER AND ENGINEER 14 DAYS PRIOR TO THE OUTAGE. ANY OVERTIME PAY SHALL BE INCLUDED IN THE CONTRACTOR'S BID. WORK IN EXISTING SWITCHBOARDS OR PANELBOARDS SHALL BE COORDINATED WITH THE OWNER PRIOR TO REMOVING ACCESS PANELS OR DOORS.

10. AFTER ALL REQUIREMENTS OF THE CONTRACT DOCUMENTS HAVE BEEN FULLY COMPLETED, REPRESENTATIVES OF THE OWNERS WILL INSPECT THE WORK. THE CONTRACTOR SHALL PROVIDE COMPETENT PERSONNEL TO DEMONSTRATE THE OPERATION OF ANY ITEM OR SYSTEM TO THE FULL SATISFACTION OF EACH REPRESENTATIVE. FINAL ACCEPTANCE OF THE WORK WILL BE MADE BY THE OWNER AFTER RECEIPT OF APPROVAL AND RECOMMENDATION OF ACCEPTANCE FROM EACH REPRESENTATIVE.

11. FURNISH A ONE YEAR WRITTEN GUARANTEE OF MATERIALS AND WORKMANSHIP FROM THE DATE OF SUBSTANTIAL COMPLETION.

12. REVIEW AND COORDINATE WITH THE MECHANICAL, FIRE PROTECTION AND PLUMBING CONTRACT DOCUMENTS FOR DUCTS, LINES AND EQUIPMENT.

13. ALL FINAL CONNECTIONS TO OWNER FURNISHED EQUIPMENT SHALL BE MADE BY THE CONTRACTOR.

14. COORDINATE WITH OTHER TRADES AS TO THE EXACT LOCATION OF THEIR RESPECTIVE EQUIPMENT. SUPPLY POWER AND MAKE CONNECTION TO MOTORS AND EQUIPMENT REQUIRING ELECTRICAL CONNECTIONS AS INDICATED ON THE SINGLE LINE DIAGRAM, ELECTRICAL DRAWINGS, AND DRAWINGS OF OTHER TRADES. REVIEW THE DRAWINGS OF OTHER TRADES FOR CONTROL DIAGRAMS, SIZE AND LOCATION OF EQUIPMENT. DISCONNECT SWITCHES, STARTERS, WIRING, CONTROLS, AND CONDUIT FOR MECHANICAL AND PLUMBING OPERATIONS SHALL BE PROVIDED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING MANUFACTURER'S SHOP DRAWINGS PRIOR TO ROUGHING IN ALL CONDUIT TO THIS EQUIPMENT.

15. EXACT METHOD AND LOCATION OF CONDUIT PENETRATION AND OPENINGS IN CONCRETE OR MASONRY WALLS, GRADEBEAMS, FLOORS OR STRUCTURAL STEEL MEMBERS SHALL BE AS DIRECTED BY THE STRUCTURAL ENGINEER. PERFORM CORING, SAWCUTTING, PATCHING, AND REFINISHING OF WALLS AND SURFACES WHEREVER IT IS NECESSARY TO PENETRATE. OPENINGS SHALL BE SEALED IN AN APPROVED METHOD TO MEET THE FIRE RATING OF THE PARTICULAR WALL, FLOOR OR CEILING. EXACT METHOD AND LOCATIONS OF CONDUIT PENETRATIONS AND OPENINGS IN CONCRETE WALLS OR FLOORS SHALL BE UL APPROVED.

16. CONNECTIONS TO MECHANICAL, PLUMBING AND VIBRATING EQUIPMENT AND SEISMIC SEPARATIONS:

   LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN DRY INTERIOR LOCATIONS.

   LIQUID-TIGHT FLEXIBLE STEEL CONDUIT IN AREAS EXPOSED TO WEATHER, DAMP LOCATIONS, CONNECTIONS TO TRANSFORMER ENCLOSURES, AND FINAL CONNECTIONS TO MOTORS.

17. EQUIPMENT OUTLETS, LIGHTING FIXTURES, CONDUIT, WIRE, AND CONNECTION METHODS IN HVAC AIR-PLENUMS SHALL BE APPROVED FOR USE IN PLENUMS AND SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE.

18. ROUTE EXPOSED CONDUIT AND CONDUIT ABOVE ACCESSIBLE CEILING SPACES PARALLEL AND PERPENDICULAR TO WALLS AND ADJACENT PIPING. ARRANGE CONDUIT TO MAINTAIN HEADROOM AND TO PRESENT A NEAT APPEARANCE.

19. CONDUIT SHALL NOT BE INSTALLED IN ANY FLOOR SLAB. CONDUIT SHALL BE INSTALLED CONCEALED IN THE CEILING SPACE, CONCEALED IN WALLS, OR 24" MINIMUM BELOW SLAB ON GRADE UNLESS NOTED OTHERWISE.

20. LOCATE ELECTRICAL EQUIPMENT AND BOXES, IN ACCESSIBLE CEILING SPACE OR PROVIDE AN ACCESS PANEL FOR INACCESSIBLE CEILING SYSTEMS. ACCESS DOORS SHALL BE A MINIMUM DIMENSION OF 24"x24". ACCESS DOOR LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED.

21. COORDINATE REQUIRED ACCESS DOORS IN NON-ACCESSIBLE CEILINGS TO SUIT FIELD CONDITIONS. THE EXACT SIZES AND PHYSICAL LOCATIONS SHALL SUIT ACCESSIBILITY AND CONSTRUCTION CONDITIONS. ACCESS DOORS SHALL BE PROVIDED IN OTHER SECTIONS OF THE SPECIFICATIONS. ACCESS DOORS SHALL HAVE A FIRE RATING EQUAL TO THE CEILING ASSEMBLY IN WHICH THEY ARE INSTALLED

22. PROVIDE ALL SAWCUTTING, TRENCHING, BACKFILLING, COMPACTION AND PATCHING OF CONCRETE, ASPHALT AND LANDSCAPING AS REQUIRED TO PERFORM THIS WORK. THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN TRENCHING FOR HIS WORK AND SHALL BE RESPONSIBLE FOR DETERMINING AND/OR VERIFYING ALL EXISTING UNDERGROUND SYSTEMS PRIOR TO COMMENCEMENT OF WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER AND APPROVED REPAIR OF ANY AND ALL DAMAGES CAUSED BY HIM OR HIS WORK.

23. WHENEVER A DISCREPANCY OF ANY SYSTEM AND/OR EQUIPMENT ARISES ON THE CONTRACT DOCUMENTS OR SPECIFICATIONS, THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING AND INSTALLING ALL MATERIAL AND SERVICES REQUIRED BY THE STRICTEST CONDITIONS NOTED ON THE DRAWINGS OR SPECIFICATIONS TO ENSURE COMPLETE AND OPERABLE SYSTEMS AS REQUIRED BY THE OWNER AND ARCHITECT/ENGINEER.

24. VERIFY TYPE OF CEILING SYSTEMS AND FURNISH APPROVED LIGHTING FIXTURES OF THE TYPE REQUIRED FOR MOUNTING IN THE SPECIFIC CEILING. WHERE FIXTURES ARE RECESSED IN PLASTER OR DRYWALL CEILINGS, THEY SHALL BE COMPLETE WITH NECESSARY MOUNTING HARDWARE AND PLASTER FRAMES.

25. ALL EQUIPMENT/DEVICES INSTALLED RECESSED IN FIRE RATED CEILINGS OR WALLS SHALL BE ENCLOSED WITH AN APPROVED UL LISTED ENCLOSURE CARRYING THE SAME FIRE RATING AS THE CEILING OR WALL.

26. UTILITY PENETRATIONS OF ANY KIND IN FIRE AND SMOKE PARTITIONS AND CEILING ASSEMBLIES, SHALL BE FIRESTOPPED AND SEALED WITH AN APPROVED UL LISTED SYSTEM OR MATERIAL.

   STEEL ELECTRICAL OUTLET BOXES WHICH DO NOT EXCEED 16 SQUARE INCHES IN AREA, NEED NOT BE PROTECTED IN ONE HOUR OR TWO HOUR FIRE RATED WALLS, PARTITIONS, CEILINGS, OR AREA SEPARATION UNLESS THEY:

   OCCUR ON OPPOSITE SIDES OF THE WALL WITHIN 24 INCH HORIZONTAL DISTANCE OF ONE ANOTHER. IN THIS CASE, ONLY ONE OUTLET BOX NEED TO PROTECTED BY AN APPROVED FIRESTOP MATERIAL OR DETAIL TO CORRECT THIS CONDITION.

   OCCUR IN COMBINATION WITH OUTLET BOXES OF ANY SIZE SUCH THAT THE AGGREGATE AREA OF UNPROTECTED OUTLET BOXES EXCEEDS 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL AREA. IN THIS CASE, ONLY A SUFFICIENT NUMBER OF OUTLET BOXES NEED BE PROTECTED BY AN APPROVED MATERIAL OR DETAIL TO DECREASE THE AGGREGATE AREA OF UNPROTECTED UTILITY BOXES TO LESS THAN 100 SQUARE INCHES IN ANY 100 SQUARE FEET OF WALL.

   STEEL ELECTRICAL OUTLET BOXES WHICH EXCEED 16 SQUARE INCHES IN AREA, AND ALL OTHER STEEL UTILITY OUTLET BOXES REGARDLESS OF SIZE, SHALL BE PROTECTED BY AN APPROVED FIRESTOP MATERIAL AS LISTED OR EQUAL.

   FIRESTOPPING MATERIAL: MPP-1 MOLDABLE PUTTY PADS

   3M CONTRACTOR PRODUCTS
   MINNEAPOLIS, MN
   3M TEST REPORT NO. 1167
   DATED AUGUST 21, 1987

   FSP FIRESTOP PUTTY PADS
   HEVI-DUTY NELSON PRODUCTS
   TULSA, OK

   FLAMESAFE FSP 1077 FIRESTOP PADS
   INTERNATIONAL PROTECTIVE COATINGS
   OAKHURST, NJ

   STEEL UTILITY BOXES WHICH EXCEED 100 SQUARE INCHES IN AREA SHALL BE PROTECTED BY ENCASEMENT.

   UTILITY AND ELECTRICAL OUTLETS OR BOXES SHALL BE SECURELY FASTENED TO THE STUD FRAMING OF THE WALL, PARTITION OR CEILING ASSEMBLY. THE OPENING IN THE GYPSUM BOARD FACING SHALL BE CUT SO THAT THE CLEARANCE BETWEEN THE BOX AND THE GYPSUM BOARD DOES NOT EXCEED 1/8 INCH. IN SMOKE WALLS OR PARTITIONS, THE 1/8 INCH CLEARANCE SHALL BE FILLED WITH AN APPROVED FIRE-RATED SEALANT.

27. ARCHITECTURAL REFLECTED CEILING PLANS INDICATING THE LOCATION OF LIGHTING FIXTURES SHALL TAKE PRECEDENCE OVER THE LOCATIONS OF SAME SHOWN ON THE ELECTRICAL DRAWINGS. INSTALL THE LIGHTING FIXTURES IN ANY GIVEN AREA PER THE ARCHITECTURAL REFLECTED CEILING PLANS. DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT.

28. THE LOCATIONS AND MOUNTING HEIGHTS OF LIGHTING FIXTURES LOCATED IN MECHANICAL EQUIPMENT SPACES AND PENTHOUSES SHALL BE COORDINATED IN THE FIELD PRIOR TO INSTALLATION TO AVOID INTERFERENCE WITH DUCTS, PIPING, AND OTHER MECHANICAL EQUIPMENT. WHEN LOCATIONS AND MOUNTING HEIGHTS ARE DETERMINED, OBTAIN APPROVAL FROM THE ARCHITECT PRIOR TO INSTALLATION.

29. REFER TO SINGLE LINE DIAGRAM AND FEEDER SCHEDULES FOR CONDUIT AND CONDUCTOR SIZE TO PANELS, TRANSFORMERS, MECHANICAL AND PLUMBING EQUIPMENT, ETC. CONDUIT RUNS MAY NOT BE SHOWN ON DRAWINGS, BUT SHALL BE INCLUDED AS PART OF THIS CONTRACT.

30. STRAIGHT FEEDER, BRANCH CIRCUIT, AND CONDUIT RUNS SHALL BE PROVIDED WITH SUFFICIENT PULL BOXES OR JUNCTION BOXES TO LIMIT THE MAXIMUM LENGTH OF ANY SINGLE CABLE PULL TO 100 FEET. PULL BOXES SHALL BE SIZED PER CODE OR AS INDICATED ON DRAWINGS. LOCATIONS SHALL BE DETERMINED IN THE FIELD OR AS INDICATED ON THE DRAWINGS.

31. MAXIMUM QUANTITY OF CONDUCTORS IN AN OUTLET OR JUNCTION BOX SHALL CONFORM TO THE CALIFORNIA ELECTRICAL CODE, ARTICLE 314.16. IN NO CASE SHALL OUTLET OR JUNCTION BOXES CONTAIN MORE THAN THE FOLLOWING QUANTITY OF #12 AWG CONDUCTORS FOR THE SIZE OF BOX INDICATED. THE MINIMUM SIZE OUTLET OR JUNCTION BOX PERMITTED IN A WALL IS FOUR INCHES SQUARE BY 1-1/2 INCHES DEEP.

   4" SQ. BY 1-1/2" D = 9 CONDUCTORS
   4" SQ. BY 2-1/8" D = 13 CONDUCTORS
   4-11/16" SQ. BY 1-1/2" D = 11 CONDUCTORS
   4-11/16" SQ. BY 2-1/8" D = 18 CONDUCTORS

   ALL OUTLET BOXES CONTAINING MORE THAN ONE DEVICE SHALL BE GANGED. TWO DEVICES DOUBLE GANGED, MINIMUM.

32. WHERE MULTIPLE HOMERUNS ARE INDICATED ON DRAWINGS REFERENCING THE SAME PANELBOARD CIRCUIT NUMBER, PROVIDE JUNCTION BOX ABOVE ACCESSIBLE CEILING AND ROUTE ONE SET OF WIRES TO CIRCUIT BREAKERS.

33. RECESSED PANELS AND CABINETS SHALL HAVE FIVE SPARE 3/4" INCH CONDUITS STUBBED UP INTO AN ACCESSIBLE CEILING SPACE AND CAPPED UNLESS NOTED OTHERWISE.

34. THE LOCATION OF ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE COORDINATED WITH THE ARCHITECTURAL ELEVATIONS, DETAILS, OR SECTIONS PRIOR TO INSTALLATION. ALL ELECTRICAL DEVICES AND EQUIPMENT SHALL BE RECESSED IN WALLS UNLESS OTHERWISE NOTED. OUTLETS NOT INDICATED ON ARCHITECTURAL ELEVATIONS SHALL BE COORDINATED WITH THE ARCHITECT PRIOR TO ROUGH-IN. UNLESS OTHERWISE NOTED, ELECTRICAL DEVICES SHALL BE MOUNTED PER "ACCESSIBLE DEVICE MOUNTING HEIGHT" DETAIL.

   REVIEW ARCHITECTURAL ELEVATIONS OF CASEWORK-OUTLETS MOUNTED ABOVE OR BELOW, OR ADJACENT TO CASEWORK SHALL BE COORDINATED WITH THE ARCHITECTURAL DRAWINGS, PRIOR TO FINAL ROUGH-IN. ELECTRICAL DRAWINGS SHALL GOVERN NUMBER AND TYPE OF OUTLETS; HOWEVER, LOCATIONS SHALL BE AS INDICATED ON ARCHITECTURAL ELEVATIONS. PROVIDE CONDUIT, WIRES, AND OUTLETS FOR WORK REQUIRED IN CASEWORK INSTALLATIONS. REFERENCE ARCHITECTURAL DETAILS FOR METHOD OF ROUTING CONDUIT WITHIN CASEWORK CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CUT-OUTS IN TILE OR COUNTER SPLASHES WHERE RECEPTACLES, OUTLETS, ETC., OCCUR. PROVIDE BOX EXTENSIONS THROUGH ALL CASEWORK TO ENSURE FINISHED INSTALLATION IS FLUSH WITH FACE OF SPLASH, CABINET, ETC.

   MOUNTING HEIGHTS OF ALL DEVICES AND EQUIPMENT ARE FROM FINISHED FLOOR TO CENTER OF DEVICES AND EQUIPMENT UNLESS OTHERWISE NOTED. BOXES INSTALLED IN LOCATIONS NOT APPROVED BY THE ARCHITECT SHALL BE RELOCATED AS DIRECTED BY THE ARCHITECT AT NO ADDITIONAL COST TO THE OWNER.

35. DRAWINGS ARE DIAGRAMMATIC AND DO NOT INDICATE DETAILED CONDUIT ROUTING OR LENGTHS REQUIRED FOR COMPLETE INSTALLATION. ROUTING OF RACEWAYS SHALL BE AT THE OPTION OF THE CONTRACTOR BUT SHALL BE IN STRICT COMPLIANCE WITH STRUCTURAL REQUIREMENTS, CONTRACT DOCUMENTS AND SPECS UNLESS OTHERWISE NOTED. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES. DO NOT SCALE THE ELECTRICAL DRAWINGS FOR LOCATIONS OF ANY ELECTRICAL, ARCHITECTURAL, STRUCTURAL AND/OR MECHANICAL ITEMS OR FEATURES. REFER TO ARCHITECTURAL AND STRUCTURAL CONTRACT DOCUMENTS FOR DIMENSIONS.

36. A PROPERLY SIZED EQUIPMENT GROUNDING CONDUCTOR, ALTHOUGH NOT SHOWN ON CONDUIT RUNS, SHALL BE INSTALLED AND RUN CONTINUOUS FROM PANEL TO THE LAST DEVICE. THIS WIRE SHALL BE PIGTAILED IN EACH OUTLET FOR CONNECTION TO BOX AND DEVICE SUCH THAT IF DEVICE IS REMOVED THE CONTINUITY OF THE GROUND WILL NOT BE COMPREMISED/INTERRUPTED. ALL EQUIPMENT GROUNDING CONDUCTORS SHALL BE INSULATED GREEN CONDUCTORS – ALTERNATE METHODS OF IDENTIFICATION SHALL NOT BE USED. CONTRACTOR SHALL NOTIFY ELECTRICAL ENGINEER TO EXAMINE CONDUCTOR INSTALLATION PRIOR TO INSTALLATION OF DEVICES.

37. COORDINATE WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR HOUSEKEEPING PADS AND EQUIPMENT FOUNDATIONS. PROVIDE SIZES REQUIRED FOR EQUIPMENT TO BE INSTALLED.

38. ALL CONDUCTORS SHALL BE UL LISTED COPPER #12 AWG MINIMUM SIZE, TYPE THHN/THWN THERMOPLASTIC, 600 VOLT, 75 DEGREES CELSIUS WET AND 90 DEGREES CELSIUS DRY AND UL LISTED UNLESS NOTED OTHERWISE. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID. CONDUCTORS #8 AWG AND LARGER SHALL BE STRANDED.

39. REVIEW STRUCTURAL DRAWINGS FOR LOCATIONS AND SIZES OF FOOTINGS AND GRADE BEAMS. REFERENCE STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR INSTALLATION OF CONDUIT THROUGH GRADE BEAMS AND FOOTINGS.

40. PANEL SCHEDULES SHALL BE REVISED TO REFLECT FINAL ROOM NAMES AND NUMBERS USING OWNERS ROOM NAMES AND NUMBERS DESIGNATIONS.

41. WHERE OUTLETS OCCUR AT TACKABLE WALL PANELS OR OTHER WALL FINISHES, PROVIDE EXTENSION RINGS AS REQUIRED SO THAT NO SPACE WILL EXIST BETWEEN DEVICE PLATE AND BACKBOX, PER CALIFORNIA ELECTRICAL CODE 314.20. SEE ARCHITECTURAL ELEVATIONS FOR WALL FINISHES AND LOCATIONS.

42. COORDINATE LOCATIONS OF ALL SEISMIC SEPARATIONS.

43. REFER TO FIRE ALARM PLANS FOR ADDITIONAL POWER REQUIREMENTS REQUIRED FOR FIRE/SMOKE DAMPERS AND POWER SUPPLIES.

44. REFER TO ARCHITECTURAL EXTERIOR ELEVATIONS FOR EXTERIOR WALL MOUNTED LIGHTS, SPEAKERS AND FIRE ALARM SPEAKERS.

DEMOLITION NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND ALL AREAS INCLUDED IN THE DRAWINGS. CONTRACTOR SHALL THOROUGHLY FAMILIARIZE THEMSELVES WITH THESE EXISTING CONDITIONS, AND BY SUBMITTING A BID ACCEPTS CONDITIONS UNDER WHICH THE CONTRACTOR WILL BE REQUIRED TO PERFORM HIS WORK.

2. ALL EXISTING CONDUIT RUNS SHOWN ON THESE DRAWINGS WERE TAKEN FROM EXISTING RECORD DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY LOCATIONS OF HOMERUNS, AND ADJUST CIRCUIT NUMBERS ACCORDING TO EXISTING CONDITIONS AS REQUIRED.

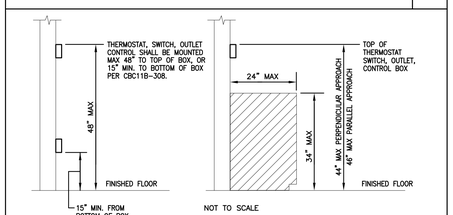
3. EXISTING CONDUIT MAY BE REUSED IF ADEQUATELY SIZED, BUT IN NO CASE SHALL ANY EXISTING CONDUCTORS BE REUSED.

CODE ANALYSIS

THE CONSTRUCTION OF THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF:

1. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 2 – CALIFORNIA BUILDING CODE (CBC) – 2016 EDITION.
2. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 3 – CALIFORNIA ELECTRICAL CODE (CEC) – 2016 EDITION.
3. CALIFORNIA CODE OF REGULATIONS (CCR), TITLE 24, PART 9 – CALIFORNIA FIRE CODE (CFC) – 2016 EDITION.

ACCESSIBLE DEVICE MOUNTING HEIGHTS 1



*PROVIDE MINIMUM 30"x48" CLEAR FLOOR SPACE FOR PERPENDICULAR APPROACH AT EACH CONTROL OR DEVICE.

SHEET INDEX

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E0.2	ELECTRICAL SYMBOLS AND ABBREVIATIONS
E0.3	ELECTRICAL SINGLE LINE DIAGRAM
E2.0	ELECTRICAL DEMOLITION PLAN
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E4.1	ELECTRICAL DETAILS
E5.1	PANEL SCHEDULES
E6.1	TITLE 24

TOTAL SHEETS = 14

STRUCTURAL NOTE

UNLESS SPECIFICALLY SHOWN ON THESE PLANS, STRUCTURAL MEMBERS SHALL NOT BE CUT, DRILLED, OR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DIVISION OF THE STATE ARCHITECT.

EQUIPMENT ANCHORAGE NOTES

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7-10 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7-10 SECTION 13.3 AS DEFINED IN ASCE 7-10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PRE-APPROVED INSTALLATION GUIDE (E.G., SMACNA OR OSHPD OPM), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☐ OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.

MP☐ MD☐ PP☐ E☒ OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE-APPROVAL (OPM#) #0043-13.

MP☐ MD☐ PP☐ OPTION 3: SHALL COMPLY WITH THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION (2009), INCLUDING ANY ADDENDA. FASTENERS AND OTHER ATTACHMENTS NOT SPECIFICALLY IDENTIFIED IN THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION, ARE DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. THE DETAILS SHALL ACCOUNT FOR THE APPLICABLE SEISMIC HAZARD LEVEL _____ AND CONNECTION LEVEL _____ FOR THE PROJECT AND CONDITIONS.

REGISTERED PROFESSIONAL ENGINEER – OVERHEAD PANEL – No. E-16592 – ELECTRICAL – STATE OF CALIFORNIA

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ELECTRICAL GENERAL NOTES AND ABBREVIATIONS
MEDIA COMMUNICATIONS BUILDING REMODEL

E0.1
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

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ELECTRICAL ABBREVIATIONS

AF	AMPERE FUSE RATING
AFC	AVAILABLE FAULT CURRENT (RMS SYMMETRICAL)
AFF	ABOVE FINISHED FLOOR
AIC	AMPS INTERRUPTED CAPACITY RATING (RMS SYMMETRICAL MINIMUM)
AM	AMMETER
AMP, A	AMPERES
APPR	APPROVED
AS	AMPERE SWITCH RATING
AT	AMPERE TRIP RATING OR BREAKER
AUTO	AUTOMATIC
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BRD, BD	BOARD
BFC	BELOW FINISHED CEILING
BKR	BREAKER
C.	CONDUIT
CAB	CABINET
CAT	CATEGORY
CC	CENTER TO CENTER
cd	CANDELA
CHLOR	CHLORINE, CHLORINATION
CKT	CIRCUIT
CMH	COMMUNICATION MANHOLE
C.O.	CONDUIT ONLY
COMPT	COMPARTMENT
COMPR	COMPRESSOR
CPB	COMMUNICATION PULLBOX
CPT	CONTROL POWER TRANSFORMER
CR	CONTROL RELAY (MAGNETICALLY HELD U.N.O.)
CSFM	CALIFORNIA STATE FIRE MARSHALL
CT	CURRENT TRANSFORMER
CU	COPPER
DISC.	DISCONNECT
DISTR	DISTRIBUTION
DWG	DRAWING
ELEV	ELEVATION
EMERG, EM	EMERGENCY
ENCL	ENCLOSURE
EQPT	EQUIPMENT
EXH	EXHAUST
E	EXISTING
FAA	FIRE ALARM ANNUNCIATOR
FDR	FEEDER
FF	FINISHED FLOOR
FG	FINISHED GRADE
FS	FLOW SWITCH
FLEX	FLEXIBLE
FLUOR	FLUORESCENT
FOC	FIBER OPTIC CABLE
FUT	FUTURE
FUP	FUSE, CPT PRIMARY
FUS	FUSE, CPT SECONDARY
GND, GRD	GROUND
HH	HAND HOLE
HOA	HAND-OFF-AUTOMATIC
HTR	HEATER
HZ	HERTZ
IDF	INTERMEDIATE DISTRIBUTION FRAME
ICPB	INTERCEPT COMMUNICATION PULLBOX
INC	INCANDESCENT
IND	INDICATION
INSTR	INSTRUMENT
IPPB	INTERCEPT POWER PULLBOX
ISC	SHORT CIRCUIT CURRENT
J.B.	JUNCTION BOX
K	THOUSAND (KILO)
KV	KILOVOLTS
KW	KILOWATTS
KVA	KILOVOLT AMPERES
KVAR	KILOVOLT AMPERES REACTIVE
KWH	KILOWATT HOURS
KWHD	KILOWATT HOUR DEMAND METER
LCP	LIGHTING CONTROL PANEL
LOS	PUSH BUTTON WITH "LOCK-OUT-STOP"
LS	LIMIT SWITCH
LT, LTS	LIGHT, LIGHTS
LTG	LIGHTING
MA	MILLIAMPS
MAN	MANUAL
MAG	MAGNETIC
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	THOUSAND CIRCULAR MILS
MCP	MOTOR CIRCUIT PROTECTOR
MDF	MAIN DISTRIBUTION FRAME
MH	MANHOLE
MS	MANUAL MOTOR STARTER
MIN	MINUTES, MINIMUM
MOV	MOTOR OPERATED VALVE, METAL OXIDE VARISTER
MT, MTD, MTG	MOUNT, MOUNTED, MOUNTING
N.A.P.	NEUTRAUZATION ALARM PANEL
NO, NOS	NUMBER, NUMBERS
NP	NAMEPLATE
NTS	NOT TO SCALE
OC	ON CENTER
OFOI	OWNER FURNISHED OWNER INSTALLED
OL	OVERLOAD
PB	PULLBOX
PIV	POST INDICATOR VALVE
PMH	POWER MANHOLE
PNL	PANEL
PNLBD	PANELBOARD
POS	POSITION
PPB	POWER PULLBOX
PRI	PRIMARY
PS	PRESSURE SWITCH
PT	POTENTIAL TRANSFORMER
PVC	POLYVINYL CHLORIDE
PW	PART WINDING
PWR	POWER
REC	RECEPTACLE
RECPTS	RECEPTACLES
REQD	REQUIRED
SA	STATUS ANNUNCIATOR
SCH	SCHEDULE
SEC	SECONDS, SECONDARY
SECT	SECTION
SEL SW	SELECTOR SWITCH
SEQ	SEQUENCE
SHLD	SHIELDED
SHT	SHEET
SIG	SIGNAL
SM	START CONTACTOR COIL
SPECS	SPECIFICATIONS
SP HTR	SPACE HEATER
ST	SHUNT TRIP
STA	STATION
STD	STANDARD
STL	STEEL
STR	STARTER
SV	SOLENOID VALVE
SW	SWITCH
SYS	SYSTEM
TACH	TACHOMETER
TDOD	TIME DELAY ON DE-ENERGIZATION
TDOE	TIME DELAY ON ENERGIZATION
TEMP	TEMPERATURE
TERM	TERMINAL
THERM	THERMOSTAT
TR	TIME DELAY RELAY
TS	TAMPER SWITCH
TSP	TWISTED SHIELDED PAIR
TSTAT	THERMOSTAT
TYP.	TYPICAL
U.N.O.	UNLESS NOTED OTHERWISE
UGPS	UNDERGROUND PULL SECTION
UTP	UNSHIELDED TWISTED PAIR
VFD	VARIABLE FREQUENCY DRIVE
V	VOLTS
VM	VOLTMETER
VS	VOLTMETER SWITCH
W	WATTS
WHM	WATT HOUR METER
WP	WEATHERPROOF
WPL	WEATHERPROOF LOCKING
XFMR	TRANSFORMER
XMTR	TRANSMITTER

FOR FIRE ALARM LEGEND
SEE SHEET E3.1

SYMBOL LIST

EXISTING/DEMOLITION	FLOOR	WALL	CEILING	RACEWAYS AND WIRING
EXISTING EQUIPMENT/ RACEWAYS TO REMAIN.				CONDUIT CONCEALED IN CEILING OR WALL SPACE.
EXISTING EQUIPMENT/ RACEWAYS TO BE REMOVED.				CONDUIT RUN EXPOSED
NEW EQUIPMENT / RACEWAYS				CONDUIT RUN UNDERGROUND OR CONCEALED IN FLOOR SPACE
EXISTING TO REMAIN.				EXISTING CONDUIT TO REMAIN.
EXISTING TO BE REMOVED.				CONDUIT RISING UP FROM RUN
NEW EQUIPMENT, LIGHTING FIXTURE OR DEVICE				CONDUIT DROPPING DOWN FROM RUN
(E) EQUIPMENT WITH "E" ADJACENT IS EXISTING TO REMAIN.	A-1	A-1	A-1	HOMERUN TO PANELBOARD, CABINET OR TERMINAL BACKBOARD AS INDICATED
(R) EXISTING EQUIPMENT WITH "R" ADJACENT IS TO BE COMPLETELY DISCONNECTED AND REMOVED.	(MS-01)	(MS-01)	(MS-01)	HOMERUN TO SWITCHBOARD OR MCC AS INDICATED. REFER TO SINGLE LINE DIAGRAM FOR CONDUIT AND WIRE SIZES.
(RR) EXISTING EQUIPMENT WITH "RR" ADJACENT IS TO BE DISCONNECTED, REMOVED AND RELOCATED TO NEW LOCATION AND RECONNECTED AS REQUIRED.	<RA-1>	<RA-1>	<RA-1>	HOMERUN TO PANEL VIA INDICATED LIGHTING CONTROL RELAY CABINET. REFER TO INDICATED RELAY CABINET SCHEDULE FOR ADDITIONAL INFORMATION AND CONTROL REQUIREMENTS.
(ER) RELOCATED EQUIPMENT SHOWN IN NEW LOCATION.				
-E- EXISTING CONDUIT RUN TO REMAIN. EXISTING CONDUCTORS TO REMAIN UNLESS NOTED OTHERWISE ON DRAWINGS.				
-EA- EXISTING CONDUIT RUN TO BE ABANDONED. REMOVE CONDUCTORS AND CAP ENDS OF CONDUIT.				
-EX- EXISTING CONDUIT RUN TO BE REWIRED. REFER TO PLANS FOR WIRING REQUIREMENTS.				
-R- EXISTING CONDUIT AND WIRE RUN TO BE COMPLETELY DISCONNECTED AND REMOVED BACK TO LAST REMAINING OUTLET OR DEVICE.				
-R-X-E- "X" INDICATES APPROXIMATE POINT OF INTERCEPTION OF EXISTING CONDUIT RUN. CONDUIT TO BE REMOVED AT "R" SIDE OF "X". REMOVE ALL CONDUCTORS PRIOR TO CUTTING CONDUIT. EXACT LOCATION OF ALL CONDUITS SHALL BE FIELD VERIFIED.				

SINGLE LINE DIAGRAM	FLOOR	WALL	CEILING	SECURITY
TRANSFORMER, AS NOTED ON SINGLE LINE DIAGRAM.				
SPECIAL TRANSFORMER, AS NOTED ON SINGLE LINE DIAGRAM.				
CIRCUIT BREAKER, 3 POLE UNLESS NOTED OTHERWISE.				
MOTOR STARTER WITH OVERCURRENT PROTECTION, 3 POLE UNLESS NOTED OTHERWISE.				
CIRCUIT BREAKER WITH GROUND FAULT RELAY AND SHUNT TRIP RELAY				
CIRCUIT BREAKER WITH SHUNT TRIP RELAY				
DRAW-OUT CIRCUIT BREAKER				
NON-FUSED DISCONNECT SWITCH, 30 AMP, 3P UNLESS NOTED OTHERWISE.				
FUSED DISCONNECT SWITCH, 3 POLE UNLESS NOTED OTHERWISE.				
DEMAND TYPE KWH METER.				3/4" SECURITY SYSTEM CONDUIT ONLY
PROVISION FOR UTILITY COMPANY KWH METER				1" SECURITY SYSTEM CONDUIT ONLY
KIRK-KEY INTERLOCK BETWEEN DEVICES				1½" SECURITY SYSTEM CONDUIT ONLY
AUTOMATIC TRANSFER SWITCH WITH GENERATOR STARTING AND TRANSFER SWITCH STATUS CONTACTS.				2" SECURITY SYSTEM CONDUIT ONLY
TRANSFER SWITCH STATUS CONTACTS.				ALARM CONTACT FOR DOOR OR WINDOW, COORDINATE ROUGH-IN WITH HARDWARE SUPPLIER.
AMMETER				CARD READER ASSEMBLY, PROVIDE RACEWAY CONNECTIONS TO DOOR CONTACT, ELECTRIC HINGE OR STRIKE, MOTION DETECTOR AND REQUEST FOR EXIT DEVICE, AS REQUIRED. COORDINATE ROUGH-IN WITH HARDWARE SUPPLIER.
ELECTRONIC METER, CUTLER HAMMER IQ ANALYZER CAT. NO. IQA6430				
SEPARABLE CONNECTOR(S)				INTERCOM STATION, CEILING MOUNTED TO BE TWO WAY HANDS FREE STATION
GROUND				KEY PAD STATION
EMERGENCY GENERATOR, AS NOTED ON SINGLE LINE DIAGRAM.				MOTION DETECTION DEVICE, DEVICE TO BE DIRECTED AS RECOMMENDED BY SUPPLIER AND APPROVED BY OWNER.
				SECURITY CCTV CAMERA
				SECURITY CCTV CAMERA WITH PAN, ZOOM AND TILT CAPABILITIES
				SECURITY CCTV MONITOR

RECESSED	SURFACE	GENERAL ELECTRICAL SYMBOLS	FLOOR	WALL	CEILING	FIRE ALARM SYSTEM
	F	FUSED DISCONNECT SWITCH, 30 AMP MINIMUM UNLESS NOTED OTHERWISE.				MANUAL FIRE ALARM REPORTING STATION, WALL MOUNTED @+48". MINIMUM ONE DEVICE PER FLOOR AT EACH EXIT AND ONE PER 200' OF TRAVEL.
		COMBINATION DISCONNECT SWITCH MOTOR STARTED				
	S	MOTOR, 5 HP INDICATED.		A	A	FIRE ALARM AUDIBLE ALARM, WALL MOUNTED AT +7-6" UNLESS NOTED OTHERWISE. PROVIDE AVERAGE 55dBA AND MINIMUM 15dBA ABOVE AMBIENT LEVEL AT 5' ABOVE FLOOR.
	T	TRANSFORMER				
		RELAY OR EQUIPMENT CABINET AS INDICATED ON PLANS.	B	B		DOOR HOLD OPEN DEVICE THAT IS INTEGRAL WITH DOOR HARDWARE, COORDINATE VOLTAGE AND ROUGHIN WITH HARDWARE SUPPLIER.
		LIGHTING OR POWER PANEL BOARD.		C	C	FIRE ALARM AUDIBLE ALARM WITH VISUAL SIGNAL AT 7'-6" UNLESS NOTED OTHERWISE. PROVIDE AVERAGE 55dBA AND MINIMUM 15dBA ABOVE AMBIENT LEVEL AT 5' ABOVE FLOOR.
L1A	L1A	PANELBOARD DESIGNATION			D	DUCT DETECTOR, COORDINATE LOCATION WITH DIVISION 15. MINIMUM ONE DEVICE UPSTREAM OF ANY DAMPER. PROVIDE REMOTE INDICATING LIGHT FOR EACH DEVICE INSTALLED IN NON-VISIBLE LOCATION.
		FREE STANDING SWITCHBOARD, MOTOR CONTROL CENTER OR DISTRIBUTION BOARD.			E	ELEVATOR SMOKE DETECTOR.
		FIRE TREATED PLYWOOD BACKBOARD 3/4"X96" HIGH X LENGTH AS INDICATED..			F	COMBINATION HEAT/SMOKE DETECTOR
EEE		ELECTRICAL EQUIPMENT DESIGNATION DESIGNED "EQ01"		G		OS&Y VALVE TAMPER SWITCH. WITH SEALTIGHT FLEXIBLE CONNECTION.
1 A 1		REFERENCE TO NOTE "A" OR NOTE "1" ON SAME SHEET.			H	HEAT DETECTOR.
FA /5 FA		LIGHTING FIXTURE DESIGNATION FA = FIXTURE TYPE 75 = FIXTURE WATTAGE		FSD		COMBINATION FIRE AND SMOKE DAMPER.
F 1		MECHANICAL EQUIPMENT DESIGNATION "P-1" INDICATED.				
X33		EQUIPMENT NAME OR NUMBER				
+4'-6"		MOUNTING HEIGHT FROM FINISHED FLOOR TO CENTERLINE OF OUTLET OR EQUIPMENT.				
MH= +4'-6"		MOUNTING HEIGHT FROM FINISHED FLOOR TO BOTTOM OF OUTLET OR EQUIPMENT.				
1 E-6		DETAIL REFERENCE DETAIL "#1" ON DRAWING "E6".				
1 E-6		SECTION OR ELEVATION REFERENCE DETAIL "1" ON DRAWING "E-6".				
A-1,3,5		INDICATES HOMERUN WITH THREE CIRCUITS AND A COMMON NEUTRAL.				
A-1&3&5		INDICATES HOMERUN WITH THREE CIRCUITS AND A SEPERATE NEUTRALS.				

FLOOR	WALL	CEILING	GROUNDING SYSTEM
			GROUND PLATE, FLAT TAPPED SIDE TO BE FLUSH WITH FURNISHED SURFACE. CADWELD B164-2Q OR EQUIVALENT
	G	G	GROUND BUS
	TC	TC	TECHNICAL GROUND BUS
			GROUND ROD, MINIMUM 3/4 "ø X 10' LONG
			EXOTHERMIC GROUND CONNECTION
	-G-		EXOTHERMIC GROUND CONNECTION

SYMBOL LIST

NOTE: NOT ALL SYMBOLS AND ABBREVIATIONS ARE USED.

FLOOR	WALL	CEILING	AUDIO / VISUAL SYSTEM
			RECEIVER OUTLET, PROVIDE 1" CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE
			SPEAKER BACK BOX, COORDINATE SIZE WITH SYSTEM SUPPLIER. PROVIDE 3/4" CONDUIT MIN. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY, U.N.O.
			MICROPHONE OUTLET; FLOOR UNIT IN FLOOR BOX WALL UNIT MOUNTED @+42"
			VOLUME CONTROL, MOUNTED @+42"
	AV		AUDIO/VIDEO WALL BOX, COORDINATE SIZE WITH SYSTEM SUPPLIER. PROVIDE (3)2" CONDUITS STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY, U.N.O.
	-AV-		1" CONDUIT ONLY FOR AUDIO / VIDEO
	-AV+-		1¼" CONDUIT ONLY FOR AUDIO / VIDEO
	-AV#-		1½" CONDUIT ONLY FOR AUDIO / VIDEO
	-AV##		2" CONDUIT ONLY FOR AUDIO / VIDEO
	-AV###		3" CONDUIT ONLY FOR AUDIO VIDEO
	-AV####		4" CONDUIT ONLY FOR AUDIO VIDEO

FLOOR	WALL	CEILING	TELECOMMUNICATIONS
	-T-	-T-	1" TELEPHONE / DATA CONDUIT
	-T+-	-T+-	1¼" TELEPHONE / DATA CONDUIT
	-T#-	-T#-	1½" TELEPHONE / DATA CONDUIT
	-T##	-T##	2" TELEPHONE / DATA CONDUIT
	(18)		MULTI-OUTLET RACEWAY WITH PROVISIONS FOR COMMUNICATIONS RECEPTACLES MOUNTED ON 18" CENTER UNLESS OTHERWISE NOTED. NUMBER IN (X) PARENTHESIS INDICATES DISTANCE BETWEEN DEVICES.
	W		COMBINATION TELEPHONE DATA OUTLET. PROVIDE 1¼"CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE UNLESS NOTED OTHERWISE "W" INDICATES WALL MOUNTED @ +48".
	W		DATA OUTLET BOX, PROVIDE 1" CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE UNLESS NOTED OTHERWISE. "W" INDICATES WALL MOUNTED @ +48".
	W		TELEPHONE OUTLET, PROVIDE 1" CONDUIT STUBBED INTO ACCESSIBLE CEILING SPACE UNLESS NOTED OTHERWISE. "W" INDICATES WALL MOUNTED @ +48". "P" INDICATES PAY PHONE, 1" CONDUIT TO CLOSEST TERMINAL POINT WITHOUT INTERMEDIATE BOXES.
			SYSTEM FURNITURE COMBINATION TELEPHONE DATA FEED, REFER TO DETAILS FOR RACEWAY AND BOX REQUIREMENTS.

FLOOR	WALL	CEILING	SWITCHING
	SM		MANUAL MOTOR STARTER WITH THERMAL OVERLOAD NUMBER OF POLES AS REQUIRED.
	Sx		SWITCH, SUBSCRIPT INDICATES: X=NONE - SINGLE POLE X=3 - THREE WAY X=A,B,C - OUTLET CONTROLLED X=2 - DOUBLE POLE X=KP - KEY OPERATED WITH PILOT LIGHT X=P - PILOT LIGHT X=R - MOMENTARY RELAY ON/OFF
	Sab		2-SINGLE POLE SWITCHES, UNDER COMMON PLATE, +42" UON.
	Sabc		3-SINGLE POLE SWITCHES, UNDER COMMON PLATE, +42" UON.
			DIGITAL WALL SWITCH WITH "ON/OFF" AND DIMMING CAPABILITY. REFER TO DETAIL #5/E4.1 FOR MANUFACTURERS AND MODEL NUMBERS. NUMERAL ADJACENT INDICATES QUANTITY OF BUTTONS. LOWER CASE LETTER AT BOTTOM INDICATES FIXTURES CONTROLLED. MOUNT AT +48" PER DETAIL #1/E0.1.
			ROOM TYPE OCCUPANCY SENSOR, ARROW INDICATES DIRECTION OR ORIENTATION, SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED.
			INFRARED/ULTRASONIC DUAL TECHNOLOGY TYPE OCCUPANCY SENSOR COMPLETE WITH ALL POWER SUPPLIES, RELAY PACKS AND CONNECTIONS. SUBSCRIPT INDICATES SWITCH LEG OR CIRCUIT TO BE CONTROLLED. REFER TO DETAIL #5/E-4.1 FOR MANUFACTURER AND MODEL NUMBER.
			DIGITAL ROOM CONTROLLER/POWER PACK WITH 0-10 VOLT DIMMING AND CAT5 CABLE CONNECTIONS. REFER TO DETAIL #5/E4.1 FOR MANUFACTURERS AND MODEL NUMBERS. LOWER CASE LETTER ADJACENT INDICATES LIGHT FIXTURES CONTROLLED.

FLOOR	WALL	CEILING	LIGHTING
			FLUORESCENT RECESSED, PENDANT OR SURFACE MOUNTED LIGHTING FIXTURE. REFER TO FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION, MOUNTING AND LAMP INFORMATION SHADED FIXTURE SYMBOLS INDICATE FIXTURE IS CONNECTED TO THE LIFE SAFETY SYSTEM.
			RECESSED LIGHTING FIXTURE. REFER TO FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION, MOUNTING AND LAMP INFORMATION. SHADED FIXTURE SYMBOLS INDICATE FIXTURE IS CONNECTED TO THE LIFE SAFETY SYSTEM.
			SURFACE LIGHTING FIXTURE. REFER TO FIXTURE SCHEDULE FOR FIXTURE DESCRIPTION, MOUNTING AND LAMP INFORMATION. SHADED FIXTURE SYMBOLS INDICATE FIXTURE IS CONNECTED TO THE LIFE SAFETY SYSTEM.
			EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS.
			EXIT SIGN; SHADED PORTION INDICATES ILLUMINATED FACE. DIRECTIONAL ARROWS AS INDICATED ON PLANS. PROVIDE MASTER/SLAVE HIGH AND LOW LEVEL EXIT SIGNS WHEREVER AN EXIT SIGN IS INDICATED ON PLANS.
			TRACK LIGHTING, SURFACE PENDANT OR CEILING MOUNTED AS INDICATED BY TYPE. PROVIDE CONFIGURATION AND NUMBER OF FIXTURES AS INDICATED ON ARCHITECTURAL DOCUMENTS. OR SPECIFICATIONS, WHICHEVER IS GREATER.

NUMBER OF CONDUCTORS AND CONDUIT SIZE

3#12,3/4"C	10 3#10,3/4"C	8 2#8,1#10G,3/4"C	6 2#6,1#10G,3/4"C
4#12,3/4"C	10 4#10,3/4"C	8 3#8,1#10G,3/4"C	6 3#6,1#10G,1"C
5#12,3/4"C	10 5#10,3/4"C	8 4#8,1#10G,3/4"C	6 4#6,1#10G,1"C
6#12,3/4"C	10 6#10,3/4"C	8 5#8,1#10G,1"C	6 5#6,1#10G,1"C
7#12,3/4"C	10 7#10,3/4"C	8 6#8,1#10G,1"C	6 6#6,1#10G,1¼"C
8#12,3/4"C	10 8#10,1"C	8 7#8,1#10G,1"C	6 7#6,1#10G,1¼"C
9#12,3/4"C	10 9#10,3/4"C	8 8#8,1#10G,1¼"C	6 8#6,1#10G,1¼"C

CONDUCTOR COUNT INCLUDES GROUNDING CONDUCTORS THAT ARE NOT INDICATED IN THE HATCH COUNT. CONDUIT SIZES ARE MINIMUM AND MAY BE INCREASED AT CONTRACTORS OPTION FOR LONG OR DIFFICULT RUNS.

ISOLATED GROUND SYSTEMS WITH 200% NEUTRALS NUMBER OF CONDUCTORS AND CONDUIT SIZE

G 1#12,1#8N,1#12G,1#12IG,3/4"C	8G 1#8,1#4N,1#10G,1#10IG,3/4"C
G 2#12,1#8N,1#12G,1#12IG,3/4"C	8G 2#8,1#4N,1#10G,1#10IG,1"C
G 3#12,1#8N,1#12G,1#12IG,3/4"C	8G 3#8,1#4N,1#10G,1#10IG,1"C
G 3#12,2#8N,1#12G,1#12IG,3/4"C	8G 3#8,2#4N,1#10G,1#10IG,1¼"C
G 4#12,2#8N,1#12G,1#12IG,3/4"C	8G 4#8,2#4N,1#10G,1#10IG,1¼"C
G 5#12,2#8N,1#12G,1#12IG,3/4"C	8G 5#8,2#4N,1#10G,1#10IG,1¼"C
G 6#12,2#8N,1#12G,1#12IG,1"C	8G 6#8,2#4N,1#10G,1#10IG,1¼"C
10G 1#10,1#6N,1#10G,1#10IG,3/4"C	6G 1#6,1#3N,1#8G,1#8IG,1"C
10G 2#10,1#6N,1#10G,1#10IG,3/4"C	6G 2#6,1#3N,1#8G,1#8IG,1"C
10G 3#10,1#6N,1#10G,1#10IG,3/4"C	6G 3#6,1#3N,1#8G,1#8IG,1¼"C
10G 3#10,2#6N,1#10G,1#10IG,1"C	6G 3#6,2#3N,1#8G,1#8IG,1¼"C
10G 4#10,2#6N,1#10G,1#10IG,1"C	6G 4#6,2#3N,1#8G,1#8IG,1¼"C
10G 5#10,2#6N,1#10G,1#10IG,1"C	6G 5#6,2#3N,1#8G,1#8IG,1½"C
10G 6#10,2#6N,1#10G,1#10IG,1"C	6G 6#6,2#3N,1#8G,1#8IG,1½"C

CONDUCTOR COUNT INCLUDES GROUNDING AND NEUTRAL CONDUCTORS THAT ARE NOT INDICATED IN THE HATCH COUNT. CONDUIT SIZES ARE MINIMUM AND MAY BE INCREASED AT CONTRACTORS OPTION FOR LONG OR DIFFICULT RUNS.

DEDICATED NEUTRALS NUMBER OF CONDUCTORS AND CONDUIT SIZE

N 1#12,1#12N,1#12G,3/4"C	8N 1#8,1#8N,1#10G,3/4"C
N 2#12,2#12N,1#12G,3/4"C	8N 2#8,1#8N,1#10G,3/4"C
N 3#12,3#12N,1#12G,3/4"C	8N 3#8,3#8N,1#10G,1"C
N 3#12,3#12N,1#12G,3/4"C	8N 3#8,3#8N,1#10G,1¼"C
N 4#12,4#12N,1#12G,3/4"C	8N 4#8,4#8N,1#10G,1¼"C
N 5#12,5#12N,1#12G,3/4"C	8N 5#8,5#8N,1#10G,1¼"C
N 6#12,6#12N,1#12G,3/4"C	8N 6#8,6#8N,1#10G,1¼"C
10N 1#10,1#10N,1#10G,3/4"C	6N 1#6,1#6N,1#10G,3/4"C
10N 2#10,2#10N,1#10G,3/4"C	6N 2#6,1#6N,1#10G,1"C
10N 3#10,3#10N,1#10G,3/4"C	6N 3#6,3#6N,1#10G,1¼"C
10N 3#10,3#10N,1#10G,3/4"C	6N 3#6,3#6N,1#10G,1¼"C
10N 4#10,4#10N,1#10G,3/4"C	6N 4#6,4#6N,1#10G,1¼"C
10N 5#10,5#10N,1#10G,1"C	6N 5#6,5#6N,1#10G,1½"C
10N 6#10,6#10N,1#10G,1"C	6N 6#6,6#6N,1#10G,1½"C

CONDUCTOR COUNT INCLUDES GROUNDING AND NEUTRAL CONDUCTORS THAT ARE NOT INDICATED IN THE HATCH COUNT. CONDUIT SIZES ARE MINIMUM AND MAY BE INCREASED AT CONTRACTORS OPTION FOR LONG OR DIFFICULT RUNS.

FLOOR	WALL	CEILING	RECEPTACLES / POWER
	(18)		MULTI-OUTLET RACEWAY WITH PREWIRED RECEPTACLES MOUNTED 12" ON CENTER UNLESS OTHERWISE NOTED. NUMBER IN (X) PARENTHESIS INDICATES DISTANCE BETWEEN DEVICES. WHERE MULTIPLE CIRCUITS ARE INDICATED CIRCUITS ALTERNATE ALONG ENTIRE LENGTH OF RACEWAY
			SIMPLEX RECEPTACLES
			DUPLEX RECEPTACLES
			QUADRUPLEX RECEPTACLE
X	X	X	SPECIAL RECEPTACLE, REFER TO SPECIAL RECEPTACLE SCHEDULE, THIS SHEET
X	X	X	QUADRUPLEX SPECIAL RECEPTACLE, REFER TO SPECIAL SCHEDULE, THIS SHEET
			CLOCK RECEPTACLE
		J	JUNCTION BOX 4" SQUARE MINIMUM FOR WALL OR CEILING MOUNTED
		J	JUNCTION BOX SIZE AS REQUIRED FOR NUMBER OF WIRES OR RACEWAYS
P	P	P	SYSTEM FURNITURE POWER FEED, REFER TO DETAIL FOR RACEWAY AND BOX REQUIREMENTS.

LETTER	RATING	NEMA	SPECIAL RECEPTACLE DESCRIPTION SCHEDULE NOTE: NUMBER OF WIRES INCLUDE GROUND.
A	125V, 1ø, 30A, 2P, 3W	5-30R	WITH 5-30P PLUG
C	125V, 1ø, 20A, 2P, 3W	L5-20R	WITH L5-20P PLUG
B	125V, 1ø, 50A, 2P, 3W	5-50R	WITH 5-50P PLUG
D	125/250V, 1ø, 20A, 2P, 4W	14-20R	WITH 14-20P PLUG
F	125/250V, 1ø, 30A, 2P, 4W	14-30R	WITH 14-30P PLUG
GF	125V, 1ø, 20A, 2P, 3W	5-20R	GROUND FAULT INTERRUPTING
J	250V, 1ø, 20A, 2P, 3W	6-20R	WITH 6-20P PLUG
K	250V, 1ø, 30A, 2P, 3W	L6-30R	WITH L6-30P PLUG
L			'L' INDICATES ASSOCIATED RECEPTACLE IS LOCKING TYPE, PROVIDE MATCHING PLUG FOR EACH RECEPTACLE.
M	250V, 1ø, 50A, 2P, 3W	6-50R	WITH 6-50P PLUG
N	250V, 3ø, 20A, 3P, 4W	15-20R	WITH 15-20P PLUG
O	250V, 1ø, 15A, 2P, 3W	6-15R	WITH 6-15P PLUG
P	250V, 3ø, 30A, 3P, 4W	15-30R	WITH 15-30P PLUG
R	250V, 3ø, 50A, 3P, 4W	15-50R	WITH 15-50P PLUG
S	480V, 3ø, 30A, 3P, 4W	L16-30R	WITH L12-30P PLUG
T	125V, 1ø, 20A, 2P, 3W	5-20R	ISOLATED GROUND WITH INTEGRAL TRANSIENT SUPPRESSER AND DEDICATED GREEN/YELLOW CONDUCTOR BACK TO GROUND BUS AT PANEL.
Z	125V, 1ø, 20A, 2P, 3W	5-20R	DEDICATED CIRCUIT
X	480V, 3ø, 20A, 3P, 4W	L16-20R	WITH L16-20R PLUG

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LICENSED ARCHITECT — LEIGH ANNE JONES — No. C-30082 — 01-31-2019 RENEWAL DATE — STATE OF CALIFORNIA

ELECTRICAL SYMBOLS AND ABBREVIATIONS
MEDIA COMMUNICATIONS BUILDING REMODEL

E0.2
75-18008.00
12/21/2018
Revisions

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AC-MC-1
AC-MC-2
100AS 3P WP
30AS 3P WP
AC-MC-3
AC-MC-4
100AS 3P WP
200AS 3P WP
CONTROL PANEL
ROOF

SINGLE LINE DIAGRAM LEGEND
NEW WORK
EXISTING

DIMMER RACK PROVIDED BY THEATRICAL CONTRACTOR
DP
CB 400AF 400AT 3P
PRODUCTION LIGHTING COMPANY SWITCH WITH CAM-LOCK PANEL
60AS 3P
60AS 3P
60AS 3P
60AS 3P
LA-MC
LB-MC
LE-MC
LB-MC
LA-MC
100AF 60AT 3P 1
100AF 60AT 3P 2
100AF 60AT 3P 3
100AF 60AT 3P 4
400AF 400AT 3P 5
225AF 150AT 3P 6
225AF 225AT 3P 7
225AF 150AT 3P 8
125AF 125AT 3P 9
1200AT 1200AF 3P
DBLB-MC
1200 AMP BUS
208/120V, 3ø-4W
CONNECTED LOAD = 346.97 AMPS

HA-MC
IT-MC
75KVA
K-13 RATED
ISO TRANSF.
DT-MC
300 KVA
480-208/120V, 3ø-4W
K13
RATED

SPARE
400AF 400AT 3P 1
100AF 70AT 3P 2
100AF 30AT 3P 3
125AF 125AT 3P 4
600AF 450AT 3P 5
225AF 70AT 3P 6
225AF 225AT 3P 7
400AF 300AT 3P 8
400AF 300AT 3P 9
CONNECTED LOAD = 715.4 AMPS
800AF 800AT 3P
DBLA-MC
800 AMP BUS
480/277V, 3ø-4W

SPARE SPARE SPARE SPARE SPARE
225AF 150AT 3P 1
225AF 225AT 3P 2
225AF 150AT 3P 3
225AF 150AT 3P 4
225AF 150AT 3P 5
225 3P
225 3P
225 3P
400AF 400AT 3P
DBUPS2-MC
400 AMP BUS
208/120V, 3ø-4W
CONNECTED LOAD = 185.42 AMPS

LC-MC
LD-MC
SPARE SPARE SPARE SPARE SPARE SPARE
225AF 150AT 3P 1
225AF 150AT 3P 2
225AF 150AT 3P 3
225AF 150AT 3P 4
225AF 150AT 3P 5
225 3P
225 3P
225 3P
400AF 400AT 3P 1
DBLC-MC
400 AMP BUS
208/120V, 3ø-4W
CONNECTED LOAD = 119.36 AMPS

TUPS-MC
112.5 KVA
480-208/120V, 3ø-4W
TP1
RATED
T-MC
112.5 KVA
480-208/120V, 3ø-4W
K13
RATED
200AS 3P

OFCI 450KW GENERATOR
800A/3P
10
BATTERY CHARGER & JACKET HEATER.
LB-MC-36,38,40,42 CONDUCTORS VIA (E)T.C.
REMOTE ANNUNCIATOR IN ROOM #MC-143.
ATS 480/277V., 3ø, 4W. 800A.
HB-MC

SPARE SPARE SPARE
125AF 125AT 3P 1
225AF 175AT 3P 2
100AF SPACE 3P 3
225AF 175AT 3P 4
125AF 125AT 3P 5
225AF 225AT 3P 6
225AF 225AT 3P 7
400AF 300AT 3P
DBUPS1-MC
400 AMP BUS
480/277V, 3ø-4W
CONNECTED LOAD = 204.24 AMPS

CB3
CB1
CB2
160 KVA UPS W/ STATIC SWITCH (OFCI)
MAINTENANCE BYPASS SWITCH "MBS" 400A, 480V, 3ø, 3W 42KAIC

PAD MOUNTED OIL TRANSFORMER WITH BUILT IN DISCONNECT SWITCH
T-MH
750 KVA
4160-480/277V, 3ø-4W W.P.
NEMA 3R
(E)EMH-8

SPARE SPARE
225AF 225AT 1
800AF 800AT 3P 2
100AF 40AT 3P 3
225AF 125AT 3P 4
225AF 175AT 3P 5
225AF 225AT 3P 6
225AF 225AT 3P 7
1200
GFP
TVSS
MS-MC
1200 AMP BUS
480/277V, 3ø-4W
NEMA 3R
CONNECTED LOAD = 869.56 AMPS

MDF
IDF
IDF
ELEC. RM. GROUND LOOP
BUILDING STEEL OR REBAR
DRIVEN GROUND ROD
COLD WATER GROUND
UFER GROUND

GROUND FLOOR

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No. C-29088
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

ELECTRICAL SINGLE LINE DIAGRAM
MEDIA COMMUNICATIONS BUILDING REMODEL

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SHEET NOTES

1. DISCONNECT AND REMOVE EXISTING LIGHT FIXTURE AND ASSOCIATED CONDUIT AND CONDUCTORS BACK TO NEAREST J-BOX FOR RE-USE IN CONNECTING NEW FIXTURES. REFER TO LIGHTING REMODEL PLAN FOR ADDITIONAL INFORMATION.
2. DISCONNECT AND REMOVE EXISTING LIGHT SWITCH. PROVIDE BLANK COVER PLATE AT EXISTING LOCATION.
3. DISCONNECT AND REMOVE RECEPTACLE AND ALL CONDUIT AND WIRING BACK TO EXISTING DEVICE OR SOURCE.
4. DISCONNECT AND REMOVE EXISTING FIRE ALARM DEVICE AND ASSOCIATED WIRING AND RACEWAYS BACK TO EXISTING DEVICE OR SOURCE.

N

ELECTRICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

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ELECTRICAL DEMOLITION PLAN
MEDIA COMMUNICATIONS BUILDING REMODEL

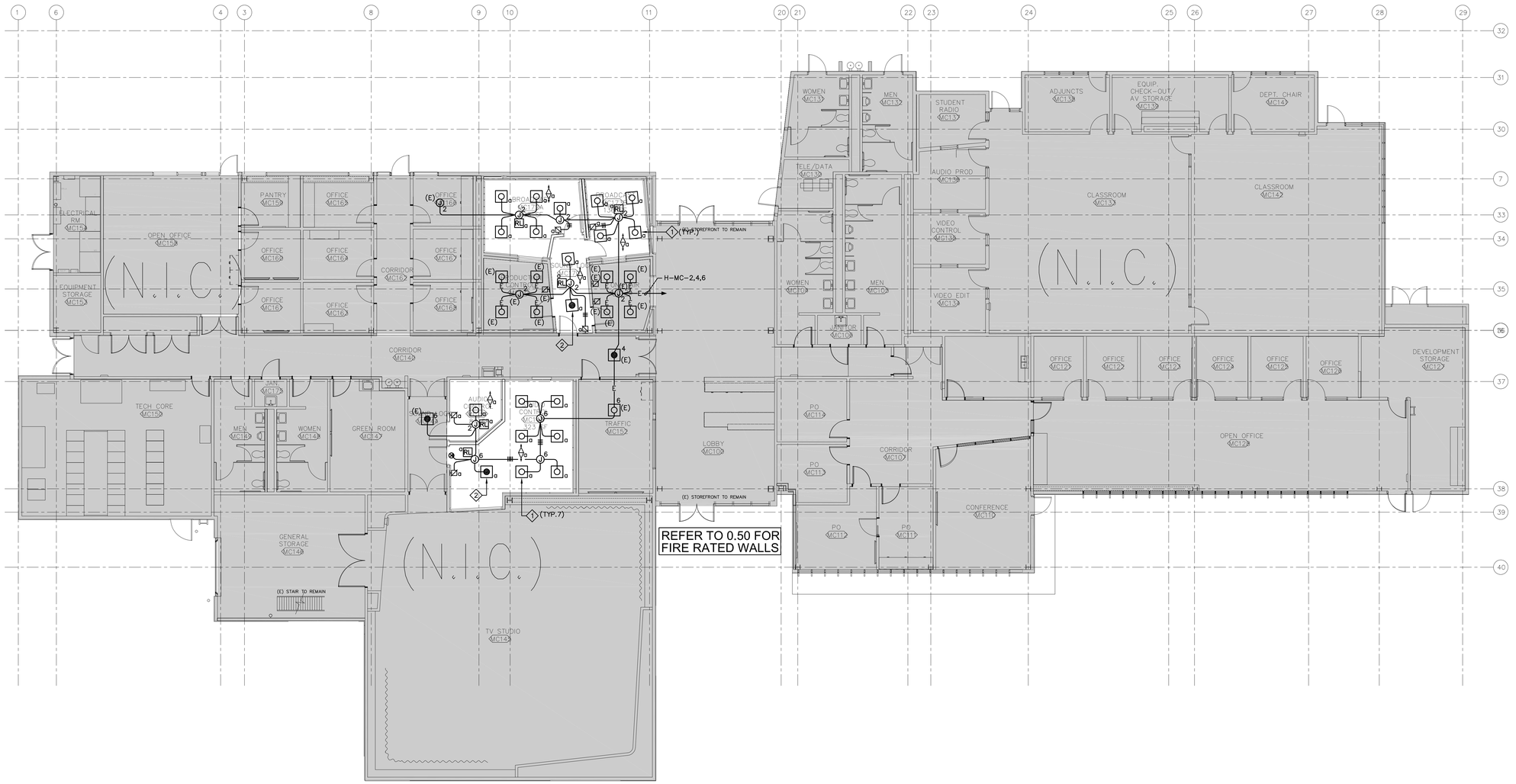
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N

LIGHTING PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

1. 2x2 RECESSED LED FIXTURE WITH CENTER BASKET (H.E. WILLIAMS #LT-22-L39-835-AF-DIM-UNV).
2. 2x2 RECESSED LED FIXTURE WITH CENTER BASKET AND EMERGENCY BATTERY. (H.E. WILLIAMS #LT-22-L39-835-AF-DIM-UNV-EM/10W).

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MEDIA COMMUNICATIONS BUILDING REMODEL

LIGHTING PLAN

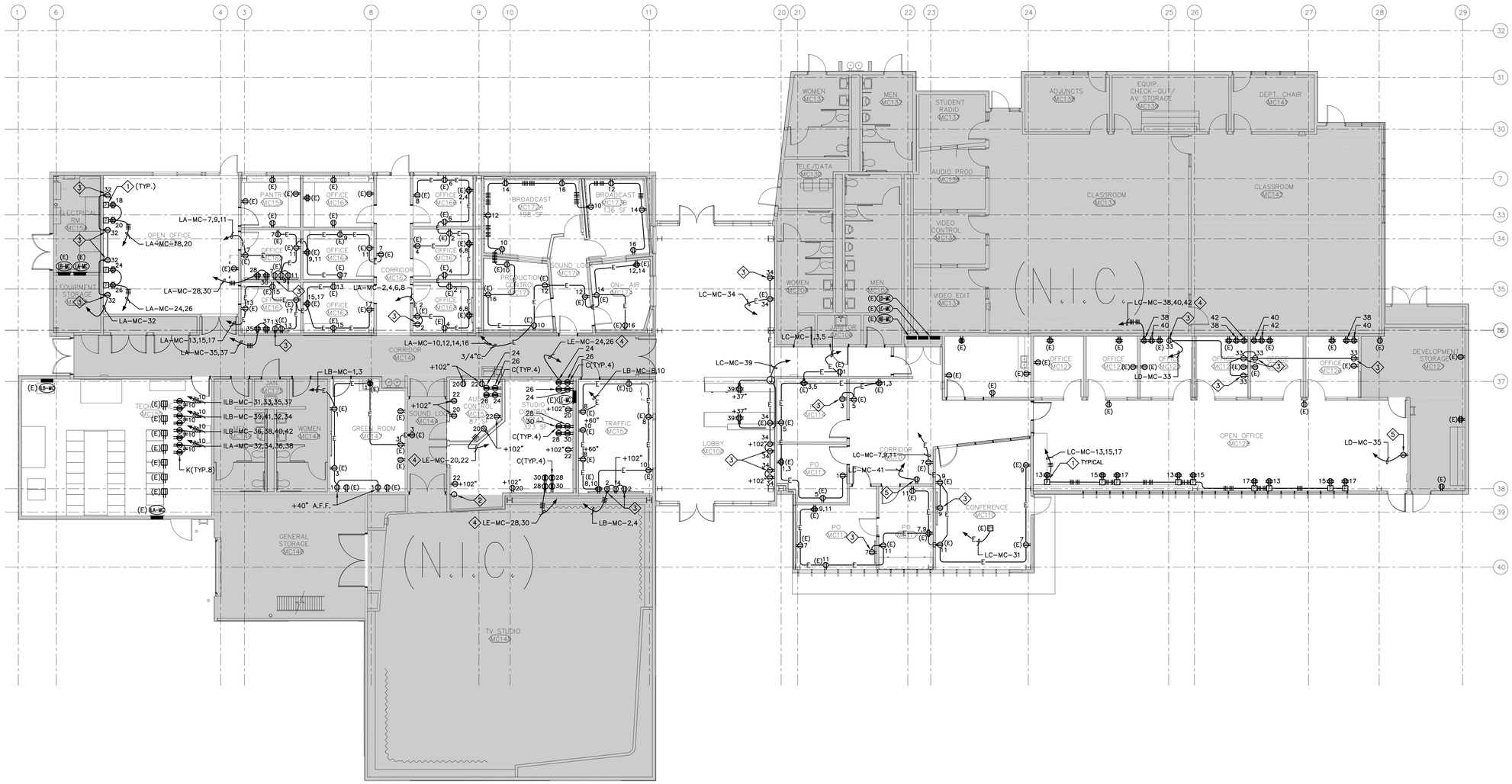
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SHEET NOTES

1. JUNCTION BOX FOR CONNECTION TO SYSTEMS FURNITURE. COORDINATE LOCATION AND ROUGH IN REQUIREMENTS WITH FURNITURE CONSULTANT AND ARCHITECT.
2. EXISTING THEATRICAL LIGHTING CONTROL PANEL.
3. RECEPTACLE FOR MONITOR. VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
4. CIRCUITS SHOWN ON HOMERUN SHALL BE EXTENDED AND CONNECTED TO DEVICES WHERE CIRCUITS ARE SHOWN. ALL CONDUITS, CONDUCTORS, BOXES ETC. AS REQUIRED FOR A COMPLETE INSTALLATION.
5. FOR COPIER. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

N

POWER PLAN

SCALE: 1/8" = 1'-0"

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POWER PLAN

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DCGA #18074



N

COMMUNICATION PLAN

SCALE: 1/8" = 1'-0"

SHEET NOTES

1. AUDIO/VIDEO WALL BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE (5)2"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
2. AUDIO/VIDEO FLOOR BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
3. AUDIO/VIDEO WALL BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE (2)3"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
4. AUDIO/VIDEO WALL BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE (2)2"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
5. CLOCK WALL BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE 1"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
6. AUDIO/VIDEO WALL BOX FOR FUTURE OWNER PROVIDED EQUIPMENT. VERIFY EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN. PROVIDE 1"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
7. EXISTING SPEAKER WALL BOX. VERIFY EXACT LOCATION IN FIELD. PROVIDE 3/4"C. STUBBED UP INTO ACCESSIBLE CEILING SPACE TO NEAREST EXISTING AV CABLE TRAY.
8. DATA OUTLET FOR MONITOR. VERIFY EXACT LOCATION AND MOUNTING HEIGHT WITH ARCHITECT PRIOR TO ROUGH-IN.
9. FOR COPIER. VERIFY EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.

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LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-29068
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

COMMUNICATION PLAN

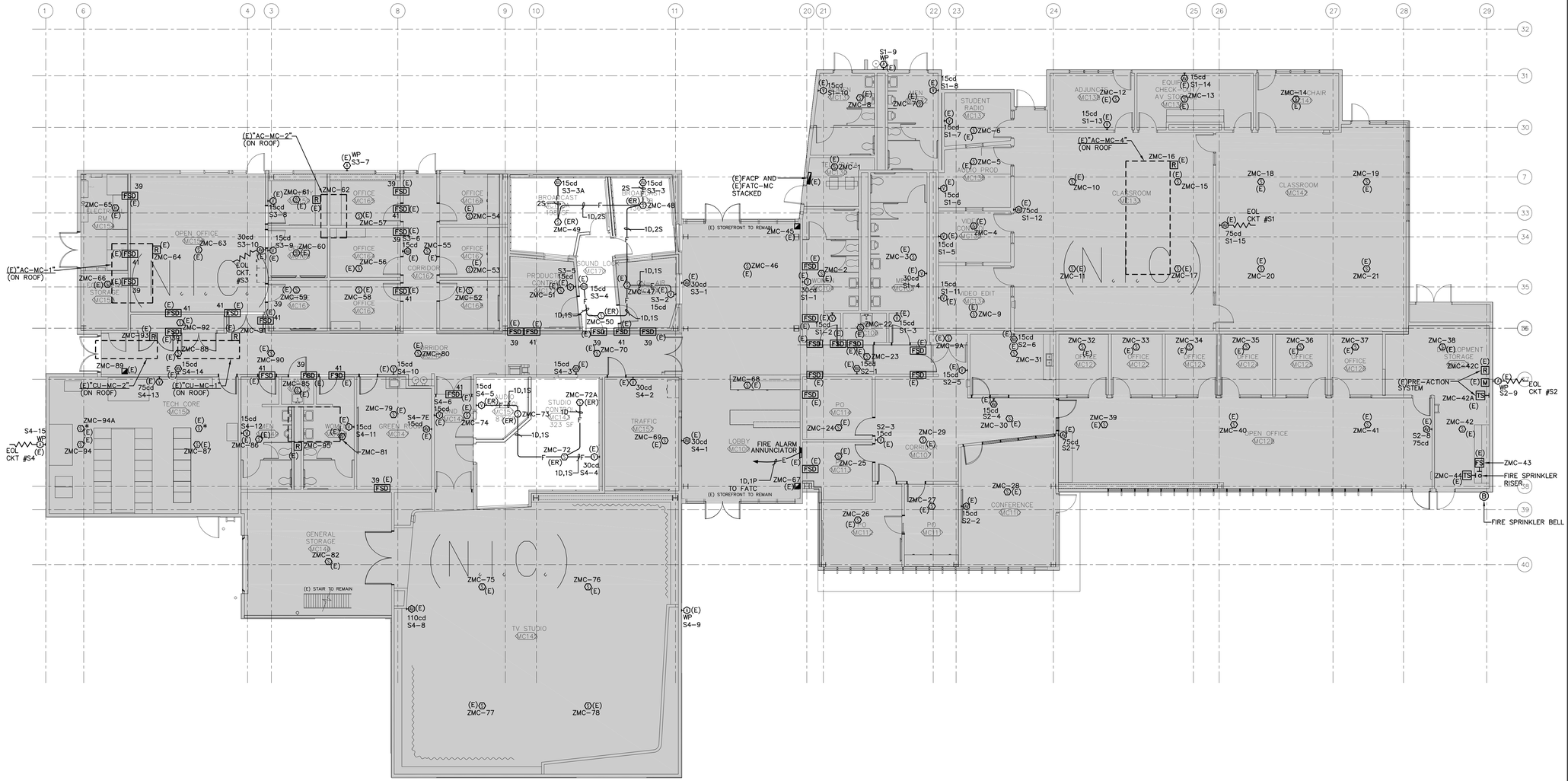
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N

FIRE ALARM PLAN

SCALE: 1/8" = 1'-0"

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FIRE ALARM PLAN
MEDIA COMMUNICATIONS BUILDING REMODEL

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SEQUENCE OF OPERATION

DEVICE / ACTION	MANUAL PULL STATION	SMOKE DETECTOR	120VAC POWER FAILURE	HEAT DETECTOR	FLOW SWITCH	TAMPER SWITCH	CONTROL MODULE
SOUND CONTROL PANEL TROUBLE BUZZER	ON WIRING FAULT	ON WIRING FAULT	YES	ON WIRING FAULT	ON WIRING FAULT	ON WIRING FAULT	ON WIRING FAULT
ANNUCIATE AT ADMINISTRATION BUILDING	YES	YES	YES	YES	YES	YES	YES
ANNUNCIATE AT FIRE CONTROL PANEL (ALARM OR TROUBLE)	YES	YES	YES	YES	YES	YES	YES
ACTIVATE AUDIBLE/ VISUAL ALARM SIGNAL THROUGH-OUT BUILDINGS	YES	YES	NO	YES	YES	NO	YES
SHUT DOWN HVAC UNITS & CLOSE FIRE/ SMOKE DAMPERS	NO	YES	NO	NO	NO	NO	YES
NOTIFY OFF-SITE MONITORING COMPANY	YES	YES	NO	YES	YES	YES	YES

FIRE ALARM WIRE LEGEND

SYMBOL	DESCRIPTION	TYPE
D	DATA LINE – INITIATING DEVICE	16/4 TWISTED SHIELDED PR (TSP) DATA LOOP
P	POWER CIRCUIT	2#12 THWN
S	SIGNAL CIRCUIT	2#12 THWN

FIRE ALARM LEGEND

(E)FACP	EXISTING FIRE ALARM CONTROL PANEL — NOTIFIER: #NFS-640 CSFM #7165-0028:0243
(E)FAA	EXISTING FIRE ALARM ANNUNCIATOR — NOTIFIER: LCD-160 CSFM #7120-0028:0227
(E)	EXISTING FIRE ALARM MANUAL PULL STATION — NOTIFIER: NBG-12LX CSFM #7150-0028:0199
S (E)	EXISTING PHOTOELECTRIC SMOKE DETECTOR — NOTIFIER: FSP-851 CSFM #7272-0028:0206
H (E)	EXISTING HEAT DETECTOR MOUNTED IN CEILING SPACE — NOTIFIER: FST-851 CSFM #7270-0028:0196
FSD (E)	EXISTING COMBINATION FIRE/SMOKE DAMPER
(E) V 15	EXISTING FIRE ALARM STROBE LIGHT — WHEELOCK: RSS24MCW-FR CSFM #7125-0785:0141
(E) V 30	EXISTING FIRE ALARM STROBE LIGHT — WHEELOCK: RSS24MCW-FR CSFM #7125-0785:0141
AV 15	COMBINATION HORN/STROBE LIGHT, MOUNT AT +80"A.F.F. OR 6" BELOW CEILING, WHICHEVER IS LOWER. — WHEELOCK: AS24-MCW-FR CSFM #7125-0785:0131
(E) AV 30	EXISTING COMBINATION HORN/STROBE — WHEELOCK: AS24-MCW-FR CSFM #7125-0785:0131
(E) AV 75	EXISTING COMBINATION HORN/STROBE — WHEELOCK: AS24-MCW-FR CSFM #7125-0785:0131
(E) AV 110	EXISTING COMBINATION HORN/STROBE — WHEELOCK: AS24-MCW-FR CSFM #7125-0785:0131
(E) A WP	EXISTING FIRE ALARM HORN WEATHERPROOF — WHEELOCK: AH-24WP-R CSFM #7125-0785:0131
(E) TS	EXISTING TAMPER SWITCH
(E) FS	EXISTING FLOW SWITCH
(E) M	EXISTING MONITOR MODULE — NOTIFIER: FMM-1 CSFM #7300-0028:0219
(E) R	EXISTING CONTROL MODULE — NOTIFIER: FCM-1 CSFM #7300-0028:0219
EOL	END OF LINE RESISTOR (10 OHMS)
S1	INDICATES SIGNAL CIRCUIT NUMBER ONE
Z1-XX	INDICATES ADDRESS NUMBER
—F—	FIRE ALARM SYSTEM CONDUIT RUN (3/4" CONDUIT MINIMUM UNLESS INDICATED OTHERWISE ON DRAWINGS) AND REQUIRED WIRING.
(E)FATC	EXISTING FIRE ALARM TERMINAL CABINET

FIRE ALARM REQUIREMENTS

1. THE CONTRACTOR SHALL PROVIDE AND SUBMIT THE FIRE ALARM INSTALLATION SHOP DRAWINGS TO THE ARCHITECT FOR REVIEW AND APPROVAL PRIOR TO INSTALLATION OF THE FIRE ALARM SYSTEM. ANY CHANGES MADE TO THE DSA APPROVED DOCUMENTS SHALL BE SUBMITTED TO DSA FOR REVIEW AND APPROVAL. THE SUBMITTAL SHALL CONTAIN THE FOLLOWING:
   - A. SHOP DRAWINGS: COMPLETE 1/8" SCALE FLOOR PLANS SHOWING ALL DEVICES, COMPONENTS, CONDUIT AND WIRING INDICATING A COMPLETE AND OPERABLE SYSTEM AS DESIGNED AND SPECIFIED. REPRODUCED COPIES OF BID SET FIRE ALARM PLANS ARE NOT ACCEPTABLE AS SHOP DRAWINGS. SHOP DRAWINGS MUST ALSO INDICATE DEVICE MOUNTING HEIGHTS, ROOM NAMES AND NUMBERS AND THE LOCATION OF ALL FIRE RATED WALLS.
   - B. ELECTRICAL CONTRACTOR'S AND FIRE ALARM SYSTEM INSTALLER'S NAME, ADDRESS, PHONE NUMBER AND C-10 LICENSE NUMBER.
   - C. LIST OF SYSTEM COMPONENTS, EQUIPMENT AND DEVICES, INCLUDING MANUFACTURERS' MODEL NUMBER(S) AND CALIFORNIA STATE FIRE MARSHALL LISTING NUMBERS.
   - D. ORIGINAL COPIES OF MANUFACTURERS' SPECIFICATION SHEETS FOR ALL EQUIPMENT AND DEVICES INDICATED.
   - E. VOLTAGE DROP CALCULATIONS -- INCLUDE THE FOLLOWING INFORMATION FOR THE WORST CASE:
     1. POINT-TO-POINT OR OHMS LAW CALCULATIONS.
     2. IDENTIFICATION OF ZONE USED IN CALCULATIONS.
     3. VOLTAGE DROP PERCENT [NOT TO EXCEED MANUFACTURERS' REQUIREMENTS].

        NOTE: IF VOLTAGE DROP EXCEEDS 10% INDICATE MANUFACTURERS' LISTED OPERATING VOLTAGE RANGE(S) FOR EQUIPMENT AND DEVICES.
     4. NOTE CIRCUIT NUMBER FOR WORST CASE CALCULATION.
   - F. BATTERY TYPE(S), AMP HOURS AND LOAD CALCULATIONS -- INCLUDE THE FOLLOWING INFORMATION:
     1. NORMAL OPERATION: 100% OF APPLICABLE DEVICES FOR 24 HOURS = CONTROL PANEL AMPS PLUS LIST OF AMPS PER DEVICE WHICH DRAW POWER FROM THE PANEL DURING STANDBY POWER CONDITION -- I.E.:
        - A. ZONE MODULES
        - B. DETECTORS
        - C. OTHER DEVICES [IDENTIFY]
     2. ALARM CONDITION: 100% OF APPLICABLE DEVICES FOR 5 MINUTES = CONTROL PANEL AMPS PLUS LIST OF AMPS PER DEVICE WHICH DRAW POWER FROM THE PANEL DURING ALARM CONDITION -- I.E.:
        - A. ZONE MODULES
        - B. SIGNAL MODULES
        - C. DETECTORS
        - D. SIGNAL DEVICES
        - E. ANNUNCIATOR
        - F. OTHER DEVICES [IDENTIFY]
     3. NORMAL OPERATION + ALARM OPERATION
        - A. TOTAL AMP HOURS REQUIRED.
        - B. TOTAL AMP HOURS PROVIDED.
2. THE MANUFACTURERS INDICATED ON DRAWINGS AND IN SPECIFICATIONS ARE THE ORS/DSA APPROVED MANUFACTURER OF THIS PROJECT. THE NOTIFIER SYSTEM INDICATED IS THE DISTRICT STANDARD AND NO SUBSTITUTIONS WILL BE ACCEPTED.

FIRE ALARM NOTES

1. SCOPE OF WORK: PROVIDE A COMPLETE AUTOMATIC FIRE ALARM SYSTEM IN ACCORDANCE TO 2016 NFPA-72 AND CCR TITLE 24, PART 2, SECTION 907.2.3.
2. A FIRE ALARM SYSTEM IS BEING EXPANDED IN OCCUPANCIES LISTED. PROVIDE ALL NECESSARY COMPONENTS TO THE EXISTING FIRE ALARM SYSTEM INCLUDING ALL MODULES, NETWORK CARDS, ETC. FOR A COMPLETE AND OPERABLE SYSTEM.
3. PLANS AND SPECIFICATIONS FOR THE SYSTEM SHALL BE APPROVED BY DSA-FIRE AND LIFE SAFETY PRIOR TO SYSTEM INSTALLATION.
4. UPON RECEIPT OF THE CERTIFICATE OF COMPLIANCE, THE MANUFACTURER AND OR INSTALLER SHALL SUPPLY THE OWNER WITH WRITTEN OPERATING, TESTING AND MAINTENANCE INSTRUCTIONS, POINT-TO-POINT AS-BUILT DRAWINGS, AND EQUIPMENT SPECIFICATIONS.
5. THE SYSTEM SHALL CONFORM TO TITLE 19 AND TITLE 24 AS APPLICABLE TO THIS PROJECT.
6. ALL THE DEVICES OF THE FIRE ALARM SYSTEM SHALL BE APPROVED AND LISTED BY THE CALIFORNIA STATE FIRE MARSHAL.
7. A STAMPED SET OF APPROVED PLANS SHALL BE ON THE JOB SITE AND USED FOR INSTALLATION. ANY DEVIATION FROM APPROVED PLANS, SHALL BE APPROVED AND SIGNED BY THE DSA INSPECTOR OF RECORD.
8. ANY DISCREPANCIES BETWEEN THE DRAWINGS AND THE CODE OR RECOGNIZED STANDARDS SHALL BE BROUGHT TO THE ATTENTION OF THE INSPECTOR OR RECORD.
9. CONDUIT SYSTEM TO BE FURNISHED AND INSTALLED PER PLANS AND SPECIFICATIONS.
10. UPON COMPLETION OF SYSTEM INSTALLATION, THE SYSTEM SHALL BE TESTED IN THE PRESENCE OF AND IN A MANNER ACCEPTABLE TO THE ENFORCING AGENCY.
11. PENETRATIONS OF FIRE-RATED WALLS SHALL BE PROTECTED IN ACCORDANCE WITH 2016 EDITION CALIFORNIA BUILDING CODE, CHAPTER 7.
12. ALL EQUIPMENT SHALL BE U.L. AND C.S.F.M. LISTED.
13. ALL WIRING SHALL BE IN ACCORDANCE WITH THE C.E.C. AND AUTHORITIES HAVING JURISDICTION.
14. ALL FIRE ALARM CONDUIT SHALL BE 3/4"C MIN., U.O.N. ALL FIRE ALARM CONDUIT INSTALLED UNDERGROUND SHALL BE 1"C MIN. U.O.N. ALL FIRE ALARM CONDUCTORS SHALL BE INSTALLED IN AN APPROVED RACEWAY.
15. ALL AUDIBLE DEVICES SHALL BE IN SYNCHRONOUS.
16. VISUAL DEVICES SHALL NOT EXCEED 3 FLASHES PER SECOND AND SHALL NOT BE SLOWER THAN 1 FLASH EVERY SECOND. THEY SHALL BE SYNCHRONOUS.
17. UNDERGROUND AND EXTERIOR CONDUITS SHALL HAVE WATERTIGHT FITTINGS.
18. AUDIBLE DEVICES SHALL BE AT LEAST 15dBA ABOVE THE EQUIVALENT SOUND LEVEL BUT NOT LESS THAN 75dBA AT 10' OR MORE THAN 110dBA AT THE MINIMUM HEARING DISTANCE.
19. AUDIBLE DEVICES SHALL SOUND THE CALIFORNIA TEMPORAL FIRE ALARM SIGNAL.
20. COORDINATE EXACT LOCATION OF ALL CEILING FIRE ALARM DEVICES IN FIELD.
21. CIRCUIT LENGTH INDICATED ON DRAWING IS FOR PLAN CHECK PURPOSES ONLY. CONTRACTOR SHALL FIELD VERIFY EXACT LENGTH.
22. ALL JUNCTION BOXES SHALL BE SIZED IN ACCORDANCE WITH THE C.E.C.
23. ELECTRICAL CONTRACTOR SHALL FURNISH ACCESS PANELS TO AREAS THAT REQUIRE SERVICING, TROUBLE SHOOTING, ETC., AS REQUIRED. COORDINATE WITH ARCHITECT FOR ACCESS PANEL.
24. ALL 120VAC POWER REQUIREMENTS FOR THE FIRE ALARM SYSTEM SHALL BE FURNISHED BY CONTRACTOR AND SHALL MEET ALL REQUIREMENTS OF THE AUTHORITIES HAVING JURISDICTION.
25. ALL WIRING, ANNUNCIATING DEVICES AND ANNUNCIATOR PANEL SHALL BE SUPERVISED TO THE PRINCIPLE POINT OF ANNUNCIATION. THE FIRE ALARM CONTROL PANEL TO SUPERVISE THE ANNUNCIATOR PANEL, ALL INITIATING AND INDICATING DEVICE CIRCUITS.
26. ALL WIRING SHALL BE CUT FOR IN AND OUT. WIRING SHALL NOT BE LOOPED THROUGH DEVICES.
27. FIRE ALARM SYSTEMS SHALL TRANSMIT THE ALARM, SUPERVISORY AND TROUBLE SIGNALS TO AN APPROVED SUPERVISING STATION AS REQUIRED BY NFPA 72 AS AMENDED BY ARTICLE 91. THE SUPERVISING STATION SHALL BE LISTED AS EITHER UUFX OR UUJS BY UNDERWRITERS LABORATORY OR SHALL MEET THE REQUIREMENTS OF FACTORY MUTUAL RESEARCH APPROVAL STANDARD 3011. SUPERVISION OF SYSTEM AND LEASED TELEPHONE LINES SHALL BE ARRANGED BY OWNER.
28. FIRE SPRINKLER WILL BE USED IN LIEU OF ATTIC HEAT DETECTORS.
29. UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBERS SHALL BE CUT, DRILLED, NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DISTRICT STRUCTURAL ENGINEER FROM THE DIVISION OF THE STATE ARCHITECT.

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STATE OF CALIFORNIA

FIRE ALARM NOTES AND SYMBOL LIST
MEDIA COMMUNICATIONS BUILDING REMODEL

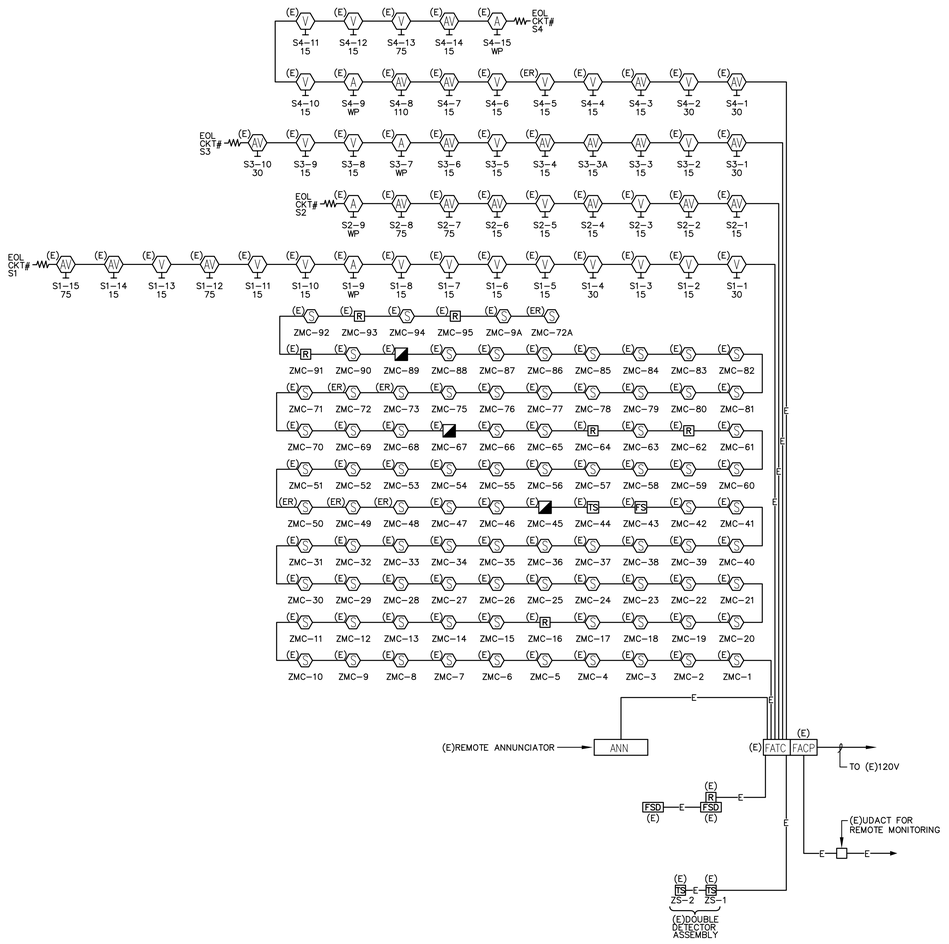
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FIRE ALARM RISER DIAGRAM

NO SCALE

FOR DEVICE LOCATION AND QUANTITY, SEE FIRE ALARM FLOOR PLAN DRAWINGS.

NFS640 Battery Calculations
MEDIA/COMMUNICATIONS
(E)FACP-1 Data Loop 1

Description	Quantity		Standby (Amps)		Total Standby (Amps)		Alarm (Amps)	Total Alarm (Amps)
EXISTING LOAD					0.494525			7.823125
NBG-12LX PULL STATION	0	x	0.000375		0.000000	x	0.000375	0.000000
FSP-851 PHOTO SMOKE	0	x	0.000250		0.000000	x	0.006500	0.000000
FST-851 HEAT DETECTOR	0	x	0.000200		0.000000	x	0.006500	0.000000
FSD-751P DUCT DETECTOR	0	x	0.000300		0.000000	x	0.006500	0.000000
FMM-1 MONITOR MODULE	0	x	0.000270		0.000000	x	0.005000	0.000000
FCM-1 CONTROL MODULE	0	x	0.000270		0.000000	x	0.005000	0.000000
FRM-1 RELAY MODULE	0	x	0.000270		0.000000	x	0.005000	0.000000
AH SERIES HORN (HIGH)	0	x	0.000000		0.000000	x	0.050000	0.000000
RSS-24MCW 15cd	0	x	0.000000		0.000000	x	0.041000	0.000000
RSS-24MCW 30cd	0	x	0.000000		0.000000	x	0.063000	0.000000
RSS-24MCW 75cd	0	x	0.000000		0.000000	x	0.109000	0.000000
RSS-24MCW 110cd	0	x	0.000000		0.000000	x	0.140000	0.000000
AS-24MCW 15cd	2	x	0.000000		0.000000	x	0.093000	0.186000
AS-24MCW 30cd	0	x	0.000000		0.000000	x	0.114000	0.000000
AS-24MCW 75cd	0	x	0.000000		0.000000	x	0.157000	0.000000
AS-24MCW 110cd	0	x	0.000000		0.000000	x	0.197000	0.000000
Total:					0.494525			8.009125

Battery Calculation	Time Multiplier				Amp Hours
Supervisory Hours	24	x	0.494525	=	11.868600
Alarm Hours	0.083	x	8.009125	=	0.664757375
Total Amp Hours				=	12.533357
Battery Used (AH)				=	24.000000
Battery Spare (AH)				=	11.466643

Voltage Drop Calculations
MEDIA/COMMUNICATIONS
(E)FACP Signal Circuit S3

Description	Quantity		Alarm (Amps)		Total Alarm (Amps)
AH SERIES HORN (HIGH)	1	x	0.062000		0.062000
RSS-24MCW 15cd	4	x	0.041000		0.164000
RSS-24MCW 30cd	0	x	0.063000		0.000000
RSS-24MCW 75cd	0	x	0.109000		0.000000
RSS-24MCW 110cd	0	x	0.140000		0.000000
AS-24MCW 15cd	4	x	0.093000		0.372000
AS-24MCW 30cd	2	x	0.114000		0.228000
AS-24MCW 75cd	0	x	0.157000		0.000000
AS-24MCW 110cd	0	x	0.197000		0.000000
Total Current Draw:				=	0.826000
Wire Size 14	0	x	4110	=	0
Wire Size 12	1	x	6530	=	6530
Wire Used Circular Mills				=	6530
Distance to End of Circuit:				=	270
Multiplier				=	21.6
Voltage				=	24
Multiplier				=	4.166
Percentage Voltage Drop				=	3.073

Voltage Drop Calculations
MEDIA/COMMUNICATIONS
(E)FACP Signal Circuit S4

Description	Quantity		Alarm (Amps)		Total Alarm (Amps)
AH SERIES HORN (HIGH)	2	x	0.062000		0.124000
RSS-24MCW 15cd	7	x	0.041000		0.287000
RSS-24MCW 30cd	1	x	0.063000		0.063000
RSS-24MCW 75cd	1	x	0.109000		0.109000
RSS-24MCW 110cd	0	x	0.140000		0.000000
AS-24MCW 15cd	2	x	0.093000		0.186000
AS-24MCW 30cd	1	x	0.114000		0.114000
AS-24MCW 75cd	0	x	0.157000		0.000000
AS-24MCW 110cd	1	x	0.197000		0.197000
Total Current Draw:				=	1.080000
Wire Size 14	0	x	4110	=	0
Wire Size 12	1	x	6530	=	6530
Wire Used Circular Mills				=	6530
Distance to End of Circuit:				=	510
Multiplier				=	21.6
Voltage				=	24
Multiplier				=	4.166
Percentage Voltage Drop				=	7.590

COMPLETE AUTOMATIC FIRE ALARM SYSTEM WITH SUPPLEMENTAL SMOKE DETECTION PLAN SUBMITTAL PER DSA POLICY 95-03(FLS)

DSA SUBMITTAL

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FIRE ALARM RISER DIAGRAM AND CALCULATIONS
MEDIA COMMUNICATIONS BUILDING REMODEL

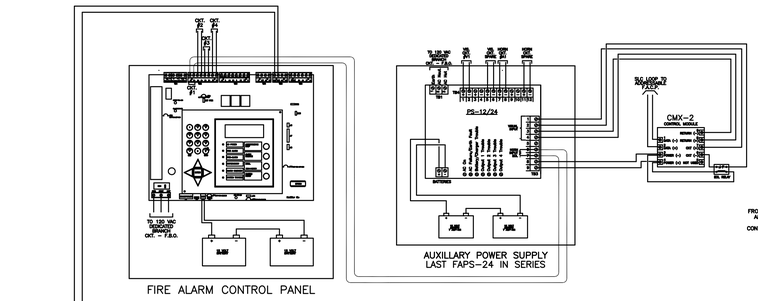
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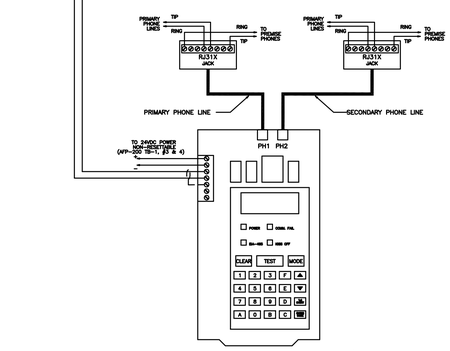
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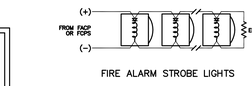


FIRE ALARM CONTROL PANEL

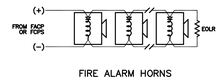
FIRE ALARM CONTROL PANEL – NFS 640



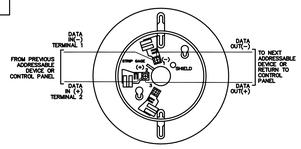
UNIVERSAL DIGITAL ALARM COMMUNICATOR/TRANSMITTER



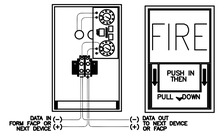
FIRE ALARM STROBE LIGHTS



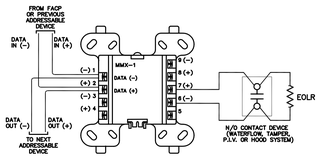
FIRE ALARM HORNS



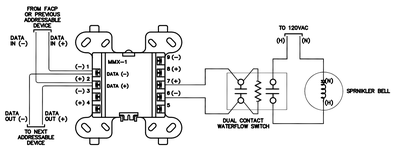
ADDRESSABLE SMOKE/HEAT DETECTOR WIRING



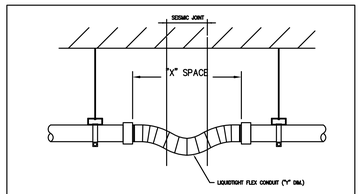
MANUAL PULL STATION



MMX-1 MONITOR MODULE WIRING



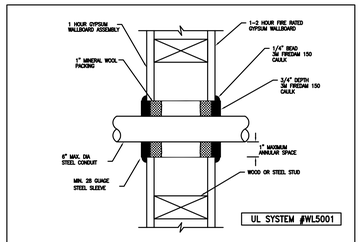
MMX-1 MONITOR MODULE WIRING



CONDUIT SIZE	"X" SPACE	"Y" FLEX. LENGTH
3/4" – 1-1/4"	24"	+60"
1-1/2"	30"	+66"
2"	36"	+72"
3"	78"	+90"
4"	9"	+120"

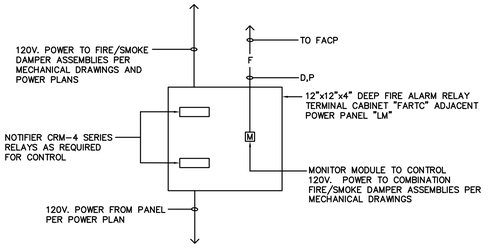
N.T.S.

CONDUIT RUN CROSSING SEISMIC JOINT (TYP.)

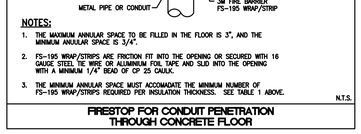


N.T.S.

FIRESTOP FOR CONDUIT PENETRATION THROUGH GYPSUM BOARD

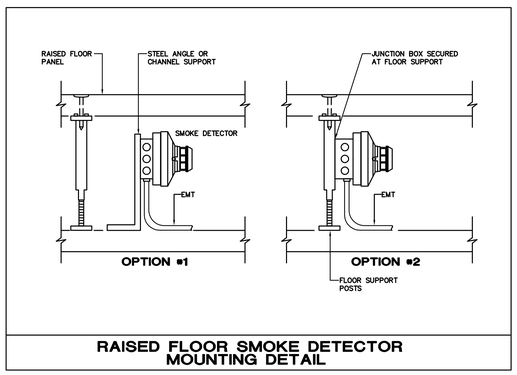


"FARTC" INSTALLATION DETAIL

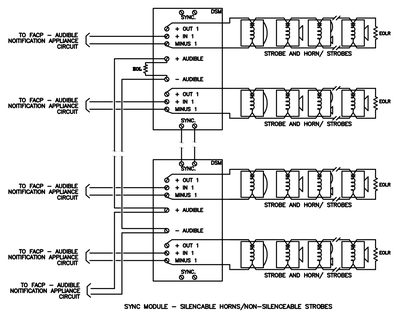


N.T.S.

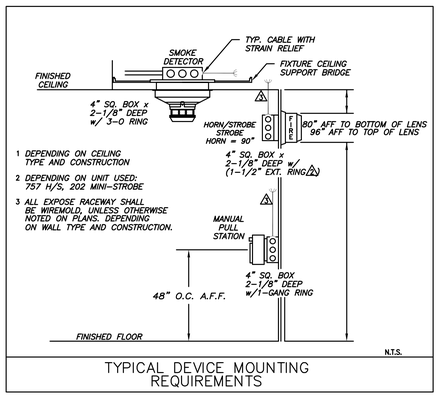
FIRESTOP FOR CONDUIT PENETRATION THROUGH CONCRETE FLOOR



RAISED FLOOR SMOKE DETECTOR MOUNTING DETAIL



SYNC MODULE – SILENCABLE HORNS/NON-SILENCEABLE STROBES



N.T.S.

TYPICAL DEVICE MOUNTING REQUIREMENTS

COMPLETE AUTOMATIC FIRE ALARM SYSTEM WITH SUPPLEMENTAL SMOKE DETECTION PLAN SUBMITTAL PER DSA POLICY 95-03(FLS)

REGISTERED PROFESSIONAL ENGINEER – ELECTRICAL – No. E-16592 – STATE OF CALIFORNIA

DCGA ENGINEERS
Consulting Mechanical and Electrical Engineers
4750 E. Ontario Mills Pkwy
Ontario, Ca. 91764
Ph.909.987.0017
Fax 909.980.7023

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

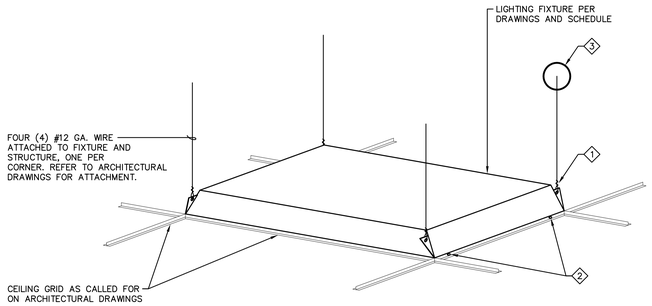
LICENSED ARCHITECT – LEIGH ANNE JONES – No. C-30088 – 01-31-2019 RENEWAL DATE – STATE OF CALIFORNIA

FIRE ALARM WIRING DIAGRAMS AND DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

E3.3
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

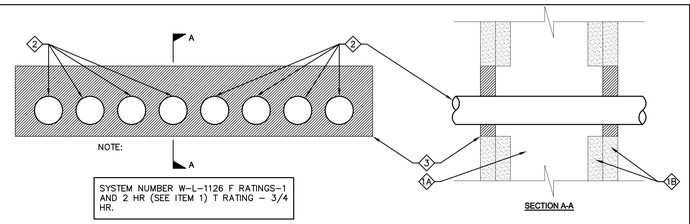
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DETAIL NOTES:

1. ATTACH WIRE TO FIXTURE (3 TIGHT TURNS MIN. IN 1 1/2" MAX.)
2. "TEK" SCREW GRID TO FIXTURE @ EACH CORNER.
3. ATTACH HANGER WIRES TO STRUCTURE AS PER ARCHITECTURAL DETAIL 22/A11.1.

RECESSED FIXTURE IN LAY-IN GRID DETAIL — NOT TO SCALE — 1

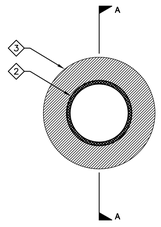


1. WALL ASSEMBLY: THE 1 OR 2 HR FIRE RATED GYPSUM WALLBOARD/STUD WALL ASSEMBLY SHALL BE CONSTRUCTED OF THE MATERIALS AND IN THE MANNER DESCRIBED IN THE INDIVIDUAL U300 OR U400 SERIES WALL OR PARTITION DESIGN IN THE UL FIRE RESISTANCE DIRECTORY AND SHALL INCLUDE THE FOLLOWING CONSTRUCTION FEATURES:
   A. STUDS: WALL FRAMING MAY CONSIST OF EITHER WOOD STUDS OR STEEL CHANNEL STUDS. WOOD STUDS TO CONSIST OF NOM 2x4" LUMBER SPACED 16" O.C. WITH NOM 2x4" LUMBER END PLATES AND CROSS BRACES. STEEL STUDS TO BE MIN. 3 5/8" WIDE AND SPACED MAX. 24" O.C. IN WOOD STUD/GYPSUM WALLBOARD ASSEMBLIES, ADDITIONAL FRAMING MEMBERS TO BE INSTALLED WITHIN STUD CAVITY IN SUCH A MANNER TO FORM A RECTANGULAR BOX WITH MAX. DIMENSIONS OF 14 1/2" WIDE BY 4" HIGH. IN STEEL STUD/GYPSUM WALLBOARD ASSEMBLIES, ADDITIONAL FRAMING MEMBERS TO BE INSTALLED WITHIN STUD CAVITY IN SUCH A MANNER TO FORM A RECTANGULAR BOX WITH MAX. DIMENSIONS OF 22 5/8" WIDE BY 4" HIGH.
   B. WALLBOARD, GYPSUM: 5/8" THICK, 4' WIDE WITH SQUARE OR TAPERED EDGES. THE GYPSUM WALLBOARD TYPE, THICKNESS, NUMBER OF LAYERS, FASTENER TYPE AND SHEET ORIENTATION SHALL BE AS SPECIFIED IN THE INDIVIDUAL U300 OR U400 SERIES DESIGN IN THE UL FIRE RESISTANCE DIRECTORY. IF THE THROUGH PENETRANTS ARE INSTALLED IN WOOD STUD/GYPSUM WALLBOARD ASSEMBLIES, MAX AREA OF OPENING IS 58 SQ. IN. WITH MAX DIMENSIONS OF 14 1/2". IF THE THROUGH PENETRANTS ARE INSTALLED IN STEEL STUD/GYPSUM WALLBOARD ASSEMBLIES, MAX AREA OF OPENING IS 90 1/2 SQ. IN. WITH MAX DIMENSIONS OF 22 5/8 IN. THE HOURLY F RATING OF THE FIRE STOP SYSTEM IS EQUAL TO HOURLY FIRE RATING OF THE WALL ASSEMBLY IN WHICH IT IS INSTALLED.
2. THROUGH PENETRANTS: ONE OR MORE PIPES, CONDUITS OF TUBING TO BE INSTALLED WITHIN THE OPENING. THE SPACE BETWEEN PIPES, CONDUITS OR TUBING SHALL BE A NOM 1/2". THE SPACE BETWEEN PIPES, CONDUITS OR TUBING AND PERIPHERY OF OPENING SHALL BE MIN. 1/4" TO MAX. 1 5/16". PIPE, CONDUIT OR TUBING TO BE RIGIDLY SUPPORTED ON BOTH SIDES OF WALL ASSEMBLY. THE FOLLOWING TYPES AND SIZES OF PIPES, CONDUITS OR TUBING MAY BE USED:
   A. STEEL PIPE: NOM 2"ø (OR SMALLER) SCHEDULE 10 (OR HEAVIER) STEEL PIPE.
   B. IRON PIPE: NOM 2"ø (OR SMALLER) CAST OR DUCTILE IRON PIPE.
   C. CONDUIT: NOM 2"ø (OR SMALLER) STEEL ELECTRICAL METALLIC TUBING OR GALVANIZED STEEL CONDUIT.
3. FILL VOID OR CAVITY MATERIAL *-SEALANT: MIN. 5/8" THICKNESS OF FILL MATERIAL APPLIED WITHIN ANNULUS, FLUSH WITH BOTH SURFACES OF WALL. SPECIFIED TECHNOLOGIES INC.: SPEC SEAL 100, 101, 102 OR 105 SEALANT.

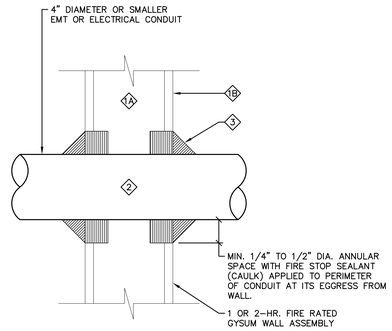
MULTI-CONDUIT PENETRATION AT 1 OR 2 HR WALL — NOT TO SCALE — 3

DETAIL NOTES:

1. WALL CONSTRUCTION:
   A. STEEL STUDS PER ARCHITECTURAL/STRUCTURAL.
   B. 5/8" TYPE x GYPSUM BOARD PER ARCHITECTURAL.
2. CONDUIT SIZE PER DRAWINGS.
3. FIRE STOP SYSTEM - ONE HOUR CAULK. APPLY TO INTERFACE WITH WALL SURFACE.



FRONT VIEW



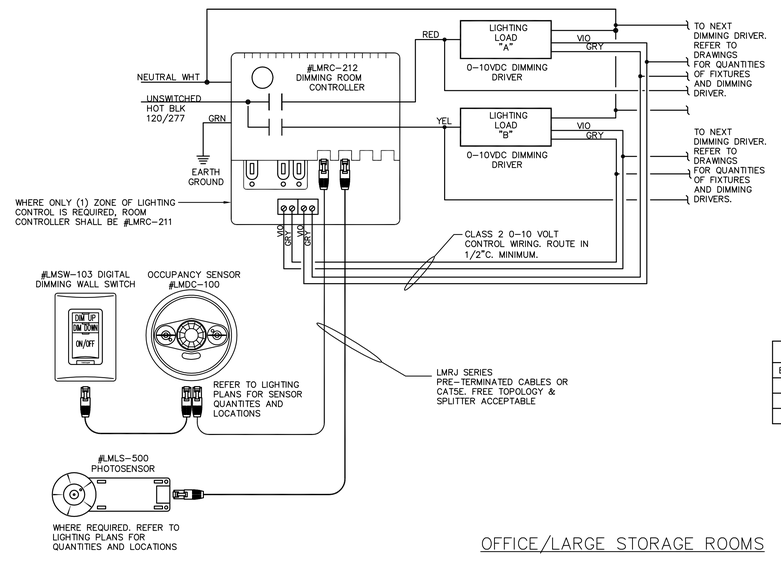
SECTION A-A

U.L. SYSTEM NO. W-L-1001

NOTE: COMPLY WITH SPECIAL INSPECTIONS (CBC 1705A.16.1)

NOTE: MAX. DIA. OF OPENING IS 13 1/2" ANNULAR SPACE OF MIN. 1/4" DIA. BEAD IS REQUIRED.

CONDUIT PENETRATION AT 1-HR FIRE RATED WALL — NOT TO SCALE — 4



WALL SWITCH BUTTON ASSIGNMENTS (3 BUTTON SWITCH)		
BUTTON	ENGRAVING	ASSIGNMENT
1	DIM UP	RAISE LIGHT LEVELS INCREMENTALLY
2	DIM DOWN	LOWER LIGHT LEVELS INCREMENTALLY
3	ON/OFF	ALL LIGHTS "ON" OR "OFF"

OFFICE/LARGE STORAGE ROOMS

ALL LIGHTING CONTROL COMPONENTS SHALL BE WATTSTOPPER OR EQUAL BY LEVITON

ALL LINE VOLTAGE AND 0-10 VOLT CONDUCTORS SHALL BE ROUTED IN 3/4" CONDUIT, MINIMUM

REFER TO THE LIGHTING PLANS FOR QUANTITES AND LOCATIONS OF ALL LIGHTING CONTROL DEVICES UNLESS NOTED OTHERWISE.

LIGHTING CONTROL WIRING DIAGRAMS — NOT TO SCALE — 5

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30983
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

ELECTRICAL DETAILS

E4.1
75-18608-00
12/21/2018
Revisions

DLR Group
Architecture Engineering Planning Interiors

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4750 E. Ontario Mills Pkwy
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Ph 909.987.0017
Fax 909.980.7023

LOCATION:	TECH CORE	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "ILA-MC"	BUS:	400		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	300		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	2
3	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	4
5	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	6
7	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	8
9	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	10
11	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	12
13	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	14
15	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	16
17	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	18
19	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	20
21	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	22
23	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	24
25	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	26
27	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	28
29	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	30
31	3	30	2	TECH CORE MC150		1		1000	2000	-----	-----	1000				TECH CORE MC150	2	30	3	32
33	3	–	–	–			–	1000	-----	2000	-----	1000				–	–	–	3	34
35	3	30	2	TECH CORE MC150		1		1000	-----	-----	2000	1000				TECH CORE MC150	2	30	3	36
37	3	–	–	–			–	1000	2000	-----	-----	1000				–	–	–	3	38
39	3	30	2	TECH CORE MC150		1		1000	-----	2000	-----	1000				TECH CORE MC150	2	30	3	40
41	3	–	–	–			–	1000	-----	-----	2000	1000				–	–	–	3	42

NOTES:																					
								TOTAL	21000	20000	20000										

CONNECTED KVA	61.0	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	34.5	34.5
CONN.KVA (CODE 3)	26.5	26.5
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	52.8	
FEEDER DEMAND AMPS	145.4	
XFMR. KVA	52.8	

LOCATION:	TECH CORE	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "ILB-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	150		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	2
3	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	4
5	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	6
7	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	8
9	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	10
11	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	12
13	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	14
15	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	16
17	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	18
19	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	20
21	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	22
23	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	24
25	3	20	1	EXIST. TECH CORE				750	1500	-----	-----	750				EXIST. TECH CORE	1	20	3	26
27	3	20	1	EXIST. TECH CORE				750	-----	1500	-----	750				EXIST. TECH CORE	1	20	3	28
29	3	20	1	EXIST. TECH CORE				750	-----	-----	1500	750				EXIST. TECH CORE	1	20	3	30
31	3	30	2	TECH CORE MC150		1		1000	2000	-----	-----	1000				TECH CORE MC150	2	30	3	32
33	3	–	–	–			–	1000	-----	2000	-----	1000				–	–	–	3	34
35	3	30	2	TECH CORE MC150		1		1000	-----	-----	2000	1000				TECH CORE MC150	2	30	3	36
37	3	–	–	–			–	1000	2000	-----	-----	1000				–	–	–	3	38
39	3	30	2	TECH CORE MC150		1		1000	-----	2000	-----	1000				TECH CORE MC150	2	30	3	40
41	3	–	–	–			–	1000	-----	-----	2000	1000				–	–	–	3	42

NOTES:																					
								TOTAL	11500	11500	11500										

CONNECTED KVA	34.5	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	0.0	0.0
CONN.KVA (CODE 3)	34.5	34.5
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	22.3	
FEEDER DEMAND AMPS	61.3	
XFMR. KVA	22.3	

LOCATION:	ELECTRICAL ROOM	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "LA-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	150		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. REC – 159 & 165		3		540	1440	-----	-----	900			5	EXIST. REC – 166, 167, 168	1	20	3	2
3	3	20	1	EXIST. REC – 159 & 165		3		540	-----	1260	-----	720			4	EXIST. REC – 166, 167, 168	1	20	3	4
5	3	20	1	EXIST. REC – 159 & 165		3		540	-----	-----	1260	720			4	EXIST. REC – 166, 167, 168	1	20	3	6
7	3	20	1	EXIST. REC – 160 & 164		3		540	1620	-----	-----	900			5	EXIST. REC – 166, 167, 168	1	20	3	8
9	3	20	1	EXIST. REC – 160 & 164		3		540	-----	1260	-----	720			4	EXIST. REC – 170–174	1	20	3	10
11	3	20	1	EXIST. REC – 160 & 164		4		720	-----	-----	1620	900			5	EXIST. REC – 170–174	1	20	3	12
13	3	20	1	EXIST. REC – 161 & 163		4		720	1440	-----	-----	720			4	EXIST. REC – 170–174	1	20	3	14
15	3	20	1	EXIST. REC – 161 & 163		3		540	-----	1260	-----	720			4	EXIST. REC – 170–174	1	20	3	16
17	3	20	1	EXIST. REC – 161 & 163		3		540	-----	-----	1040	500			1	REC – SYSTEMS FURNITURE	1	20	3	18
19	3	20	1	EXIST. REC – 153 & 154		2		360	860	-----	-----	500			1	REC – SYSTEMS FURNITURE	1	20	3	20
21	2	20	1	EXIST. EF–MC–1				696	-----	1236	-----	540			3	EXIST. ROOF REC	1	20	3	22
23	2	20	2	EXIST. "FC–MC–4"				354	-----	-----	854	500			1	REC – SYSTEMS FURNITURE	1	20	3	24
25	–	–	–	–				354	854	-----	-----	500			1	REC – SYSTEMS FURNITURE	1	20	3	26
27	2	20	1	EXIST. "EWC–1"	1			600	-----	1100	-----	500			2	REC – 160	1	20	3	28
29	2	20	3	EXIST. "CU–MC–4"	1			2352	-----	-----	2852	500			2	REC – 160	1	20	3	30
31	2	–	–	–				2352	3072	-----	-----	720			4	REC – 158	1	20	3	32
33	2	–	–	–				2352	-----	5352	-----	3000				EXIST. "EWH–1"	2	40	2	34
35	3	20	1	REC – 161		2		500	-----	-----	3500	3000				–	–	–	2	36
37	3	20	1	REC – 161		2		500	500	-----	-----					EXIST. SPARE	1	20		38
39	2	20	1	EXIST. FSD				500	-----	500	-----					EXIST. SPARE	1	20		40
41	2	20	1	EXIST. FSD				500	-----	-----	1000	500				EXIST. IRRIGATION CONTROLLER	1	20	2	42

NOTES:																					
								TOTAL	9786	11968	12126										

CONNECTED KVA	33.9	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	16.6	16.6
CONN.KVA (CODE 3)	17.3	17.3
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	30.2	
FEEDER DEMAND AMPS	83.3	
XFMR. KVA	30.2	

LOCATION:	ELECTRICAL ROOM	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "LB-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	225		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. REC – 142, 143, 144, 147		4		720	1080	-----	-----	360		2		REC – 152	1	20	3	2
3	3	20	1	EXIST. REC – 143, 144, 147		3		540	-----	720	-----	180		1		REC – 152	1	20	3	4
5	3	20	1	EXIST. REC – 148, 149, 150, 175		3		540	-----	-----	540					EXIST. SPARE	1	20		6
7	3	20	1	EXIST. REC – 148, 149, 150, 175		3		540	1260	-----	-----	720		4		EXIST. REC – 152	1	20	3	8
9	3	20	1	EXIST. REC – 140		3		540	-----	1260	-----	720		4		EXIST. REC – 152	1	20	3	10
11	3	20	1	EXIST. REC – 200, 201		2		360	-----	860	-----	500		2		EXIST. REC – 147 MONITORS	1	20	3	12
13	3	20	1	EXIST. REC – 147		1		500	1000	-----	-----	500		2		EXIST. REC – 152	1	20	3	14
15	3	20	1	EXIST. REC – 147		1		500	-----	1000	-----	500		2		EXIST. REC – 152	1	20	3	16
17	2	40	1	EXIST. ANTENNA TOWER				3500	-----	-----	4000	500				EXIST. SPARE	1	20		18
19	2	40	1	EXIST. ANTENNA TOWER				3500	4000	-----	-----	500				EXIST. SPARE	1	20		20
21	2	40	1	EXIST. SATELLITE				3500	-----	4000	-----	500				EXIST. FUTURE TRACK LTG	1	20	2	22
23	2	40	1	EXIST. SATELLITE				3500	-----	-----	4000	500				EXIST. ACCESS CONTROL	1	20	2	24
25	2	40	1	EXIST. SATELLITE				3500	4000	-----	-----	500				EXIST. PRE–ACTION PANEL	1	20	2	26
27	2	40	1	EXIST. SATELLITE				3500	-----	3500	-----					EXIST. SPARE	1	20		28
29	2	20	1	EXIST. ANTENNA TOWER REC				180	-----	-----	180					EXIST. SPARE	1	20		30
31	2	20	1	EXIST. ANTENNA TOWER LTS				100	2804	-----	-----	2704			2	EXIST. "CU–MC–6/"FC–MC–6"	2	40	2	32
33		20	1	EXIST. SPARE					-----	2704	-----	2704			–	–	–	–	2	34
35		20	1	EXIST. SPARE					-----	-----	624	624			1	EXIST. BATTERY CHARGER	2	20	2	36
37		20	1	EXIST. SPARE				624	-----	-----	624	–				–	–	–	2	38
39	2	40	2	EXIST. "CU–MC–7/"FC–MC–7"	2			2704	-----	4204	-----	1500			1	EXIST. JACKET HEATER	2	20	2	40
41	2	–	–	–				2704	-----	-----	4204	1500				–	–	–	2	42

NOTES:																					
								TOTAL	14768	17388	14408										

CONNECTED KVA	46.6	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	37.8	37.8
CONN.KVA (CODE 3)	7.7	7.7
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	45.6	
FEEDER DEMAND AMPS	125.6	
XFMR. KVA	45.6	

LOCATION:	ELECTRICAL ROOM	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "LC-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	225		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. REC – 102, 113, 114, 115		4		720	1260	-----	-----	540		3		EXIST. REC – 109, 121, 122	1	20	3	2
3	3	20	1	EXIST. REC – 102, 113, 114, 115		4		720	-----	1260	-----	540		3		EXIST. REC – 109, 121, 122	1	20	3	4
5	3	20	1	EXIST. REC – 102, 113, 114, 115		4		720	-----	-----	1260	540		3		EXIST. REC – 109, 121, 122	1	20	3	6
7	3	20	1	EXIST. REC – 107, 110, 111, 112		5		900	1620	-----	-----	720		4		EX. REC – 123–127	1	20	3	8
9	3	20	1	EXIST. REC – 107, 110, 111, 112		5		900	-----	1620	-----	720		4		EX. REC – 123–127	1	20	3	10
11	3	20	1	EXIST. REC – 107, 110, 111, 112		5		900	-----	-----	1620	720		4		EX. REC – 123–127	1	20	3	12
13	3	20	1	REC – SYSTEMS FURNITURE		3		1080	1620	-----	-----	540		3		EX. REC – 132, 106, 105, 131	1	20	3	14
15	3	20	1	REC – SYSTEMS FURNITURE		3		1080	-----	1620	-----	540		3		EX. REC – 132, 106, 105, 131	1	20	3	16
17	3	20	1	REC – SYSTEMS FURNITURE		3		1080	-----	-----	1620	540		3		EXIST. REC – 130	1	20	3	18
19	3	20	1	EXIST. REC – 134, 135		3		540	1080	-----	-----	540		3		EXIST. REC – 130	1	20	3	20
21	3	20	1	EXIST. REC – 134, 135		3		540	-----	900	-----	360		2		EXIST. REC – 130	1	20	3	22
23	3	20	1	EXIST. REC – 134, 135		3		540	-----	-----	1540	1000		1		EXIST. REFRIGERATOR	1	20	3	24
25	3	20	1	EXIST. REC – 136, 137		3		540	1040	-----	-----	500				EXIST. VAV BOXES	1	20	2	26
27	3	20	1	EXIST. REC – 136, 137		3		540	-----	1040	-----	500				EXIST. VAV BOXES	1	20	2	28
29	3	20	1	EXIST. REC – 136, 137		3		540	-----	-----	1040	500		1		EXIST. VENDING MACHINE	1	20	3	30
31	2	20	1	EXIST. FLOOR BOX – 110		1		500	1000	-----	-----	500		1		EXIST. VENDING MACHINE	1	20	3	32
33	3	20	1	EXIST. ROOF REC		1		180	-----	1440	-----	1260		7		EXIST. REC, REC 104	1	20	3	34
35	2	20	1	EXIST. ACCESS CONTROL				500	-----	-----	1000	500				EXIST. ACCESS CONTROL	1	20	2	36
37	2	20	1	EXIST. "EWC–1"	1			600	1680	-----	-----	1080		3		REC 123, 124, 126	1	20	3	38
39	3	20	1	REC – 100 LOBBY		2		720	-----	1800	-----	1080		3		REC 123, 125, 126	1	20	3	40
41	3	20	1	REC – 107 CORIER		1		1000	-----	-----	1720	720		2		REC 124, 125	1	20	3	42

NOTES:																					
								TOTAL	9300	9680	9800										

CONNECTED KVA	28.8	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	3.1	3.1
CONN.KVA (CODE 3)	25.7	25.7
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	20.9	
FEEDER DEMAND AMPS	57.7	
XFMR. KVA	20.9	

LOCATION:	ELECTRICAL ROOM	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "LD-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	150		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	
NO	CODE	TRIP	POLE	DESCRIPTION	MISC	REC	LITE	VA	A	B	C	VA	LITE	REC	MISC	DESCRIPTION	POLE	TRIP	CODE	NO
1	3	20	1	EXIST. POWER POLE – 133	1			500	1220	-----	-----	720			4	EXIST. REC – 133	1	20	3	2
3	3	20	1	EXIST. POWER POLE – 133	1			500	-----	1220	-----	720			4	EXIST. REC – 133	1	20	3	4
5	3	20	1	EXIST. POWER POLE – 133	1			500	-----	-----	1000	500			1	EXIST. REC – 133	1	20	3	6
7	3	20	1	EXIST. POWER POLE – 133	1			500	1000	-----	-----	500			1	EXIST. REC – 133	1	20	3	8
9	3	20	1	EXIST. POWER POLE – 133	1			500	-----	1220	-----	720			4	EXIST. REC – 142	1	20	3	10
11	3	20	1	EXIST. POWER POLE – 133	1			500	-----	-----	1220	720			4	EXIST. REC – 142	1	20	3	12
13	3	20	1	EXIST. POWER POLE – 133	1			500	1000	-----	-----	500			1	EXIST. REC – 142	1	20	3	14
15	3	20	1	EXIST. POWER POLE – 133	1			500	-----	1000	-----	500			1	EXIST. REC – 142	1	20	3	16
17	3	20	1	EXIST. POWER POLE – 142	1			500	-----	-----	1220	720			4	EXIST. REC – 138, 139, 141	1	20	3	18
19	3	20	1	EXIST. POWER POLE – 142	1			500	1040	-----	-----	540			3	EXIST. REC – 138, 139, 141	1	20	3	20
21	3	20	1	EXIST. POWER POLE – 142	1			500	-----	1040	-----	540			3	EXIST. REC – 138, 139, 141	1	20	3	22
23	3	20	1	EXIST. POWER POLE – 142	1			500	-----	-----	1000	500			1	EXIST. FLOOX – 133	1	20	3	24
25	3	20	1	EXIST. POWER POLE – 142	1			500	1000	-----	-----	500			1	EXIST. FLOOX – 133	1	20	3	26
27	3	20	1	EXIST. POWER POLE – 142	1			500	-----	1196	-----	696				EXIST. EF–MC–2	1	20	2	28
29	3	20	1	EXIST. POWER POLE – 142	1			500	-----	-----	1500	1000				EXIST. B–MC–1	1	20	2	30
31	3	20	1	EXIST. POWER POLE – 142	1			500	1500	-----	-----	1000				EXIST. B–MC–2	1	20	2	32
33	3	20	1	REC – 123–126		5		900	-----	2400	-----	1500				EXIST. CU–3/FC–3	1	20	3	34
35	3	20	1	REC – 128 COPIER		1		1000	-----	-----	2500	1500				–	1	20	2	36
37		20	1	EXIST. SPARE					0	-----	-----					EXIST. SPARE	1	20		38
39	2	20	1	EXIST. FSD				500	-----	500	-----					EXIST. SPARE	1	20		40
41	2	20	1	EXIST. FACP	1			500	-----	-----	500					EXIST. SPARE	1	20		42

NOTES:																					
								TOTAL	6760	8576	8940										

CONNECTED KVA	24.3	SUM
CONN.KVA (CODE 1)	0.0	0.0
CONN.KVA (CODE 2)	6.7	6.7
CONN.KVA (CODE 3)	17.6	17.6
CONN.KVA (CODE 4)	0.0	0.0
	0.0	
FEEDER DEMAND KVA	20.5	
FEEDER DEMAND AMPS	56.5	
XFMR. KVA	20.5	

LOCATION:	STUDIO CONTROL	PANEL VOLTAGE:	208/120V	CKT CODE:	1=(CONTINUOUS)
		PHASE & WIRE:	3PH,4W		2=(NON-CONTINUOUS)
PANEL:	EXIST. "LE-MC"	BUS:	225		3=(RECEPTACLES)
AIC RATING:	14000	MAINS:	150		4=(KITCHEN)

CIRCUIT		CKT	BKR		LOAD TYPE & DESIGNATION				LOAD		PHASES		LOAD				LOAD TYPE & DESIGNATION	CKT	BKR	CIRCUIT	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 8/17) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

This document is used to demonstrate compliance with requirements in §120.5, §130.0, §130.1, §140.6, and §141.0(b)2 for indoor lighting scopes using the prescriptive path.

Project Name: SBCCD - KVCR TI — Report Page: Page 1 of 6
Project Address: 701 S. Mount Vernon Ave. — Date Prepared: 12/19/2018

A. GENERAL INFORMATION

01	Project Location (city)	San Bernadino	04	Total Conditioned Floor Area (ft²)	844
02	Climate Zone	10	05	Total Unconditioned Floor Area (ft²)	0
03	Occupancy Types Within Project (select all that apply):		06	# of Stories (Habitable Above Grade)	1

☑ Office ☐ Retail ☐ Warehouse ☐ Hotel/Motel ☐ School ☐ Support Areas
☐ Parking Garage ☐ High-Rise Residential ☐ Relocatable ☐ Other (write in):

B. PROJECT SCOPE

Table instructions: Include any lighting systems that are within the scope of the permit application and are demonstrating compliance using the prescriptive path outlined in §140.6 or §141.0(b)2 for alterations. WARNING: Changing the Calculation Method in this table will result in the deletion of data previously input. If you need to change the calculation method, please open a new form or use "Save As".

	Conditioned Spaces		Unconditioned Spaces	
	01	02	03	04	05
My Project Consists of (check all that apply):	Calculation Method	Area (ft²)	Calculation Method	Area (ft²)
☑ New Lighting System	Area Category	844	Area Category	0
☐ Altered Lighting System				
Total Area of Work (ft²)	**844**		**0**	

C. COMPLIANCE RESULTS

Table instructions: If any cell on this table says "DOES NOT COMPLY" or "CONFLICTS with Exceptional Conditions" refer to Table D. for guidance.

Lighting in conditioned and unconditioned spaces must not be combined for compliance per §140.6(b)1.	Allowed Lighting Power per §140.6(c) (Watts)						Actual Lighting Power per §140.6(a) (Watts)						Compliance Results	
	01	02	03	04	05		06	07	08		09		10	
	Complete Building §140.6(c)1i	Area Category §140.6(c)2	Area Category Footnotes §140.6(c)2N (+)	Tailored §140.6(c)3 (+)	Total Allowed (Watts)		Total Designed (Watts)	Adjustments: Portable Lighting §140.6(a) (-)	Adjustments: PAF Control Credits §140.6(a)2 (-)		Total Actual (Watts) *includes Adjustments		OS Must be ≥ 09 §149.6	
	(See Table I)	(See Table J)	(See Table K)	(See Table L)			(See Table P)	(See Table I)	(See Table R)					
Conditioned:		763.25			763.25	≥	627			=	627		COMPLIES	
Unconditioned:						≥				=				
Controls Compliance (See Table H for Details)													COMPLIES	
Rated Power Reduction Compliance (See Table S for Details)													Not Applicable	

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 8/17) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

Project Name: SBCCD - KVCR TI — Report Page: Page 2 of 6
Project Address: 701 S. Mount Vernon Ave. — Date Prepared: 12/19/2018

D. EXCEPTIONAL CONDITIONS

This table is auto-filled with unedtiable comments because of selections made or data entered in tables throughout the form.

No exceptional conditions apply to this project.

Selections made in Table U have been changed by the permit applicant. See Table E. Additional Remarks for permit applicant's explanation.

E. ADDITIONAL REMARKS

This table includes remarks made by the permit applicant to the Authority Having Jurisdiction.

F. INDOOR LIGHTING FIXTURE SCHEDULE

Table instructions: include all permanent designed lighting and all portable lighting in offices.

01	02	03		04	05	06	07	08	09	
Name or Item Tag	Complete Luminaire Description	Specialized Luminaire Types: Track	Portable	Watts per luminaire[1]	How Wattage is determined	Total number luminaires	Exempt per §150.6(a)3	Design Watts	Field Inspector: Pass	Fail
A	33W fixture (Type A)	☐	☐	33	MF- Spec	19	☑	627	☐	☐
						Total Designed Watts CONDITIONED SPACES:		627		

[1]NOTES: Authority Having Jurisdiction may ask for Luminaire cut sheets to confirm wattage used for compliance per §130.0(c). Wattage used must be the maximum rated for the luminaire, not the lamp.

G. TRACK LIGHTING

This Section Does Not Apply

H. INDOOR LIGHTING CONTROLS (Not Including PAFs)

Table instructions:
Please include lighting controls for conditioned and unconditioned spaces in this table. When an option having a " is selected, the notes section of this table must be completed. The lighting controls section of the Compliance Summary Table on the first page will show "DOES NOT COMPLY" if the notes are left blank.

Area Level Controls

Building Level Controls		
01	02	03
Mandatory Demand Response §130.1(e)	Shut-off Controls §130.1(c)	Field Inspector: Pass	Fail
Not Required < 10,000 SF	See Area Level Controls	☐	☐

Table Continued

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 8/17) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

Project Name: SBCCD - KVCR TI — Report Page: Page 3 of 6
Project Address: 701 S. Mount Vernon Ave. — Date Prepared: 12/19/2018

04	05	06	07	08	09	10	11	12	
Area Description	Complete Building or Area Category Primary Function Area	Area Controls §130.1(a)	Multi-Level Controls §130.1(b)	Shut-Off Controls §130.1(c)	Primary/Skylit Daylighting §130.1(d)	Secondary Daylighting §140.6(a)3	Interlocked Systems §140.6(a)1	Field Inspector: Pass	Fail
Office	Office Building	Manual ON/OFF	Dimmer	Occ Sensor	N/A	N/A	☐	☐	☐

*NOTES: Controls with a * require a note in the space below explaining how compliance is achieved.*
EX: Conference 1- Primary/Skylight Daylighting: Exempt because less than 120 watts of general lighting; EXCEPTION 1 to §130.1(d)

13 — Plan Sheet Showing Daylit Zones:

I. LIGHTING POWER ALLOWANCE: COMPLETE BUILDING OR AREA CATEGORY METHODS

Table instructions: Complete the table for each area complying using the Complete Building or Area Category Methods per §140.6(b). Indicate if additional lighting power allowances per §140.6(c) or adjustments per §140.6(a) are being used.

01	02	03	04	05	06		
Area Description	Complete Building or Area Category Primary Function Area	Allowed Density (W/ft²)	Area (ft²)	Allowed Wattage (Watts)	Additional Allowances / Adjustments: Footnotes	PAF	Portable Ltg
Office <= 250'	Office (<= 250 square feet)	1	521	521	☐	☐	☐
Office > 250'	Office (> 250 square feet)	0.75	323	242.25	☐	☐	☐
	TOTAL		844	763.25	See Tables J, K, R for detail		

J. POWER ADJUSTMENT: PORTABLE LIGHTING IN OFFICES

This Section Does Not Apply

K. ADDITIONAL LIGHTING ALLOWANCE: AREA CATEGORY METHOD FOOTNOTES

This Section Does Not Apply

L. TAILORED METHOD GENERAL LIGHTING POWER ALLOWANCE

This Section Does Not Apply

M. ADDITIONAL LIGHTING ALLOWANCE: TAILORED SPECIAL FUNCTION AREAS

This Section Does Not Apply

STATE OF CALIFORNIA
Indoor Lighting
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CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

Project Name: SBCCD - KVCR TI — Report Page: Page 4 of 6
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N. ADDITIONAL LIGHTING ALLOWANCE: TAILORED WALL DISPLAY

This Section Does Not Apply

O. ADDITIONAL LIGHTING ALLOWANCE: TAILORED FLOOR AND TASK LIGHTING

This Section Does Not Apply

P. ADDITIONAL LIGHTING ALLOWANCE: TAILORED ORNAMENTAL/SPECIAL EFFECTS

This Section Does Not Apply

Q. ADDITIONAL LIGHTING ALLOWANCE: TAILORED VERY VALUABLE MERCHANDISE

This Section Does Not Apply

R. POWER ADJUSTMENT: LIGHTING CONTROL CREDIT (PAF)

This Section Does Not Apply

S. RATED POWER REDUCTION COMPLIANCE BY SPACE

This Section Does Not Apply

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 8/17) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

Project Name: SBCCD - KVCR TI — Report Page: Page 5 of 6
Project Address: 701 S. Mount Vernon Ave. — Date Prepared: 12/19/2018

T. DECLARATION OF REQUIRED CERTIFICATES OF INSTALLATION

Table instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and can be found online at http://www.energy.ca.gov/2013publications/CEC-400-2013-013/appendices/forms/NRCI

YES	NO	Form/Title	Field Inspector: Pass	Fail
◉	○	NRCI-LTI-01-E - Must be submitted for all buildings	☐	☐
◉	○	NRCI-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-03-E - Must be submitted for a line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting, to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	☐	☐
○	◉	NRCI-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	☐	☐

U. DECLARATION OF REQUIRED CERTIFICATES OF ACCEPTANCE

Table instructions: Selections have been made based on information provided in previous tables of this document. If any selection needs to be changed, please explain why in Table E. Additional Remarks. These documents must be provided to the building inspector during construction and must be completed through an Acceptance Test Technician Certification Provider (ATTCP). For more information visit: http://www.energy.ca.gov/title24/6thstd/prerelease.html

YES	NO	Form/Title	Field Inspector: Pass	Fail
◉	○	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	☐	☐
○	◉	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	☐	☐
○	◉	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	☐	☐
○	◉	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	☐	☐

STATE OF CALIFORNIA
Indoor Lighting
NRCC-LTI-E (Created 8/17) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE — NRCC-LTI-E

Project Name: SBCCD - KVCR TI — Report Page: Page 6 of 6
Project Address: 701 S. Mount Vernon Ave. — Date Prepared: 12/19/2018

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

Documentation Author Name:	Chen Hsing Fang	Documentation Author Signature:	
Company:	DCGA Engineers	Signature Date:	12/19/18
Address:	4750 East Ontario Mills Parkway	CEA/ HERS Certification Identification (if applicable):	E16592
City/State/Zip:	Ontario, CA 91764	Phone:	909-987-0017

RESPONSIBLE PERSON'S DECLARATION STATEMENT
I certify the following under penalty of perjury, under the laws of the State of California:
1. The information provided on this Certificate of Compliance is true and correct.
2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer)
3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name:	Chen Hsing Fang	Responsible Designer Signature:	
Company:	DCGA Engineers	Date Signed:	12/19/18
Address:	4750 East Ontario Mills Pkwy	License:	E16592
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DSA SUBMITTAL

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SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30983
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

TITLE 24

E6.1
75-18808.00
12/21/2018
Revisions

REGISTERED PROFESSIONAL ENGINEER
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DCGA #18074

MECHANICAL SYMBOLS

	CD	CEILING DIFFUSER – SUPPLY
	SAD	SUPPLY AIR DUCT – RISER
	SAD	SUPPLY AIR DUCT – DROP
	RAG	RETURN AIR GRILLE
	RAD	RETURN AIR DUCT – RISER
	RAD	RETURN AIR DUCT – DROP
	EAG	EXHAUST AIR GRILLE
	EAD	EXHAUST AIR DUCT – RISER
	EAD	EXHAUST AIR DUCT – DROP
	SWS	SIDE WALL SUPPLY GRILLE
	SWR	SIDE WALL RETURN/EXHAUST GRILLE
UP		DUCT OFFSET UP
		DOUBLE WALL DUCT
		DUCT OR EQUIPMENT TO BE REMOVED
		EXISTING DUCT TO REMAIN
		DUCT
		DUCT TRANSITION
	MVD	MANUAL VOLUME DAMPER
BDD	BDD	BACKDRAFT DAMPER
	AFD	AUTOMATIC FIRE DAMPER
	CSFD	COMBINATION SMOKE/FIRE DAMPER
CHWS		CHILLED WATER SUPPLY PIPE
CHWR		CHILLED WATER RETURN PIPE
HWS		HOT WATER SUPPLY PIPE
HWR		HOT WATER RETURN PIPE
CWS		CONDENSER WATER SUPPLY PIPE
CWR		CONDENSER WATER RETURN PIPE

		PRESSURE REDUCING VALVE
		ISOLATION VALVE (BALL)
		ISOLATION VALVE (BUTTERFLY)
		MOTORIZED CONTROL VALVE
		CHECK VALVE
		THERMOMETER
P		PRESSURE GAUGE
2		SMACNA DUCT STATIC PRESSURE CLASS
	POD	POINT OF DEMOLITION
	POC	POINT OF CONNECTION
M		MOTORIZED DAMPER
T / TS		THERMOSTAT / SENSOR. MOUNT @ +48" AFF (IF MOUNTED OVER CASEWORK OR OTHER OBSTRUCTION 46" TO TOP OF DEVICE).
TC		TIME CLOCK
DD		DUCT SMOKE DETECTOR (MOUNT BELOW ROOF)
CO_2		CARBON DIOXIDE SENSOR FOR OUTSIDE AIR MODULATION
D/L 1.0	DL	DOOR LOUVER W/ MINIMUM FREE AREA (SQ. FT.)
U/C	UC	UNDER CUT DOOR
X / M – X		DETAIL NUMBER / DETAIL DESIGNATION / DRAWING NUMBER
		EQUIPMENT DESCRIPTION / EQUIPMENT DESIGNATION / EQUIPMENT NUMBER

MECHANICAL ABBREVIATIONS

– A –	
ABV	ABOVE
A/C	AIR CONDITIONER
AFF	ABOVE FINISH FLOOR
AFUE	ANNUAL FUEL UTILIZATION EFFICIENCY
AI	ANALOG INPUT
AO	ANALOG OUTPUT
AP	ACCESS PANEL
– B –	
BDD	BACKDRAFT DAMPER
BEL	BELOW
BLDG	BUILDING
BTUH	BRITISH THERMAL UNITS PER HOUR
– C –	
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CO	CARBON MONOXIDE
COMP	COMPRESSOR
CONT	CONTINUATION
– D –	
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DI	DIGITAL INPUT
DIA	DIAMETER
DN	DOWN
DO	DIGITAL OUTPUT
DTR	DOWN THRU ROOF
DWD	DOUBLE WALL DUCT
DWG	DRAWING
DX	DIRECT EXPANSION
– E –	
(E)	EXISTING
EA	EXHAUST AIR
EAD	EXHAUST AIR DUCT
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EFF	EFFICIENCY
EG	EXHAUST GRILLE
EMS	ENERGY MANAGEMENT SYSTEM
EQUIP	EQUIPMENT
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
– F –	
FAI	FRESH AIR INTAKE
FLR	FLOOR
FPI	FINS PER INCH
FT	FOOT, FEET
– G –	
GA	GAUGE
GI	GALVANIZED IRON
GPM	GALLONS PER MINUTE
– H –	
HP	HORSEPOWER
HR	HOUR
HVAC	HEATING VENTILATING AND AIR CONDITIONING
HW	HOT WATER
HZ	HERTZ
– I –	
IN.	INCHES
– K –	
KW	KILOWATT
– L –	
(L)	LINED DUCT
LAT	LEAVING AIR TEMPERATURE
LB	POUND
LWT	LEAVING WATER TEMPERATURE

– M –	
MA	MIXED AIR
MAX	MAXIMUM
MB	MACHINE BOLT
MBH	1000 BRITISH THERMAL UNITS PER HOUR
MCA	MINIMUM CIRCUIT AMPACITY
MECH	MECHANICAL
MFR	MANUFACTURER
MIN	MINIMUM
MOCP	MAXIMUM OVERCURRENT PROTECTION
MS	MOTOR STARTER
MTD	MOUNTED
– N –	
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NG	NATURAL GAS
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NPS	NOMINAL PIPE SIZE
NTS	NOT TO SCALE
– O –	
OA	OUTSIDE AIR
OC	ON CENTER
ODP	OUTDOOR DRIP PROOF
OPER	OPERATING
OSA	OUTSIDE AIR
– P –	
P.D.	PRESSURE DROP
PH	PHASE
PSI	POUNDS PER SQUARE INCH
– Q –	
QTY	QUANTITY
– R –	
RA	RETURN AIR
RAD	RETURN AIR DUCT
RG	RETURN GRILLE
RL	REFRIGERATION LIQUID
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERATION SUCTION
– S –	
SA	SUPPLY AIR
SAD	SUPPLY AIR DUCT
SENS	SENSIBLE
SF	SUPPLY FAN
SMS	SHEET METAL SCREW
SOV	SHUT OFF VALVE
S.P.	STATIC PRESSURE
SQ	SQUARE
S/S	STAINLESS STEEL
SWR	SIDEWALL RETURN GRILLE
SWS	SIDEWALL SUPPLY GRILLE
SYM	SYMBOL
– T –	
TDH	TOTAL DYNAMIC HEAD
TG	TRANSFER GRILLE
TSTAT	THERMOSTAT
TYP	TYPICAL
– U –	
UNO	UNLESS NOTED OTHERWISE
UTR	UP THRU ROOF
– V –	
VAC	VOLTS ALTERNATING CURRENT
VFD	VARIABLE FREQUENCY DRIVE
– W –	
WT	WEIGHT
W/	WITH

EQUIPMENT ANCHORAGE NOTE

MEP COMPONENT ANCHORAGE NOTE

ALL MECHANICAL, PLUMBING, AND ELECTRICAL COMPONENTS SHALL BE ANCHORED AND INSTALLED PER THE DETAILS ON THE DSA APPROVED CONSTRUCTION DOCUMENTS. WHERE NO DETAIL IS INDICATED, THE FOLLOWING COMPONENTS SHALL BE ANCHORED OR BRACED TO MEET THE FORCE AND DISPLACEMENT REQUIREMENTS PRESCRIBED IN THE 2016 CBC, SECTIONS 1616A.1.18 THROUGH 1616A.1.26 AND ASCE 7–10 CHAPTER 13, 26 AND 30.

1. ALL PERMANENT EQUIPMENT AND COMPONENTS.
2. TEMPORARY OR MOVABLE EQUIPMENT THAT IS PERMANENTLY ATTACHED (E.G. HARD WIRED) TO THE BUILDING UTILITY SERVICES SUCH AS ELECTRICITY, GAS OR WATER.
3. MOVABLE EQUIPMENT WHICH IS STATIONED IN ONE PLACE FOR MORE THAN 8 HOURS AND HEAVIER THAN 400 POUNDS ARE REQUIRED TO BE ANCHORED WITH TEMPORARY ATTACHMENTS.

THE FOLLOWING MECHANICAL AND ELECTRICAL COMPONENTS SHALL BE POSITIVELY ATTACHED TO THE STRUCTURE, BUT THE ATTACHMENT NEED NOT BE DETAILED ON THE PLANS. THESE COMPONENTS SHALL HAVE FLEXIBLE CONNECTIONS PROVIDED BETWEEN THE COMPONENT AND ASSOCIATED DUCTWORK, PIPING, AND CONDUIT.

A. COMPONENTS WEIGHING LESS THAN 400 POUNDS AND HAVE A CENTER OF MASS LOCATED 4 FEET OR LESS ABOVE THE ADJACENT FLOOR OR ROOF LEVEL THAT DIRECTLY SUPPORT THE COMPONENT.
B. COMPONENTS WEIGHING LESS THAN 20 POUNDS, OR IN THE CASE OF DISTRIBUTED SYSTEMS, LESS THAN 5 POUNDS PER FOOT, WHICH ARE SUSPENDED FROM A ROOF OR FLOOR OR HUNG FROM A WALL.

FOR THOSE ELEMENTS THAT DO NOT REQUIRE DETAILS ON THE APPROVED DRAWINGS, THE INSTALLATION SHALL BE SUBJECT TO THE APPROVAL OF THE DESIGN PROFESSIONAL IN GENERAL RESPONSIBLE CHARGE OR STRUCTURAL ENGINEER DELEGATED RESPONSIBILITY AND THE DSA DISTRICT STRUCTURAL ENGINEER. THE PROJECT INSPECTOR WILL VERIFY THAT ALL COMPONENTS AND EQUIPMENT HAVE BEEN ANCHORED IN ACCORDANCE WITH ABOVE REQUIREMENTS.

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEM BRACING NOTE

PIPING, DUCTWORK, AND ELECTRICAL DISTRIBUTION SYSTEMS SHALL BE BRACED TO COMPLY WITH THE FORCES AND DISPLACEMENTS PRESCRIBED IN ASCE 7–10 SECTION 13.3 AS DEFINED IN ASCE 7–10 SECTION 13.6.5.6, 13.6.7, 13.6.8, AND 2016 CBC, SECTIONS 1616A.1.23, 1616A.1.24, 1616A.1.25 AND 1616A.1.26.

THE METHOD OF SHOWING BRACING AND ATTACHMENTS TO THE STRUCTURE FOR THE IDENTIFIED DISTRIBUTION SYSTEM ARE AS NOTED BELOW. WHEN BRACING AND ATTACHMENTS ARE BASED ON A PRE–APPROVED INSTALLATION GUIDE (E.G., SMACNA OR OSHPD OPM), COPIES OF THE BRACING SYSTEM INSTALLATION GUIDE OR MANUAL SHALL BE AVAILABLE ON THE JOBSITE PRIOR TO THE START OF AND DURING THE HANGING AND BRACING OF THE DISTRIBUTION SYSTEMS. THE STRUCTURAL ENGINEER OF RECORD SHALL VERIFY THE ADEQUACY OF THE STRUCTURE TO SUPPORT THE HANGER AND BRACE LOADS.

MECHANICAL PIPING (MP), MECHANICAL DUCTS (MD), PLUMBING PIPING (PP), ELECTRICAL DISTRIBUTION SYSTEMS (E):

MP☐ MD☐ PP☐ E☐	OPTION 1: DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS.
MP☒ MD☒ PP☐ E☐	OPTION 2: SHALL COMPLY WITH THE APPLICABLE OSHPD PRE–APPROVAL (OPM#) #0043–13.
MP☐ MD☐ PP☐	OPTION 3: SHALL COMPLY WITH THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION (2009), INCLUDING AND ADDENDA. FASTENERS AND OTHER ATTACHMENTS NOT SPECIFICALLY IDENTIFIED IN THE SMACNA SEISMIC RESTRAINT MANUAL, OSHPD EDITION, ARE DETAILED ON THE APPROVED DRAWINGS WITH PROJECT SPECIFIC NOTES AND DETAILS. THE DETAILS SHALL ACCOUNT FOR THE APPLICABLE SEISMIC HAZARD LEVEL _____ AND CONNECTION LEVEL _____ FOR THE PROJECT AND CONDITIONS.

ACCEPTANCE TESTING

MANDATORY ACCEPTANCE TESTING PER TITLE 24, PART 6 SHALL BE AS FOLLOWS:

AN AABC AGENCY SHALL ACT AS THE ACCEPTANCE AGENT AND PERFORM WORK REQUIRED IN THE FOLLOWING ACCEPTANCE TESTS AS DESCRIBED IN CHAPTER 13 OF THE 2016 NONRESIDENTIAL COMPLIANCE MANUAL. THIS SHALL INCLUDE FILLING OUT, SIGNING, AND SUBMITTING APPLICABLE FORMS LISTED HEREIN.

1. NRCA–MCH–02–A – OUTDOOR AIR ACCEPTANCE
2. NRCA–MCH–03–A – CONSTANT VOLUME, SINGLE ZONE, UNITARY AIR CONDITIONER AND HEAT PUMP SYSTEMS
3. NRCA–MCH–04–A – AIR DISTRIBUTION SYSTEMS ACCEPTANCE
4. NRCA–MCH–05–A – AIR ECONOMIZER CONTROLS ACCEPTANCE
5. NRCA–MCH–06–A – DEMAND CONTROL VENTILATION SYSTEMS ACCEPTANCE
6. NRCA–MCH–07–A – SUPPLY FAN VFD ACCEPTANCE
7. NRCA–MCH–08–A – VALVE LEAKAGE TEST
8. NRCA–MCH–09–A – SUPPLY WATER TEMPERATURE RESET CONTROLS ACCEPTANCE
9. NRCA–MCH–10–A – HYDRONIC SYSTEM VARIABLE FLOW CONTROL ACCEPTANCE
10. NRCA–MCH–11–A – AUTOMATIC DEMAND SHED CONTROL ACCEPTANCE
11. NRCA–MCH–12–A – FAULT DETECTION & DIAGNOSTICS (FDD) FOR PACKAGED DIRECT EXPANSION UNITS
12. NRCA–MCH–13–A – AUTOMATIC FAULT DETECTION & DIAGNOSTICS (FDD) FOR AIR HANDLING UNITS & ZONE TERMINAL UNITS ACCEPTANCE
13. NRCA–MCH–14–A – DISTRIBUTED ENERGY STORAGE DX AC SYSTEMS ACCEPTANCE
14. NRCA–MCH–15–A – THERMAL ENERGY STORAGE (TES) SYSTEM ACCEPTANCE
15. NRCA–MCH–16–A – SUPPLY AIR TEMPERATURE RESET CONTROLS ACCEPTANCE
16. NRCA–MCH–17–A – CONDENSER WATER SUPPLY TEMPERATURE RESET CONTROLS ACCEPTANCE
17. NRCA–MCH–18–A – ENERGY MANAGEMENT CONTROL SYSTEM ACCEPTANCE

SPECIFIC REQUIREMENTS AND ACCEPTANCE TESTING FORMS ARE AVAILABLE IN THE 2016 NONRESIDENTIAL COMPLIANCE MANUAL WHICH CAN BE DOWNLOADED FROM www.energy.ca.gov/title24/2016standards/.

MECHANICAL GENERAL NOTES

1. ALL DUCT INSULATION TO HAVE MINIMUM 8.0 INSTALLED R–VALUE.
2. DUCT CONSTRUCTION SHALL BE GALVANIZED STEEL IN ACCORDANCE W/ CHAPTER 6 OF THE C.M.C., SUSPENSION SHALL CONFORM TO 006–2006 SMACNA STANDARDS. SEAL ALL SEAMS AND JOINTS AIR AND WATERTIGHT. FLEXIBLE ALUMINUM DUCT WORK IS NOT ALLOWED. DUCT TAPE IS NOT ALLOWED.
3. FLEXIBLE DUCTWORK AND DUCTLINER SHALL HAVE FLAME SPREAD RATING NOT EXCEEDING 25, AND A SMOKE DEVELOPED RATING NOT EXCEEDING 50 WHEN TESTED IN ACCORDANCE WITH ASTM E84, NFPA 255 AND U.L. 723.
4. FLEXIBLE DUCTS SHALL CONSIST OF AN EXTERIOR REINFORCED LAMINATED VAPOR BARRIER, 3" FIBERGLASS INSULATION (R–8.0), ENCAPSULATED SPRING STEEL WIRE HELIX AND IMPERVIOUS, SMOOTH, NON–PERFORATED INTERIOR VINYL LINER. INDIVIDUAL LENGTHS OF FLEXIBLE DUCTS SHALL CONTAIN FACTORY FABRICATED STEEL CONNECTION COLLARS.
5. FLEXIBLE DUCTS SHALL BE SUPPORTED AT OR NEAR MID–LENGTH WITH 2" WIDE 28 GA. STEEL HANGER COLLAR ATTACHED TO THE STRUCTURE WITH AN APPROVED DUCT HANGER. INSTALLATION SHALL MINIMIZE SHARP RADIUS TURNS OR OFFSETS. 7' MAXIMUM LENGTH CONNECTING TO TERMINAL OUTLETS.
6. PROVIDE BACKDRAFT DAMPERS AT ALL EXHAUST AND FRESH AIR INTAKES.
7. THERMOSTATS SHALL BE AUTOMATIC CHANGEOVER TYPE TO SEQUENCE HEATING AND COOLING. SET POINT RANGE SHALL BE 10 DEG. F BETWEEN FULL HEATING AND FULL COOLING. ADJUSTABLE TEMPERATURE DIFFERENTIAL SHALL BE 1–1/2 DEG. F. THERMOSTAT CONTROL RANGE SHALL BE 55 DEG. F TO 85 DEG. F. CONTROLS SHALL HAVE CAPABILITY OF TERMINATING HEATING AT NO HIGHER THAN 78 DEG. F. AND COOLING AT NO LOWER THAN 70 DEG. F. FANS SHALL RUN CONTINUOUSLY DURING OCCUPIED HOURS.
8. LINE VOLTAGE WIRING, LINE VOLTAGE CONDUIT, UNDERGROUND LOW VOLTAGE CONDUIT, DISCONNECT SWITCHES AND FINAL CONNECTION BY ELECTRICAL CONTRACTOR. LOW VOLTAGE WIRING, ABOVE GROUND LOW VOLTAGE CONDUIT AND FINAL CONNECTION BY CONTROLS CONTRACTOR.
9. PROVIDE PERMANENT LABEL ON EACH A/C UNIT IDENTIFYING AREA/SPACE SERVED PER CMC 303.7. COORDINATE ROOM NUMBERS WITH OWNER. SEE 230553 FOR ADDITIONAL REQUIREMENTS.
10. SYSTEM AIR BALANCE SHALL BE PERFORMED BY AN INDEPENDENT AGENCY CERTIFIED BY THE AABC. THIS WORK SHALL CONFORM TO CURRENT AABC SPECIFICATIONS AND STANDARDS.
11. PROVIDE WRITTEN WARRANTY TO REPLACE ALL FAULTY MATERIALS AND/OR LABOR, AT NO COST TO OWNER, FOR A PERIOD OF ONE YEAR FROM DATE OF OWNER ACCEPTANCE. PROVIDE 5 YEAR COMPRESSOR WARRANTY AND 10 YEAR HEAT EXCHANGER WARRANTY FOR ALL A/C EQUIPMENT.
12. FOR THE PURPOSE OF CLEARNESS AND LEGIBILITY, THE DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND ALTHOUGH SIZES AND LOCATION OF EQUIPMENT IS DRAWN TO SCALE WHEREVER POSSIBLE, THE CONTRACTOR SHALL MAKE USE OF ALL DATA IN ALL OF THE CONTRACTOR DOCUMENTS AND VERIFY THIS INFORMATION BEFORE ORDERING, FABRICATING OR INSTALLING OF ANY MATERIALS.
13. UNLESS SPECIFICALLY SHOWN ON THESE PLANS, NO STRUCTURAL MEMBERS SHALL BE CUT, DRILLED, NOR NOTCHED WITHOUT PRIOR WRITTEN AUTHORIZATION FROM THE STRUCTURAL ENGINEER AND THE DISTRICT STRUCTURAL ENGINEER FROM THE DIVISION OF THE STATE ARCHITECT.
14. ALL DUCT SIZES SHOWN ARE NET INSIDE DIMENSIONS AND DO NOT ACCOUNT FOR DUCT LINER THICKNESS WHERE APPLICABLE. ALL PIPE DIMENSIONS SHOWN ARE NOMINAL SIZES.
15. ALL BRANCH DUCTS SHALL BE PROVIDED WITH ACCESSIBLE MANUAL VOLUME DAMPERS.
16. PROVIDE FLEXIBLE CONNECTIONS TO ALL HVAC EQUIPMENT (A/C UNIT, FANS, ETC.)
17. INSTALLATION & MATERIALS SHALL CONFORM TO THE 2016 EDITION OF THE CALIFORNIA MECHANICAL CODE (CMC) AND TITLE 24 PARTS 4 & 6.
18. CONTRACTOR SHALL PROVIDE AS–BUILTS, CAD GENERATED AND DRAWN TO 1/8" = 1'–0" SCALE. SUBMIT 6 SETS OF HARD COPIES AND 1 ELECTRONIC COPY ON CD–ROM. CAD DRAWINGS SHALL BE AUTOCAD, LATEST VERSION. COORDINATE REQUIREMENTS WITH OWNER.
19. VERIFY EXACT LOCATION OF THERMOSTATS AND SENSORS WITH FURNITURE PLANS AND OWNERS REPRESENTATIVE PRIOR TO INSTALLATION.

MECHANICAL MANDATORY MEASURES

EQUIPMENT AND SYSTEMS EFFICIENCY

ANY APPLIANCE FOR WHICH THERE IS A CALIFORNIA STANDARD ESTABLISHED IN THE APPLIANCE EFFICIENCY STANDARDS SHALL COMPLY WITH THAT STANDARD.

PIPING, EXCEPT THOSE CONVEYING FLUIDS WITH A DESIGN OPERATING TEMPERATURE BETWEEN 60° F AND 105°F, OR WITHIN SPACE–CONDITIONING EQUIPMENT CERTIFIED UNDER, §110.1 OR §110.2, SHALL BE INSULATED IN ACCORDANCE WITH §120.3

ALL AIR DISTRIBUTION SYSTEM DUCTS AND PLENUMS ARE REQUIRED TO BE INSTALLED, SEALED, AND INSULATED IN ACCORDANCE WITH THE CALIFORNIA MECHANICAL CODE (CMC) SECTIONS 601, 602, 603, 604, 605 AND ANSI/SMACNA–006–2006 HVAC DUCT CONSTRUCTION STANDARDS METAL AND FLEXIBLE 3RD EDITION.

VENTILATION

CONTROLS SHALL BE PROVIDED TO ALLOW OUTSIDE AIR DAMPERS OR DEVICES TO BE OPERATED AT THE VENTILATION RATES AS SPECIFIED IN THESE PLANS.

ALL GRAVITY VENTILATING SYSTEMS SHALL BE PROVIDED WITH AUTOMATIC OR READILY ACCESSIBLE MANUALLY OPERATED DAMPERS IN ALL OPENINGS TO THE OUTSIDE.

AIR BALANCING: ALL SPACE CONDITIONING AND VENTILATION SYSTEMS SHALL BE BALANCED TO THE QUANTITIES SPECIFIED IN THESE PLANS, IN ACCORDANCE WITH THE ASSOCIATED AIR BALANCE COUNCIL (AABC) NATIONAL STANDARDS.

GRAVITY OR AUTOMATIC DAMPERS INTERLOCKED AND CLOSED ON FAN SHUTDOWN SHALL BE PROVIDED ON THE OUTSIDE AIR INTAKES AND DISCHARGES OF ALL SPACE CONDITIONING AND EXHAUST SYSTEMS.

FANS USED FOR VENTILATION SHALL OPERATE CONTINUOUSLY DURING OCCUPIED HOURS.

THE MINIMUM OUTDOOR AIR LISTED OR THREE COMPLETE AIR CHANGES SHALL BE SUPPLIED TO THE ENTIRE BLDG. DURING THE ONE HOUR PERIOD IMMEDIATELY BEFORE THE BLDG. IS NORMALLY OCCUPIED.

CONTROLS

EACH SPACE CONDITIONING ZONE SHALL BE CONTROLLED BY AN INDIVIDUAL THERMOSTATIC CONTROL THAT RESPONDS TO THE SUPPLY OF HEATING AND COOLING ENERGY WITHIN THAT ZONE §120.2(a). WHEN USED TO CONTROL HEATING, THE THERMOSTATIC CONTROL MUST BE ADJUSTABLE DOWN TO 55°F OR LOWER. FOR COOLING, THE THERMOSTATIC CONTROL MUST BE ADJUSTABLE UP TO 85°F OR HIGHER. WHEN USED TO CONTROL BOTH HEATING AND COOLING, THE THERMOSTATIC THE CONTROL MUST BE ADJUSTABLE FROM 55°F TO 85°F AND ALSO PROVIDE A DEAD BAND OF AT LEAST 5° F WITHIN WHICH THE SUPPLY OF HEATING AND COOLING IS SHUT OFF OR REDUCED TO A MINIMUM.

EACH SPACE CONDITIONING SYSTEM SERVING BUILDING TYPES SUCH AS OFFICES AND MANUFACTURING FACILITIES (AND ALL OTHERS NOT EXPLICITLY EXEMPT FROM THE REQUIREMENTS OF SECTION 112 (D)) SHALL BE INSTALLED WITH AN AUTOMATIC TIME SWITCH WITH AN ACCESSIBLE MANUAL OVERRIDE THAT ALLOWS OPERATION OF THE SYSTEM DURING OFF–HOURS FOR UP TO 4 HOURS. THE TIME SWITCH SHALL BE CAPABLE OF PROGRAMMING DIFFERENT SCHEDULES FOR WEEKDAYS OR WEEKENDS, INCORPORATE AN AUTOMATIC HOLIDAY "SHUTOFF" FEATURE THAT TURNS OFF ALL LOADS FOR AT LEAST 24 HOURS, THEN RESUMES THE NORMALLY SCHEDULED OPERATION; AND HAS PROGRAM BACKUP CAPABILITIES THAT PREVENT THE LOSS OF THE DEVICES PROGRAM AND TIME SETTING FOR AT LEAST 10 HOURS IF POWER IS INTERRUPTED.

SYSTEM WITH DDC TO THE §110.2(c) ARE ALSO REQUIRED TO HAVE AUTOMATIC DEMAND SHED CONTROLS.

EACH SPACE CONDITIONING SYSTEM MUST BE PROVIDED WITH CONTROLS THAT CAN AUTOMATICALLY SHUT OFF THE EQUIPMENT DURING UNOCCUPIED HOURS. WHEN SHUT DOWN, THE CONTROLS SHALL AUTOMATICALLY RESTART THE SYSTEM TO MAINTAIN A SETBACK HEATING THERMOSTAT SETPOINT, IF THE SYSTEM PROVIDES MECHANICAL HEATING AND SETUP COOLING THERMOSTAT SETPOINT, IF THE SYSTEM PROVIDES MECHANICAL COOLING.

THERMOSTATS SHALL HAVE NUMERIC SETPOINTS IN DEGREES FAHRENHEIT (F) AND ADJUSTABLE STOPS ACCESSIBLE ONLY BY AUTHORIZED PERSONNEL.

MECHANICAL SHEET INDEX

SHEET NO.	DESCRIPTION
M0.1	MECHANICAL GENERAL NOTES, ABBREVIATIONS & SYMBOLS
M0.2	MECHANICAL SCHEDULES/DETAILS
M2.0	MECHANICAL DEMOLITION FLOOR PLAN
M2.1	MECHANICAL PLAN

TOTAL SHEETS = 4

REGISTERED PROFESSIONAL ENGINEER – KEVIN STRAIN GOODWIN – M 23689 – MECHANICAL – STATE OF CALIFORNIA

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LICENSED ARCHITECT – LEIGH ANNE JONES – NO. C-29063 – 01-31-2019 RENEWAL DATE – STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

MECHANICAL GENERAL NOTES

M0.1
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12/21/2018
Revisions

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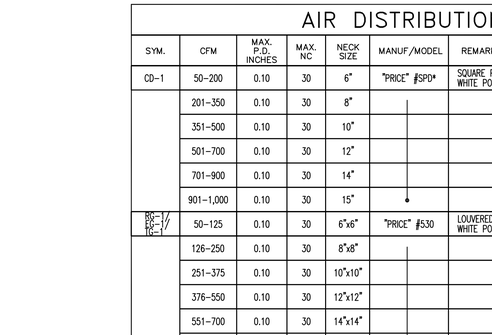
SYM.	CFM	MAX. P.D. INCHES	MAX. NC	NECK SIZE	MANUF/MODEL	REMARKS
CD-1	50-200	0.10	30	6"	"PRICE" #SPD*	SQUARE PLAQUE DIFFUSER, STEEL CONSTRUCTION, WHITE POWDER COAT FINISH.
	201-350	0.10	30	8"		
	351-500	0.10	30	10"		
	501-700	0.10	30	12"		
	701-900	0.10	30	14"		
	901-1,000	0.10	30	15"		
RG-1/ EG-1/ TG-1	50-125	0.10	30	6"x6"	"PRICE" #530	LOUVERED FACE, 3/4" BLADE SPACING, STEEL CONSTRUCTION, WHITE POWDER COAT FINISH.
	126-250	0.10	30	8"x8"		
	251-375	0.10	30	10"x10"		
	376-550	0.10	30	12"x12"		
	551-700	0.10	30	14"x14"		
	701-950	0.10	30	16"x16"		
	951-1400	0.10	30	18"x18"		
	1401-1750	0.10	30	20"x20"		

NOTE:
- CEILING DIFFUSER THROWS SHALL BE 4-WAY UNLESS OTHERWISE NOTED.
- PROVIDE REMOTE CABLE OPERATED DAMPER ("ROTOTWIST" OR APPROVED EQUIVALENT) AT HARD CEILINGS.
- ALL AIR DISTRIBUTION DEVICES TO HAVE CONCEALED MOUNTING OPTION.
- PROVIDE FILLER PANEL FOR AIR DISTRIBUTION INSTALLED IN LAY-IN CEILINGS.
- ALL AIR DISTRIBUTION TO PERFORM AT NC-30 OR LOWER SOUND LEVELS.
- * FOR 2-WAY PATTERN, INSTALL QUADRANT BLANKS.

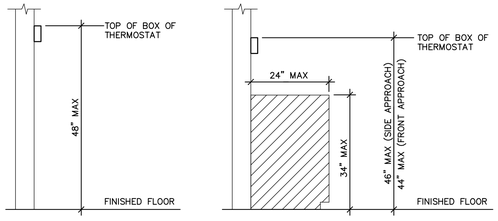
NOTES:
1. POSITION BOOT SO THAT AIR OUTLET IS NOT OBSTRUCTED OR DOES NOT FACE CEILING FRAMING.
2. SECURE BOOT TO CEILING FRAMING WITH 1-1/2"x1-1/2"x20GA. ANGLE - 2 PIECES MIN.
3. FIELD VERIFY EXACT GRILLE LOCATION. BOOT SHALL NOT BE VISIBLE FROM COMMON AREA(S).

RETURN TRANSFER DUCT DETAIL | SCALE NONE | 1

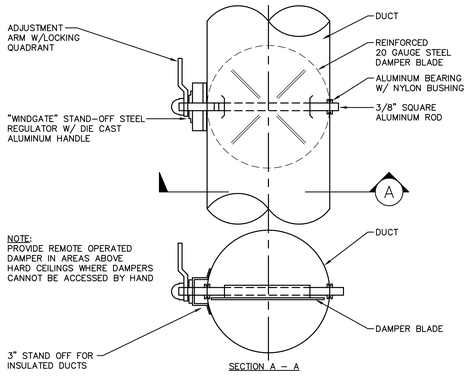
CONCEALED DUCT SUPPORT DETAIL | SCALE NONE | 2



AIR DISTRIBUTION MOUNTING DETAIL | SCALE NONE | 3



THERMOSTAT MOUNTING DETAIL | SCALE NONE | 4



MANUAL VOLUME DAMPER DETAIL | SCALE NONE | 5

- | SCALE NONE | 6

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Architecture Engineering Planning Interiors

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DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

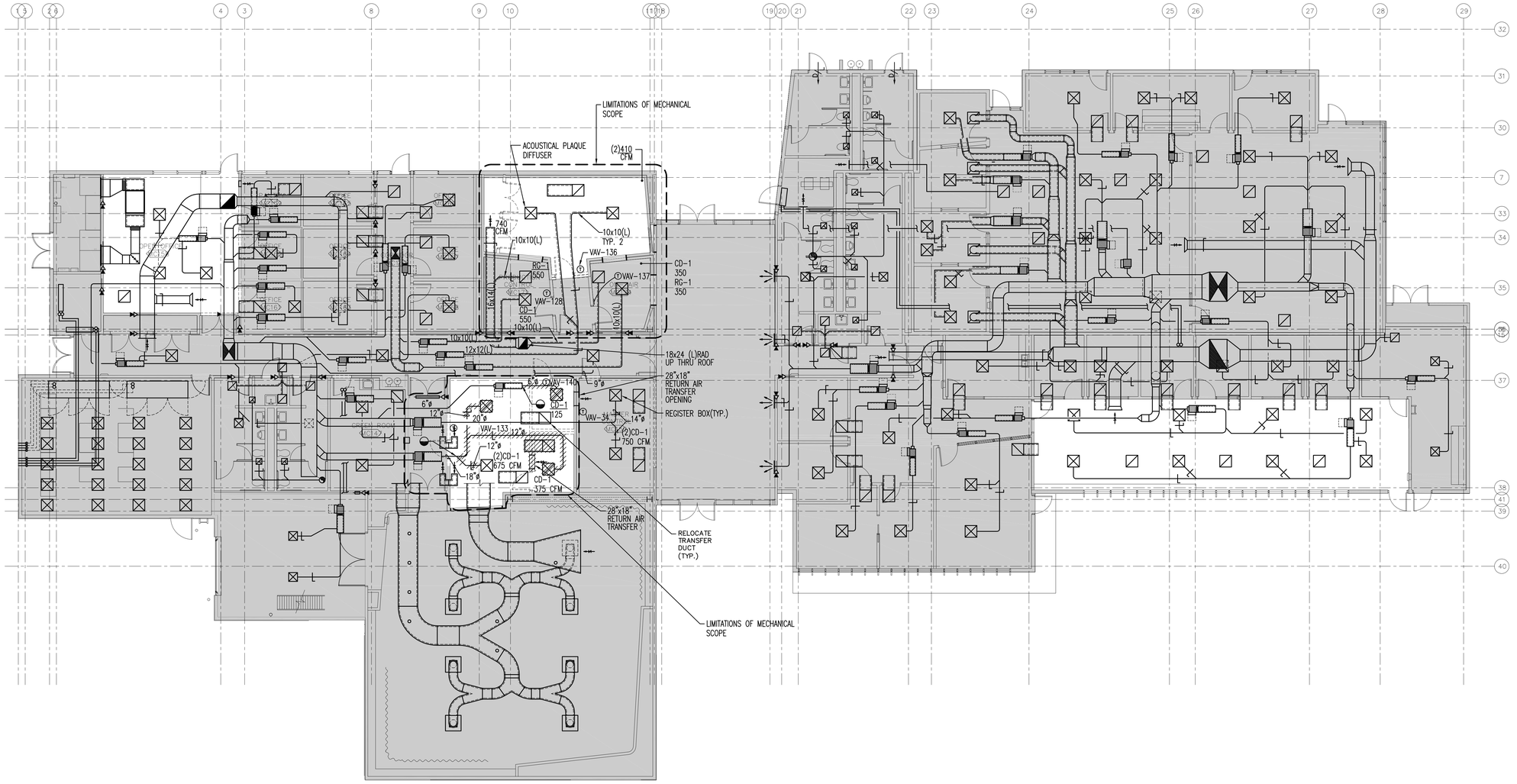
LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30953
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MECHANICAL SCHEDULES AND DETAILS
MEDIA COMMUNICATIONS BUILDING REMODEL

M0.2
75-18608.00
12/21/2018
Revisions

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DCGA #18074



N

MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-29088
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

MECHANICAL DEMOLITION PLAN

M2.0

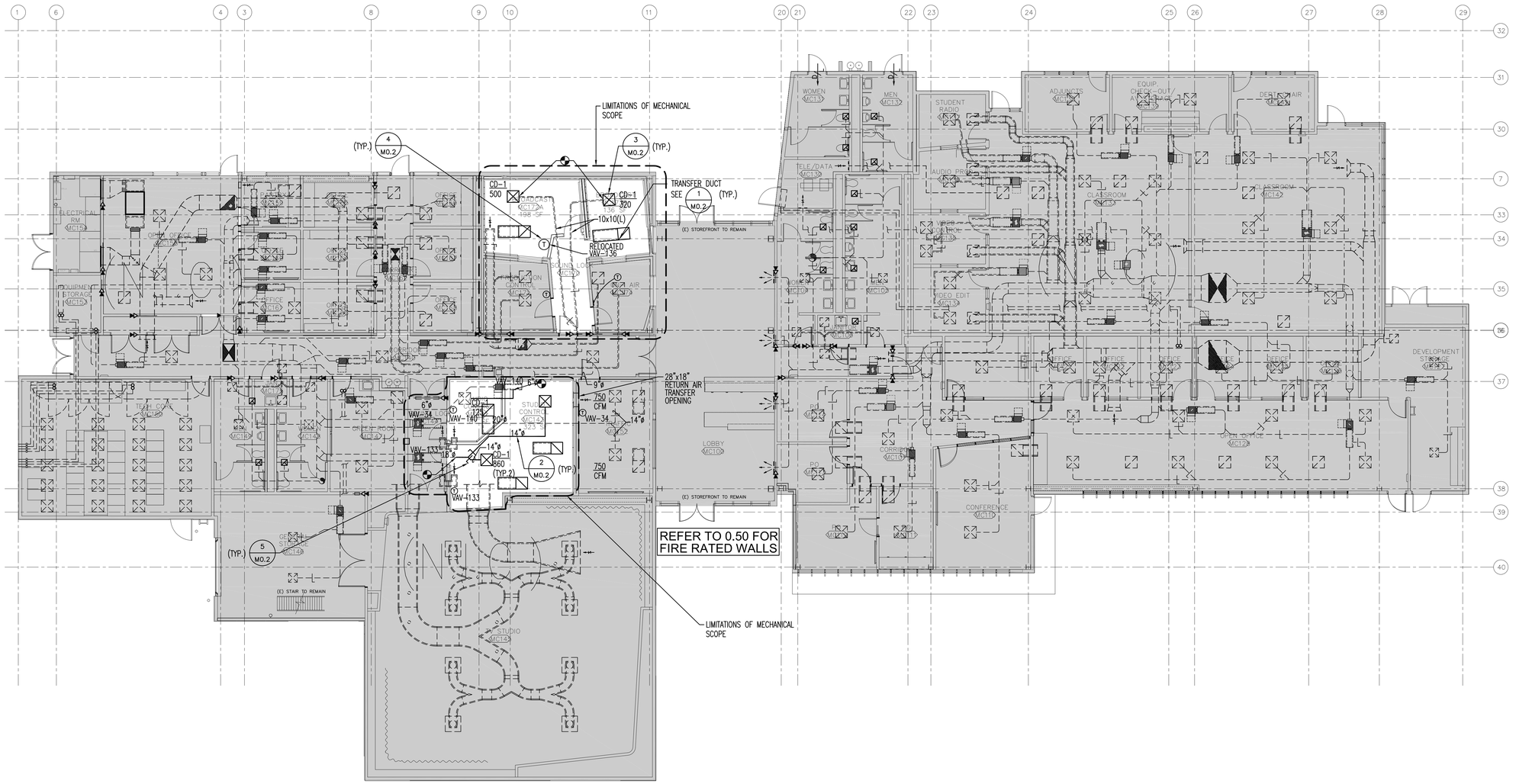
75-18008-00
12/21/2018
Revisions

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STATE OF CALIFORNIA

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N

MECHANICAL PLAN

SCALE: 1/8" = 1'-0"

NOTE:
FOR FIRE RATED WALLS, REFER TO ARCHITECTURAL DRAWING 0.50.

DSA SUBMITTAL

701 S. MOUNT VERNON AVE
SAN BERNARDINO, CA 92410

LICENSED ARCHITECT
LEIGH ANNE JONES
No. C-30088
01-31-2019
RENEWAL DATE
STATE OF CALIFORNIA

MEDIA COMMUNICATIONS BUILDING REMODEL

MECHANICAL PLAN

M2.1
75-18608-00
12/21/2018
Revisions

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EXHIBIT F

TECHNICAL SPECIFICATIONS

San Bernardino Community College District

PROJECT MANUAL

FOR

SAB BERNARDINO VALLEY COLLEGE MEDIA & COMMUNICATIONS BUILDING TENANT IMPROVEMENT

DSA SUBMITTAL SET

Prepared By



DLR Group
ARCHITECTURE ENGINEERING PLANNING INTERIORS

1650 Spruce Street, Suite 300
Riverside, California 92507
Telephone: 951/682-0470

Project No. 75-178608-00

December 21, 2018

San Bernardino Valley College
Media & Communication Tenant Improvement

PROJECT DIRECTORY AND PROFESSIONAL REGISTRATION STAMPS

OWNER:

San Bernardino Community College District
114 South Del Rosa Drive
San Bernardino, CA 92408
Phone: (909) 382-4094
Contact: Hussain Agah

DRAWINGS AND SPECIFICATIONS PREPARED BY:

ARCHITECT:

DLR Group
1650 Spruce Street, Suite 300
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Phone: (951) 682-0470
Contact: Leigh Anne Jones

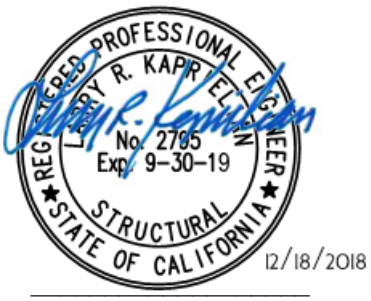


Signed Registration
Stamp with Expiration:

Date Signed: December 18, 2018

STRUCTURAL ENGINEER:

KNA Structural Engineers
993 Muirlands Blvd.
Irvine, CA 92618
Phone: (949) 462-3200
Contact: Larry Kaprelian



Signed Registration
Stamp with Expiration:

Date Signed: December 18, 2018

MECHANICAL/
PLUMBING ENGINEER:

DCGA Engineers, Inc
4750 East Ontario Mills Parkway
Ontario, CA 91764
Phone: (909) 987-0017
Contact: Krishan Gossain



Signed Registration
Stamp with Expiration: _____

Date Signed: December 18, 2018

ELECTRICAL ENGINEER:

DCGA Engineers, Inc
4750 East Ontario Mills Parkway
Ontario, CA 91764
Phone: (909) 987-0017
Contact: Chen Hsing Fang



Signed Registration
Stamp with Expiration: _____

Date Signed: December 18, 2018

Division	Section Title

PROCUREMENT AND CONTRACTING DOCUMENTS GROUP

DIVISION 00 - PROCUREMENT AND CONTRACTING REQUIREMENTS

000001 COVER PAGE
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SECTION 024119 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Demolition and removal of selected portions of building or structure.
2. Demolition and removal of selected site elements.
3. Salvage of existing items to be reused or recycled.

1.3 DEFINITIONS

A. Remove: Detach items from existing construction and dispose of them off-site unless indicated to be salvaged or reinstalled.

B. Remove and Salvage: Detach items from existing construction, in a manner to prevent damage, and deliver to Owner ready for reuse.

C. Remove and Reinstall: Detach items from existing construction, in a manner to prevent damage, prepare for reuse, and reinstall where indicated.

D. Existing to Remain: Leave existing items that are not to be removed and that are not otherwise indicated to be salvaged or reinstalled.

E. Dismantle: To remove by disassembling or detaching an item from a surface, using gentle methods and equipment to prevent damage to the item and surfaces; disposing of items unless indicated to be salvaged or reinstalled.

1.4 MATERIALS OWNERSHIP

A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project Site.

1. Inspect and discuss condition of construction to be selectively demolished.

2. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
3. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
4. Review areas where existing construction is to remain and requires protection.

1.6 INFORMATIONAL SUBMITTALS

A. Proposed Protection Measures: Submit report, including Drawings, that indicates the measures proposed for protecting individuals and property for environmental protection, dust control, and noise control. Indicate proposed locations and construction of barriers.

B. Schedule of Selective Demolition Activities: Indicate the following:

1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
2. Interruption of utility services. Indicate how long utility services will be interrupted.
3. Coordination for shutoff, capping, and continuation of utility services.
4. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.

C. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

1.7 FIELD CONDITIONS

A. Owner may occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.

B. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

C. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

D. Hazardous Materials: It is expected that hazardous materials will not be encountered in the Work.

E. Storage or sale of removed items or materials on-site is not permitted.

F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.

1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials and using approved contractors so as not to void existing warranties. Notify warrantor before proceeding.

B. Notify warrantor on completion of selective demolition, and obtain documentation verifying that existing system has been inspected and warranty remains in effect. Submit documentation at Project closeout.

1.9 COORDINATION

A. Arrange selective demolition schedule so as not to interfere with Owner's operations.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that utilities have been disconnected and capped before starting selective demolition operations.

B. Review Project Record Documents of existing construction or other existing condition and hazardous material information provided by Owner. Owner does not guarantee that existing conditions are same as those indicated in Project Record Documents.

3.2 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.

B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.
   1. Arrange to shut off utilities with utility companies.

2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.

    a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
    b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
    c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
    d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
    e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
    f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
    g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.3 PROTECTION

A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.

1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment that have not been removed.

B. Temporary Shoring: Design, provide, and maintain shoring, bracing, and structural supports as required to preserve stability and prevent movement, settlement, or collapse of construction and finishes to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.

1. Strengthen or add new supports when required during progress of selective demolition.

C. Remove temporary barricades and protections where hazards no longer exist.

3.4 SELECTIVE DEMOLITION, GENERAL

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:

1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping. Temporarily cover openings to remain.
3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations.
5. Maintain fire watch during and for at least 1-hour after flame-cutting operations.
6. Maintain adequate ventilation when using cutting torches.
7. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
8. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
9. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
10. Dispose of demolished items and materials legally and promptly.
11. Unless specifically shown on these plans, no structural members shall be cut, drilled or notched without prior written authorization from the structural engineer and the District Structural Engineer from the Division of the State Architect.

B. Removed and Salvaged Items:

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Protect items from damage during transport and storage.

C. Removed and Reinstalled Items:

1. Clean and repair items to functional condition adequate for intended reuse.
2. Pack or crate items after cleaning and repairing. Identify contents of containers.
3. Protect items from damage during transport and storage.
4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

D. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable,

protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

3.5 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

A. Concrete: Demolish in small sections. Using power-driven saw, cut concrete to a depth of at least 3/4 inch at junctures with construction to remain. Dislodge concrete from reinforcement at perimeter of areas being demolished, cut reinforcement, and then remove remainder of concrete. Neatly trim openings to dimensions indicated.

B. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, and then break up and remove.

C. Roofing: Remove no more existing roofing than what can be covered in one day by new roofing and so that building interior remains watertight and weathertight.

1. Remove existing built-up roof, roof membrane, flashings, copings, and roof accessories.
2. Remove existing roofing system down to substrate.

3.6 DISPOSAL OF DEMOLISHED MATERIALS

A. Remove demolition waste materials from Project site and dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.

1. Do not allow demolished materials to accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn demolished materials.

3.7 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION 024119

SECTION 05 05 19
POST-INSTALLED CONCRETE ANCHORS

PART 1 – GENERAL

1.01 SUMMARY

A. Related Sections:

1. Division 3 Concrete Sections.
2. Division 5 Metals Sections.

1.02 SUBMITTALS

A. Closeout Submittals: Submit the following:

1. Record Documents: Project record documents for installed materials in accordance with Division 1 Closeout Submittals Section.

1.03 QUALITY ASSURANCE

A. Installer Qualifications:

1. Drilled-in anchors shall be installed by an **installer** with at least **three** years of experience performing similar installations.

B. Installer Training: Conduct a thorough training with the manufacturer or the manufacturer's representative for the **installer** on the project. Training to consist of a review of the complete installation process for drilled-in anchors, to include but not limited to:

1. hole drilling procedure
2. hole preparation & cleaning technique
3. adhesive injection technique & dispenser training / maintenance
4. rebar dowel preparation and installation
5. proof loading/torquing

C. Certifications: Unless otherwise authorized by the Engineer, anchors shall have one of the following certifications:

1. ICC ES Evaluation Report indicating conformance with current applicable ICC ES Acceptance Criteria.

1.04 DELIVERY, STORAGE AND HANDLING

A. General: Comply with Division 1 Section–Product Storage and Handling Requirements.

1. Store anchors in accordance with manufacturer's recommendations.

PART 2 – PRODUCTS

2.01 MATERIALS

A. Fasteners and Anchors:

1. Bolts and Studs: ASTM A307; ASTM A449 where “high strength” is indicated on the Drawings.
2. Carbon and Alloy Steel Nuts: ASTM A563.
3. Carbon Steel Washers: ASTM F436.
4. Carbon Steel Threaded Rod: ASTM A36; or ASTM A193 Grade B7; or ISO 898 Class 5.8.
5. Wedge Anchors: ASTM A510; or ASTM A108.
6. Stainless Steel Bolts, Hex Cap Screws, and Studs: ASTM F593.
7. Stainless Steel Nuts: ASTM F594.
8. Zinc Plating: ASTM B633.
9. Hot-Dip Galvanizing: ASTM A153.
10. Metric Anchor Bolts, Screws, and Studs: ISO 898 Part 1.
11. Metric Anchor Nuts: EN 24033.
12. Metric Anchor Stainless Steel Bolts, Screws, and Studs: ISO 3506 Part 1.
13. Metric Anchor Stainless Steel Nuts: ISO 3506 Part 2.

2.02 DRILLED-IN ANCHORS

A. Wedge Anchors: Wedge type, torque-controlled, with impact section to prevent thread damage complete with required nuts and washers. Provide anchors with length identification markings conforming to ICC ES AC01 or ICC ES AC193. Type and size as indicated on Drawings.

1. Interior Use: Unless otherwise indicated on the Drawings, provide carbon steel anchors with zinc plating in accordance with ASTM B633, Type III Fe/Zn 5 (SC1).
2. Exterior Use: As indicated on the Drawings, provide stainless steel anchors. Stainless steel anchors shall be AISI **[Type 304]** stainless steel provided with stainless steel nuts and washers of matching alloy group and minimum proof stress equal to or greater than the specified minimum full-size tensile strength of the externally threaded fastener. Stainless steel nuts shall conform to ASTM F594 unless otherwise specified. Avoid installing stainless steel anchors in contact with galvanically dissimilar metals.
3. Where anchor manufacturer is not indicated, subject to compliance with requirements and acceptance by the Engineer, provide the following:
    a. Hilti Kwik Bolt 3, ICC ESR-1385 and ESR-2302.

b. Hilti Kwik Bolt TZ, ICC ESR-1917 (carbon steel and AISI Type 304 Stainless Steel).

A. Screw Anchors: screw type. Pre-drilling of the hole requires a standard ANSI drill bit with the same diameter as the anchor and installing the anchor will be done with an impact wrench. Provide anchors with a diameter and anchor length marking on the head. Type and size as indicated on Drawings.

1. Interior Use: Unless otherwise indicated on the Drawings, provide carbon steel anchors with zinc plating equivalent to DIN EN ISO 4042 (8µm min.).

2. Where anchor manufacturer is not indicated, subject to compliance with requirements and acceptance by the Engineer, provide the following:

a. Hilti Kwik-HUS-EZ, ICC-ESR 3027.

b. Hilti Kwik-HUS EZ-I, ICC-ESR 3027.

c. Hilti Kwik-HUS.

1. Interior Use: Unless otherwise indicated on the Drawings, provide carbon steel anchors manufactured from materials conforming to ISO 898 Part 1, with zinc plating equivalent to ASTM B633, Type III Fe/Zn 5 (5µm min.).

1. Interior Use: Unless otherwise indicated on the Drawings, provide carbon steel anchors manufactured from materials conforming to ISO 898 Part 1, with zinc plating equivalent to ASTM B633, Type III Fe/Zn 5 (5µm min.).

PART 3 – EXECUTION

3.01 INSTALLATION

A. Drilled-In Anchors:

1. Drill holes with rotary impact hammer drills **using [carbide-tipped bits], [hollow drill bit system], or] [core drills using diamond core bits]**. Drill bits shall be of diameters as specified by the anchor manufacturer. Unless otherwise shown on the Drawings, all holes shall be drilled perpendicular to the concrete surface.

a. Cored Holes: Where anchors are permitted to be installed in cored holes, use core bits with matched tolerances as specified by the manufacturer. Properly clean cored hole per manufacturer's instructions.

b. Embedded Items: Identify position of reinforcing steel and other embedded items prior to drilling holes for anchors. Exercise care in coring or drilling to avoid damaging existing reinforcing or embedded items. Notify the Engineer if reinforcing steel or other embedded items are encountered during drilling. Take precautions as necessary to avoid damaging prestressing tendons, electrical and telecommunications conduit, and gas lines.

c. Base Material Strength: Unless otherwise specified, do not drill holes in concrete or masonry until concrete, mortar, or grout has achieved full design strength.

2. Perform anchor installation in accordance with manufacturer instructions.

3. Wedge Anchors, Heavy-Duty Sleeve Anchors, and Undercut Anchors: Protect threads from damage during anchor installation. Heavy-duty sleeve anchors shall be installed with sleeve fully engaged in part to be fastened. Set anchors to manufacturer's recommended torque, using a torque wrench. Following attainment of 10% of the specified torque, 100% of the specified torque shall be reached within 7 or fewer complete turns of the nut. If the specified torque is not achieved within the required number of turns, the anchor shall be removed and replaced unless otherwise directed by the Engineer.

3.02 REPAIR OF DEFECTIVE WORK

A. Remove and replace misplaced or malfunctioning anchors. Fill empty anchor holes and patch failed anchor locations with high-strength non-shrink, nonmetallic grout. Anchors that fail to meet proof load or installation torque requirements shall be regarded as malfunctioning.

3.03 FIELD QUALITY CONTROL

A. Testing: 50% of each type and size of drilled-in anchor shall be proof loaded by the independent testing laboratory. If **[any]** of the tested anchors fail to achieve the specified torque or proof load within the limits as defined on the Drawings, all anchors of the same diameter and type as the failed anchor shall be tested, unless otherwise instructed by the Engineer.

1. Tension testing should be performed in accordance with ASTM E488.

2. Torque shall be applied with a calibrated torque wrench.

3. Proof loads shall be applied with a calibrated hydraulic ram. Displacement of adhesive and capsule anchors at proof load shall not exceed D/10, where D is the nominal anchor diameter.

B. Minimum anchor embedments, proof loads and torques shall be as shown on the Drawings.

END OF SECTION

SECTION 05 4000

COLD-FORMED METAL FRAMING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
1. Exterior non-load-bearing wall framing.
2. Ceiling joist framing.
3. Soffit framing.

B. Related Requirements:

1. Section 055000 "Metal Fabrications" for masonry shelf angles and connections.
2. Section 092116.23 "Gypsum Board Shaft Wall Assemblies" for interior non-load-bearing, metal-stud-framed, shaft-wall assemblies.
3. Section 092216 "Non-Structural Metal Framing" for interior non-load-bearing, metal-stud framing and ceiling-suspension assemblies.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of cold-formed steel framing product and accessory.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For testing agency.

B. Welding certificates.

C. Product Test Reports: For each listed product, for tests performed by a qualified testing agency.

1. Steel sheet.
2. Expansion anchors.
3. Power-actuated anchors.
4. Mechanical fasteners.
5. Vertical deflection clips.
6. Horizontal drift deflection clips

7. Miscellaneous structural clips and accessories.

D. Research Reports: For non-standard cold-formed steel framing, from ICC-ES.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM E 329 for testing indicated.

B. Product Tests: Mill certificates or data from a qualified independent testing agency indicating steel sheet complies with requirements, including base-metal thickness, yield strength, tensile strength, total elongation, chemical requirements, and metallic-coating thickness.

C. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."

D. Comply with AISI S230 "Standard for Cold-Formed Steel Framing - Prescriptive Method for One and Two Family Dwellings."

1.6 DELIVERY, STORAGE, AND HANDLING

A. Protect cold-formed steel framing from corrosion, moisture staining, deformation, and other damage during delivery, storage, and handling.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Clark-Dietrich

B. Steel Stud Manufacturer’s Association

2.2 COLD-FORMED STEEL FRAMING, GENERAL

A. Steel Sheet: ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of grade and coating weight as follows:

1. Grade: ST33H (ST230H) for 20 and 18 gage material, ST50H (ST340H) for 16 and 14 gage material.
2. Coating: G60 (Z180), A60 (ZF180), AZ50 (AZ150), or GF30 (ZGF90)

B. Steel Sheet for Clips : ASTM A 653/A 653M, structural steel, zinc coated, of grade and coating as follows:

1. Grade: 50 (340), Class 1

2. Coating: G60 (Z180)

2.3 CEILING JOIST FRAMING

A. Steel Ceiling Joists: Manufacturer's standard C-shaped steel sections, of web depths indicated, punched with standard holes, with stiffened flanges, and as follows:
   1. Minimum Base-Metal Thickness: as specified on drawings.
   2. Flange Width: as specified on drawings.
   3. Section Properties: Drawings shall specify dimensions of members. Section properties shall be per the manufacturers listed.

2.4 FRAMING ACCESSORIES

A. Fabricate steel-framing accessories from steel sheet, ASTM A 1003/A 1003M, Structural Grade, Type H, metallic coated, of same grade and coating weight used for framing members.

B. Provide accessories of manufacturer's standard thickness and configuration, unless otherwise indicated, as follows:

   1. Supplementary framing.
   2. Bracing, bridging, and solid blocking.
   3. Web stiffeners.
   4. Anchor clips.
   5. End clips.
   6. Foundation clips.
   7. Stud kickers and knee braces.
   8. Joist hangers and end closures.
   9. Hole reinforcing plates.
   10. Backer plates.

2.5 ANCHORS, CLIPS, AND FASTENERS

A. Steel Shapes and Clips: ASTM A 36/A 36M, zinc coated by hot-dip process according to ASTM A 123/A 123M.

B. Anchor Bolts: As specified on drawings.

C. Expansion Anchors: As specified on drawings.

D. Power-Actuated Anchors: As specified on drawings.

E. Mechanical Fasteners: ASTM C 1513, corrosion-resistant-coated, self-drilling, self-tapping, steel drill screws.

   1. Head Type: Low-profile head beneath sheathing, manufacturer's standard elsewhere.

F. Welding Electrodes: Comply with AWS standards.

2.6 MISCELLANEOUS MATERIALS

A. Galvanizing Repair Paint: ASTM A 780.

B. Shims: Load bearing, high-density multimonomer plastic, and nonleaching; or of cold-formed steel of same grade and coating as framing members supported by shims.

C. Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch (6.4 mm) thick, selected from manufacturer's standard widths to match width of bottom track or rim track members.

2.7 FABRICATION

A. Fabricate cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened, according to referenced AISI's specifications and standards, manufacturer's written instructions, and requirements in this Section.

1. Fabricate framing assemblies using jigs or templates.
2. Cut framing members by sawing or shearing; do not torch cut.
3. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, pneumatic pin fastening, or riveting as standard with fabricator. Wire tying of framing members is not permitted.

    a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.
    b. Locate mechanical fasteners and install according to Shop Drawings, with screw penetrating joined members by no fewer than three exposed screw threads.

4. Fasten other materials to cold-formed steel framing by welding, bolting, pneumatic pin fastening, or screw fastening, according to Shop Drawings.

B. Reinforce, stiffen, and brace framing assemblies to withstand handling, delivery, and erection stresses. Lift fabricated assemblies to prevent damage or permanent distortion.

C. Fabrication Tolerances: Fabricate assemblies level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Spacing: Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.
2. Squareness: Fabricate each cold-formed steel framing assembly to a maximum out-of-square tolerance of 1/8 inch (3 mm).

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine supporting substrates and abutting structural framing for compliance with requirements for installation tolerances and other conditions affecting performance of the Work.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Before sprayed fire-resistive materials are applied, attach continuous angles, supplementary framing, or tracks to structural members indicated to receive sprayed fire-resistive materials.

B. After applying sprayed fire-resistive materials, remove only as much of these materials as needed to complete installation of cold-formed framing without reducing thickness of fire-resistive materials below that are required to obtain fire-resistance rating indicated. Protect remaining fire-resistive materials from damage.

C. Install sealer gaskets at the underside of wall bottom track or rim track and at the top of foundation wall or slab at stud or joist locations.

3.3 INSTALLATION, GENERAL

A. Cold-formed steel framing may be shop or field fabricated for installation, or it may be field assembled.

B. Install cold-formed steel framing according to AISI S200 and to manufacturer's written instructions unless more stringent requirements are indicated.

C. Install shop- or field-fabricated, cold-formed framing and securely anchor to supporting structure.

1. Screw, bolt, or weld wall panels at horizontal and vertical junctures to produce flush, even, true-to-line joints with maximum variation in plane and true position between fabricated panels not exceeding 1/16 inch (1.6 mm).

D. Install cold-formed steel framing and accessories plumb, square, and true to line, and with connections securely fastened.

1. Cut framing members by sawing or shearing; do not torch cut.
2. Fasten cold-formed steel framing members by welding, screw fastening, clinch fastening, or riveting. Wire tying of framing members is not permitted.

a. Comply with AWS D1.3/D1.3M requirements and procedures for welding, appearance and quality of welds, and methods used in correcting welding work.

b. Locate mechanical fasteners and install according to Shop Drawings, and complying with requirements for spacing, edge distances, and screw penetration.

E. Install framing members in one-piece lengths unless splice connections are indicated for track or tension members.

F. Install temporary bracing and supports to secure framing and support loads comparable in intensity to those for which structure was designed. Maintain braces and supports in place, undisturbed, until entire integrated supporting structure has been completed and permanent connections to framing are secured.

G. Do not bridge building expansion joints with cold-formed steel framing. Independently frame both sides of joints.

H. Install insulation, specified in Section 072100 "Thermal Insulation," in built-up exterior framing members, such as headers, sills, boxed joists, and multiple studs at openings, that are inaccessible on completion of framing work.

I. Fasten hole reinforcing plate over web penetrations that exceed size of manufacturer's approved or standard punched openings.

J. Erection Tolerances: Install cold-formed steel framing level, plumb, and true to line to a maximum allowable tolerance variation of 1/8 inch in 10 feet (1:960) and as follows:

1. Space individual framing members no more than plus or minus 1/8 inch (3 mm) from plan location. Cumulative error shall not exceed minimum fastening requirements of sheathing or other finishing materials.

3.4 JOIST INSTALLATION

A. Install perimeter joist track sized to match joists. Align and securely anchor or fasten track to supporting structure at corners, ends, and spacings indicated on drawings.

B. Install joists bearing on supporting frame, level, straight, and plumb; adjust to final position, brace, and reinforce. Fasten joists to both flanges of joist track.

1. Install joists over supporting frame with a minimum end bearing of 1-1/2 inches (38 mm).
2. Reinforce ends and bearing points of joists with web stiffeners, end clips, joist hangers, steel clip angles, or steel-stud sections as indicated on Shop Drawings.

C. Space joists not more than 2 inches (51 mm) from abutting walls, and as follows:

1. Joist Spacing: 16 inches unless noted otherwise.

D. Frame openings with built-up joist headers consisting of joist and joist track, or another combination of connected joists if indicated.

E. Install bridging at intervals indicated. Fasten bridging at each joist intersection as follows:

1. Bridging: Joist-track solid blocking of width and thickness indicated, secured to joist webs.
2. Bridging: Combination of flat, taut, steel sheet straps of width and thickness indicated and joist-track solid blocking of width and thickness indicated. Fasten flat straps to bottom flange of joists and secure solid blocking to joist webs.

F. Secure joists to load-bearing interior walls to prevent lateral movement of bottom flange.

G. Install miscellaneous joist framing and connections, including web stiffeners, closure pieces, clip angles, continuous angles, hold-down angles, anchors, and fasteners, to provide a complete and stable joist-framing assembly.

3.5 FIELD QUALITY CONTROL

A. Testing: Owner will engage a qualified independent testing and inspecting agency to perform field tests and inspections and prepare test reports.

B. Field and shop welds will be subject to testing and inspecting.

C. Testing agency will report test results promptly and in writing to Contractor and Architect.

D. Remove and replace work where test results indicate that it does not comply with specified requirements.

E. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.

3.6 REPAIRS AND PROTECTION

A. Galvanizing Repairs: Prepare and repair damaged galvanized coatings on fabricated and installed cold-formed steel framing with galvanized repair paint according to ASTM A 780 and manufacturer's written instructions.

B. Provide final protection and maintain conditions, in a manner acceptable to manufacturer and Installer, that ensure that cold-formed steel framing is without damage or deterioration at time of Substantial Completion.

END OF SECTION 05 4000

SECTION 061000 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Framing with dimension lumber.
2. Framing with engineered wood products.
3. Rooftop equipment bases and support curbs.
4. Wood blocking and nailers.
5. Wood furring.
6. Plywood backing panels.

1.3 DEFINITIONS

A. Boards or Strips: Lumber of less than 2 inches nominal size in least dimension.

B. Dimension Lumber: Lumber of 2 inches nominal size or greater but less than 5 inches nominal size in least dimension.

C. Exposed Framing: Framing not concealed by other construction.

D. OSB: Oriented strand board.

E. Timber: Lumber of 5 inches nominal size or greater in least dimension.

1.4 ACTION SUBMITTALS

A. Product Data: For each type of process and factory-fabricated product. Indicate component materials and dimensions and include construction and application details.

1. Include data for wood-preservative treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Indicate type of preservative used and net amount of preservative retained.
2. Include data for fire-retardant treatment from chemical treatment manufacturer and certification by treating plant that treated materials comply with requirements. Include physical properties of treated materials based on testing by a qualified independent testing agency.

3. For fire-retardant treatments, include physical properties of treated lumber both before and after exposure to elevated temperatures, based on testing by a qualified independent testing agency according to ASTM D 5664.
4. For products receiving a waterborne treatment, include statement that moisture content of treated materials was reduced to levels specified before shipment to Project site.

B. Fastener Patterns: Full-size templates for fasteners in exposed framing.

1.5 INFORMATIONAL SUBMITTALS

A. Material Certificates: For dimension lumber specified to comply with minimum allowable unit stresses. Indicate species and grade selected for each use and design values approved by the ALSC Board of Review.

B. Evaluation Reports: For the following, from ICC-ES:

1. Wood-preservative-treated wood.
2. Fire-retardant-treated wood.
3. Engineered wood products.
4. Shear panels.
5. Power-driven fasteners.
6. Post-installed anchors.

1.6 QUALITY ASSURANCE

A. Testing Agency Qualifications: For testing agency providing classification marking for fire-retardant treated material, an inspection agency acceptable to authorities having jurisdiction that periodically performs inspections to verify that the material bearing the classification marking is representative of the material tested.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Stack wood products flat with spacers beneath and between each bundle to provide air circulation. Protect wood products from weather by covering with waterproof sheeting, securely anchored. Provide for air circulation around stacks and under coverings.

PART 2 - PRODUCTS

2.1 WOOD PRODUCTS, GENERAL

1. Dimension lumber, except treated materials.
2. Laminated-veneer lumber.
3. Parallel-strand lumber.
4. Rim boards.

5. Dimension lumber.

6. Laminated-veneer lumber.
7. Parallel-strand lumber.
8. Prefabricated wood I-joists.
9. Rim boards.

B. Lumber: DOC PS 20 and applicable rules of grading agencies indicated. If no grading agency is indicated, comply with the applicable rules of any rules-writing agency certified by the ALSC Board of Review. Grade lumber by an agency certified by the ALSC Board of Review to inspect and grade lumber under the rules indicated.

1. Factory mark each piece of lumber with grade stamp of grading agency.
2. For exposed lumber indicated to receive a stained or natural finish, mark grade stamp on end or back of each piece or omit grade stamp and provide certificates of grade compliance issued by grading agency.
3. Dress lumber, S4S, unless otherwise indicated.

C. Maximum Moisture Content of Lumber: 19 percent unless otherwise indicated.

D. Engineered Wood Products: Acceptable to authorities having jurisdiction and for which current model code research or evaluation reports exist that show compliance with building code in effect for Project.

1. Allowable design stresses, as published by manufacturer, shall meet or exceed those indicated. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency.

2.2 WOOD-PRESERVATIVE-TREATED LUMBER

A. Preservative Treatment by Pressure Process: AWPA U1; Use Category UC2 for interior construction not in contact with ground, Use Category UC3b for exterior construction not in contact with ground, and Use Category UC4a for items in contact with ground.

1. Preservative Chemicals: Acceptable to authorities having jurisdiction and containing no arsenic or chromium. Do not use inorganic boron (SBX) for sill plates.
2. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not require incising, contain colorants, bleed through, or otherwise adversely affect finishes.

B. Kiln-dry lumber after treatment to a maximum moisture content of 19 percent. Do not use material that is warped or that does not comply with requirements for untreated material.

C. Mark lumber with treatment quality mark of an inspection agency approved by the ALSC Board of Review.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by inspection agency.

D. Application: Treat items indicated on Drawings, and the following:

1. Wood cants, nailers, curbs, equipment support bases, blocking, stripping, and similar members in connection with roofing, flashing, vapor barriers, and waterproofing.
2. Wood sills, sleepers, blocking, furring, and similar concealed members in contact with masonry or concrete.
3. Wood framing and furring attached directly to the interior of below-grade exterior masonry or concrete walls.
4. Wood framing members that are less than 18 inches above the ground in crawlspaces or unexcavated areas.
5. Wood floor plates that are installed over concrete slabs-on-grade.

2.3 FIRE-RETARDANT-TREATED MATERIALS

A. General: Where fire-retardant-treated materials are indicated, materials shall comply with requirements in this article, that are acceptable to authorities having jurisdiction, and with fire-test-response characteristics specified as determined by testing identical products per test method indicated by a qualified testing agency.

B. Fire-Retardant-Treated Lumber and Plywood by Pressure Process: Products with a flame-spread index of 25 or less when tested according to ASTM E 84, and with no evidence of significant progressive combustion when the test is extended an additional 20 minutes, and with the flame front not extending more than 10.5 feet beyond the centerline of the burners at any time during the test.

1. Treatment shall not promote corrosion of metal fasteners.
2. Exterior Type: Treated materials shall comply with requirements specified above for fire-retardant-treated lumber and plywood by pressure process after being subjected to accelerated weathering according to ASTM D 2898. Use for exterior locations and where indicated.
3. Interior Type A: Treated materials shall have a moisture content of 28 percent or less when tested according to ASTM D 3201 at 92 percent relative humidity. Use where exterior type is not indicated.
4. Design Value Adjustment Factors: Treated lumber shall be tested according to ASTM D 5664 and design value adjustment factors shall be calculated according to ASTM D 6841. For enclosed roof framing, framing in attic spaces, and where high temperature fire-retardant treatment is indicated, provide material with adjustment factors of not less than 0.85 modulus of elasticity and 0.75 for extreme fiber in bending for Project's climatological zone.

C. Kiln-dry lumber after treatment to maximum moisture content of 19 percent. Kiln-dry plywood after treatment to maximum moisture content of 15 percent.

D. Identify fire-retardant-treated wood with appropriate classification marking of qualified testing agency.

1. For exposed lumber indicated to receive a stained or natural finish, mark end or back of each piece or omit marking and provide certificates of treatment compliance issued by testing agency.

E. For exposed items indicated to receive a stained or natural finish, chemical formulations shall not bleed through, contain colorants, or otherwise adversely affect finishes.

F. Application: Treat items indicated on Drawings, and the following:

1. Framing for raised platforms.
2. Framing for stages.
3. Concealed blocking.
4. Framing for non-load-bearing partitions.
5. Framing for non-load-bearing exterior walls.
6. Roof construction.
7. Plywood backing panels.

2.4 DIMENSION LUMBER FRAMING

A. Non-Load-Bearing Interior Partitions: No. 2 grade.

1. Application: All interior partitions.
2. Species: Douglas fir-larch (north); NLGA.

B. Load-Bearing Partitions: No. 1 grade.

1. Application: Exterior walls and interior load-bearing partitions.
2. Species: Douglas fir-larch (north); NLGA.

C. Ceiling Joists: No. 1 grade.

1. Species:
   a. Douglas fir-larch (north); NLGA.

D. Joists, Rafters, and Other Framing Not Listed Above: No. 1 grade.

1. Species:
   a. Douglas fir-larch (north); NLGA.

E. Exposed Framing Indicated to Receive a Stained or Natural Finish: Hand-select material for uniformity of appearance and freedom from characteristics, on exposed surfaces and edges, that would impair finish appearance, including decay, honeycomb, knot-holes, shake, splits, torn grain, and wane.
1. Species and Grade: Douglas fir-larch (north); Select Structural grade; NLGA.

2.5 ENGINEERED WOOD PRODUCTS

A. Parallel-Strand Lumber: Structural composite lumber made from wood strand elements with grain primarily parallel to member lengths, evaluated and monitored according to ASTM D 5456 and manufactured with an exterior-type adhesive complying with ASTM D 2559.

1. Extreme Fiber Stress in Bending, Edgewise: 2900 psi for 12-inch nominal- depth members.
2. Modulus of Elasticity, Edgewise: 2,200,000 psi.

B. Rim Boards: Product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research or evaluation report for I-joists.

1. Manufacturer: Provide products by same manufacturer as I-joists.
2. Material: All-veneer product, glued-laminated wood or product made from any combination solid lumber, wood strands, and veneers.
3. Thickness: 1-1/4 inches or as indicated on drawings.
4. Comply with APA PRR-401, rim board plus grade. Factory mark rim boards with APA-EWS trademark indicating thickness, grade, and compliance with APA-EWS standard.

C. Insulated Rim Boards: Insulated product designed to be used as a load-bearing member and to brace wood I-joists at bearing ends, complying with research/evaluation report for I-joists.

1. Manufacturer: Provide products by same manufacturer as I-joists.
2. Rim Board Material: product made from any combination solid lumber, wood strands, and veneers.
3. Rim Board Thickness: 1-1/4 inches or as indicated on drawings.
4. Insulation: 1-1/2-inch- thick polyisocyanurate foam complying with ASTM C 1289.
5. Inside Facing: 7/16-inch- thick OSB.
6. Comply with APA PRR-401, rim board plus grade. Factory mark rim boards with APA-EWS trademark indicating thickness, grade, and compliance with APA-EWS standard.

2.6 MISCELLANEOUS LUMBER

A. General: Provide miscellaneous lumber indicated and lumber for support or attachment of other construction, including the following:

1. Blocking.
2. Nailers.
3. Rooftop equipment bases and support curbs.
4. Cants.
5. Furring.
6. Grounds.

B. Dimension Lumber Items: Construction or No. 2 grade lumber of any of the following species:

1. Hem-fir (north); NLGA.
2. Hem-fir; WCLIB or WWPA.
3. Western woods; WCLIB or WWPA.
4. Northern species; NLGA.

C. Concealed Boards: 19percent maximum moisture content and any of the following species and grades:

1. Hem-fir or hem-fir (north); Construction or No. 2 Common grade; NLGA, WCLIB, or WWPA.
2. Northern species; No. 2 Common grade; NLGA.
3. Western woods; Construction or No. 2 Common grade; WCLIB or WWPA.

D. For blocking not used for attachment of other construction, Utility, Stud, or No. 3 grade lumber of any species may be used provided that it is cut and selected to eliminate defects that will interfere with its attachment and purpose.

E. For blocking and nailers used for attachment of other construction, select and cut lumber to eliminate knots and other defects that will interfere with attachment of other work.

F. For furring strips for installing plywood or hardboard paneling, select boards with no knots capable of producing bent-over nails and damage to paneling.

2.7 PLYWOOD BACKING PANELS

A. Equipment Backing Panels: Plywood, DOC PS 1, Exposure 1, C-D Plugged, fire-retardant treated, in thickness indicated or, if not indicated, not less than 3/4-inch nominal thickness.

2.8 FASTENERS

A. General: Fasteners shall be of size and type indicated and shall comply with requirements specified in this article for material and manufacture.

1. Where rough carpentry is exposed to weather, in ground contact, pressure-preservative treated, or in area of high relative humidity, provide fasteners with hot-dip zinc coating complying with ASTM A 153/A 153M.

B. Nails, Brads, and Staples: ASTM F 1667.

C. Power-Driven Fasteners: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC70.

D. Post-Installed Anchors: Fastener systems with an evaluation report acceptable to authorities having jurisdiction, based on ICC-ES AC01, ICC-ES AC58, ICC-ES AC193 or ICC-ES AC308 as appropriate for the substrate.

1. Material: Carbon-steel components, zinc plated to comply with ASTM B 633, Class Fe/Zn 5.
2. Material: Stainless steel with bolts and nuts complying with ASTM F 593 and ASTM F 594, Alloy Group 1 or 2.

2.9 METAL FRAMING ANCHORS

A. Basis-of-Design: Subject to compliance with requirements, provide products by Simpson Strong-Tie, or approved equal.

B. Allowable design loads, as published by manufacturer, shall meet or exceed those of basis-of-design products. Manufacturer's published values shall be determined from empirical data or by rational engineering analysis and demonstrated by comprehensive testing performed by a qualified independent testing agency. Framing anchors shall be punched for fasteners adequate to withstand same loads as framing anchors.

C. Galvanized-Steel Sheet: Hot-dip, zinc-coated steel sheet complying with ASTM A 653/A 653M, G60 coating designation.

1. Use for interior locations unless otherwise indicated.

D. Hot-Dip, Heavy-Galvanized Steel Sheet: ASTM A 653/A 653M; structural steel (SS), high-strength low-alloy steel Type A (HSLAS Type A), or high-strength low-alloy steel Type B (HSLAS Type B); G185 coating designation; and not less than 0.036 inch thick.

1. Use for wood-preservative-treated lumber and where indicated.

E. Joist Hangers: U-shaped joist hangers with 2-inch- long seat and 1-1/4-inch- wide nailing flanges at least 85 percent of joist depth.

1. Thickness: As indicated.

F. Top Flange Hangers: U-shaped joist hangers, full depth of joist, formed from metal strap with tabs bent to extend over and be fastened to supporting member.

1. Strap Width: As indicated.
2. Thickness: As indicated.

G. Bridging: Rigid, V-section, nailless type, 0.050 inch thick, length to suit joist size and spacing.

H. Post Bases: Adjustable-socket type for bolting in place with standoff plate to raise post 1 inch above base and with 2-inch- minimum side cover, socket 0.062 inch thick, and standoff and adjustment plates 0.108 inch thick.

I. Joist Ties: Flat straps, with holes for fasteners, for tying joists together over supports.

1. Width: As indicated.
2. Thickness: As indicated.
3. Length: As indicated.

J. Floor-to-Floor Ties: Flat straps, with holes for fasteners, for tying upper floor wall studs to band joists and lower floor studs, 1-1/4 inches wide by 0.050 inch thick by 36 inches long.

K. Hold-Downs: Brackets for bolting to wall studs and securing to foundation walls with anchor bolts or to other hold-downs with threaded rods and designed with first of two bolts placed seven bolt diameters from reinforced base.

1. Bolt Diameter: As indicated.
2. Width: As indicated.
3. Body Thickness: As indicated.
4. Base Reinforcement Thickness: As indicated.

L. Wall Bracing: T-shaped bracing made for letting into studs in saw kerf, 1-1/8 inches wide by 9/16 inch deep by 0.034 inch thick with hemmed edges.

M. Wall Bracing: Angle bracing made for letting into studs in saw kerf, 15/16 by 15/16 by 0.040 inch thick with hemmed edges.

2.10 MISCELLANEOUS MATERIALS

A. Sill-Sealer Gaskets: Closed-cell neoprene foam, 1/4 inch thick, selected from manufacturer's standard widths to suit width of sill members indicated.

B. Flexible Flashing: Composite, self-adhesive, flashing product consisting of a pliable, butyl rubber or rubberized-asphalt compound, bonded to a high-density polyethylene film, aluminum foil, or spunbonded polyolefin to produce an overall thickness of not less than 0.025 inch.

C. Adhesives for Gluing Furring to Concrete or Masonry: Formulation complying with ASTM D 3498 that is approved for use indicated by adhesive manufacturer.

D. Water-Repellent Preservative: NWWDA-tested and -accepted formulation containing 3-iodo-2-propynyl butyl carbamate, combined with an insecticide containing chloropyrifos as its active ingredient.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Framing Standard: Comply with AF&PA's WCD 1, "Details for Conventional Wood Frame Construction," unless otherwise indicated.

B. Framing with Engineered Wood Products: Install engineered wood products to comply with manufacturer's written instructions.

C. Set rough carpentry to required levels and lines, with members plumb, true to line, cut, and fitted. Fit rough carpentry accurately to other construction. Locate furring, nailers, blocking, grounds, and similar supports to comply with requirements for attaching other construction.

D. Install plywood backing panels by fastening to studs; coordinate locations with utilities requiring backing panels. Install fire-retardant-treated plywood backing panels with classification marking of testing agency exposed to view.

E. Install shear wall panels to comply with manufacturer's written instructions.

F. Install metal framing anchors to comply with manufacturer's written instructions. Install fasteners through each fastener hole.

G. Install sill sealer gasket to form continuous seal between sill plates and foundation walls.

H. Do not splice structural members between supports unless otherwise indicated.

I. Provide blocking and framing as indicated and as required to support facing materials, fixtures, specialty items, and trim.

1. Provide metal clips for fastening gypsum board or lath at corners and intersections where framing or blocking does not provide a surface for fastening edges of panels. Space clips not more than 16 inches o.c.

J. Provide fire blocking in furred spaces, stud spaces, and other concealed cavities as indicated and as follows:

1. Fire block furred spaces of walls, at each floor level, at ceiling, and at not more than 96 inches o.c. with solid wood blocking or noncombustible materials accurately fitted to close furred spaces.
2. Fire block concealed spaces of wood-framed walls and partitions at each floor level, at ceiling line of top story, and at not more than 96 inches o.c. Where fire blocking is not inherent in framing system used, provide closely fitted solid wood blocks of same width as framing members and 2-inch nominal thickness.
3. Fire block concealed spaces between floor sleepers with same material as sleepers to limit concealed spaces to not more than 100 sq. ft. and to solidly fill space below partitions.
4. Fire block concealed spaces behind combustible cornices and exterior trim at not more than 20 feet o.c.

K. Sort and select lumber so that natural characteristics do not interfere with installation or with fastening other materials to lumber. Do not use materials with defects that interfere with function of member or pieces that are too small to use with minimum number of joints or optimum joint arrangement.

L. Comply with AWPA M4 for applying field treatment to cut surfaces of preservative-treated lumber.

1. Use inorganic boron for items that are continuously protected from liquid water.
2. Use copper naphthenate for items not continuously protected from liquid water.

M. Where wood-preservative-treated lumber is installed adjacent to metal decking, install continuous flexible flashing separator between wood and metal decking.

N. Securely attach rough carpentry work to substrate by anchoring and fastening as indicated, complying with the following:

1. Table 2304.9.1, "Fastening Schedule," in ICC's International Building Code (IBC).
2. ICC-ES evaluation report for fastener.

O. Use steel common nails unless otherwise indicated. Select fasteners of size that will not fully penetrate members where opposite side will be exposed to view or will receive finish materials. Make tight connections between members. Install fasteners without splitting wood. Drive nails snug but do not countersink nail heads unless otherwise indicated.

P. For exposed work, arrange fasteners in straight rows parallel with edges of members, with fasteners evenly spaced, and with adjacent rows staggered.

1. Comply with approved fastener patterns where applicable. Before fastening, mark fastener locations, using a template made of sheet metal, plastic, or cardboard.
2. Use finishing nails unless otherwise indicated. Countersink nail heads and fill holes with wood filler.
3. Use common nails unless otherwise indicated. Drive nails snug but do not countersink nail heads.

3.2 WOOD BLOCKING, AND NAILER INSTALLATION

A. Install where indicated and where required for attaching other work. Form to shapes indicated and cut as required for true line and level of attached work. Coordinate locations with other work involved.

B. Attach items to substrates to support applied loading. Recess bolts and nuts flush with surfaces unless otherwise indicated.

C. Provide permanent grounds of dressed, pressure-preservative-treated, key-beveled lumber not less than 1-1/2 inches wide and of thickness required to bring face of ground to exact thickness of finish material. Remove temporary grounds when no longer required.

3.3 WOOD FURRING INSTALLATION

A. Install level and plumb with closure strips at edges and openings. Shim with wood as required for tolerance of finish work.

B. Furring to Receive Plywood or Hardboard Paneling: Install 1-by-3-inch nominal- size furring horizontally at 24 inches o.c.

C. Furring to Receive Gypsum Board: Install 1-by-2-inch nominal- size furring vertically at 16 inches o.c.

3.4 WALL AND PARTITION FRAMING INSTALLATION

A. General: Provide single bottom plate and double top plates using members of 2-inch nominal thickness whose widths equal that of studs, except single top plate may be used for non-load-bearing partitions. Fasten plates to supporting construction unless otherwise indicated.

1. For exterior walls, provide 2-by-6-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
2. For interior partitions and walls, provide 2-by-6-inch nominal- size wood studs spaced 16 inches o.c. unless otherwise indicated.
3. Provide continuous horizontal blocking at midheight of partitions more than 96 inches high, using members of 2-inch nominal thickness and of same width as wall or partitions.

B. Construct corners and intersections with three or more studs, except that two studs may be used for interior non-load-bearing partitions.

C. Frame openings with multiple studs and headers. Provide nailed header members of thickness equal to width of studs. Support headers on jamb studs.

1. For non-load-bearing partitions, provide double-jamb studs and headers not less than 4-inch nominal depth for openings 48 inches and less in width, 6-inch nominal depth for openings 48 to 72 inches in width, 8-inch nominal depth for openings 72 to 120 inches in width, and not less than 10-inch nominal depth for openings 10 to 12 feet in width.
2. For load-bearing walls, as indicated on drawings.

3.5 CEILING JOIST AND RAFTER FRAMING INSTALLATION

A. Ceiling Joists: Install with crown edge up and complying with requirements specified above for floor joists. Face nail to ends of parallel rafters.

B. Rafters: Notch to fit exterior wall plates and use metal framing anchors. Double rafters to form headers and trimmers at openings in roof framing, if any, and support with metal hangers. Where rafters abut at ridge, place directly opposite each other and nail to ridge member or use metal ridge hangers.

1. At valleys, provide double-valley rafters of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against valley rafters.
2. At hips, provide hip rafter of size indicated or, if not indicated, of same thickness as regular rafters and 2 inches deeper. Bevel ends of jack rafters for full bearing against hip rafter.

C. Provide special framing as indicated for eaves, overhangs, dormers, and similar conditions if any.

3.6 PROTECTION

A. Protect wood that has been treated with inorganic boron (SBX) from weather. If, despite protection, inorganic boron-treated wood becomes wet, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

B. Protect rough carpentry from weather. If, despite protection, rough carpentry becomes wet enough that moisture content exceeds that specified, apply EPA-registered borate treatment. Apply borate solution by spraying to comply with EPA-registered label.

END OF SECTION 061000

SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plastic-laminate-faced architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets that are not concealed within other construction.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets that are concealed within other construction before cabinet installation.
2. Section 123623.13 "Plastic-Laminate-Clad Countertops."

1.3 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: For plastic-laminate-faced architectural cabinets.

1. Include plans, elevations, sections, and attachment details.

2. Show large-scale details.
3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
4. Show locations and sizes of cutouts and holes for items installed in plastic-laminate architectural cabinets.
5. Apply WI Certified Compliance Program label to Shop Drawings.

C. Samples: For each exposed product and for each color and texture specified, in manufacturer's or fabricator's standard size.

D. Samples for Initial Selection: For each type of exposed finish.

E. Samples for Verification: For the following:

1. Plastic Laminates: 8 by 10 inches, for each type, color, pattern, and surface finish required.

a. Provide one sample applied to core material with specified edge material applied to one edge.

2. Corner Pieces:

a. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
b. Miter joints for standing trim.

3. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Certificates: For each type of product.

C. Quality Standard Compliance Certificates: WI Certified Compliance Program.

D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Shop Certification: WI's Certified Compliance Program licensee.

B. Installer Qualifications: WI's Certified Compliance Program licensee.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

B. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.

D. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.10 REGULATORY REQUIREMENTS

A. Operable parts for all accessible casework shall comply with CBC Section 11B-309.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of cabinets indicated for construction, finishes, installation, and other requirements.

1. Provide inspections of fabrication and installation together with labels and certificates from WI certification program indicating that woodwork complies with requirements of grades specified.
2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.

B. Grade: Premium.

C. Type of Construction: Frameless.

D. Door and Drawer-Front Style: Flush overlay.

1. Reveal Dimension: As indicated.

E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.

F. Laminate Cladding for Exposed Surfaces:

1. Horizontal Surfaces: Grade HGL.
2. Postformed Surfaces: Grade HGP.
3. Vertical Surfaces: Grade HGS.
4. Edges: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.

G. Materials for Semiexposed Surfaces:

1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.

a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
b. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
c. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.

2. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
3. Drawer Bottoms: Hardwood plywood.

H. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.

I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

J. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners.

K. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from laminate manufacturer's full range in the following categories:

a. Solid colors, matte finish.
b. Patterns, matte finish.
c. Basis-of-Design: Wilsonart or Formica.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 8 to 13 percent.

B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Thermoset Decorative Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087100 "Door Hardware."

B. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal, and as follows:

1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening.

D. Back-Mounted Pulls: BHMA A156.9, B02011.

E. Wire Pulls: Back mounted, solid metal, 5 inches long, 2-1/2 inches deep, and 5/16 inch in diameter.

F. Catches: Magnetic catches, BHMA A156.9, B03141.

G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

H. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.

I. Drawer Slides: BHMA A156.9.

1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
2. For drawers not more than 3 inches high and not more than 24 inches wide, provide Grade 1.
3. For drawers more than 3 inches high, but not more than 6 inches high and not more than 24 inches wide, provide Grade 1HD-100.
4. For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-200.
5. For computer keyboard shelves, provide Grade 1HD-100.
6. For trash bins not more than 20 inches high and 16 inches wide, provide Grade 1HD-200.

J. Door Locks: BHMA A156.11, E07121.

K. Drawer Locks: BHMA A156.11, E07041.

L. Door and Drawer Silencers: BHMA A156.16, L03011.

M. Grommets for Cable Passage: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.

1. Color: Black.

N. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Dark, Oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base; match Architect's sample.
2. Bright Brass, Clear Coated: BHMA 605 for brass base; BHMA 632 for steel base.
3. Bright Brass, Vacuum Coated: BHMA 723 for brass base; BHMA 729 for zinc-coated-steel base.
4. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
5. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
6. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
7. Satin Stainless Steel: BHMA 630.

O. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

C. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

A. Fabricate architectural cabinets to dimensions, profiles, and details indicated.

B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.

C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

D. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."

1. For glass in frames, secure glass with removable stops.
2. For exposed glass edges, polish and grind smooth.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

A. Grade: Install cabinets to comply with quality standard grade of item to be installed.

B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.

C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.

D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inch using concealed shims.

1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116

SECTION 064116 - PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Plastic-laminate-faced architectural cabinets.
2. Wood furring, blocking, shims, and hanging strips for installing plastic-laminate-faced architectural cabinets that are not concealed within other construction.

B. Related Requirements:

1. Section 061000 "Rough Carpentry" for wood furring, blocking, shims, and hanging strips required for installing cabinets that are concealed within other construction before cabinet installation.
2. Section 123623.13 "Plastic-Laminate-Clad Countertops."

1.3 COORDINATION

A. Coordinate sizes and locations of framing, blocking, furring, reinforcements, and other related units of Work specified in other Sections to support loads imposed by installed and fully loaded cabinets.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: For plastic-laminate-faced architectural cabinets.

1. Include plans, elevations, sections, and attachment details.

2. Show large-scale details.
3. Show locations and sizes of furring, blocking, and hanging strips, including concealed blocking and reinforcement specified in other Sections.
4. Show locations and sizes of cutouts and holes for items installed in plastic-laminate architectural cabinets.
5. Apply WI Certified Compliance Program label to Shop Drawings.

C. Samples: For each exposed product and for each color and texture specified, in manufacturer's or fabricator's standard size.

D. Samples for Initial Selection: For each type of exposed finish.

E. Samples for Verification: For the following:

1. Plastic Laminates: 8 by 10 inches, for each type, color, pattern, and surface finish required.

a. Provide one sample applied to core material with specified edge material applied to one edge.

2. Corner Pieces:

a. Cabinet-front frame joints between stiles and rails and at exposed end pieces, 18 inches high by 18 inches wide by 6 inches deep.
b. Miter joints for standing trim.

3. Exposed Cabinet Hardware and Accessories: One full-size unit for each type and finish.

1.6 INFORMATIONAL SUBMITTALS

A. Qualification Data: For fabricator.

B. Product Certificates: For each type of product.

C. Quality Standard Compliance Certificates: WI Certified Compliance Program.

D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.7 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Shop Certification: WI's Certified Compliance Program licensee.

B. Installer Qualifications: WI's Certified Compliance Program licensee.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver cabinets until painting and similar finish operations that might damage architectural cabinets have been completed in installation areas. Store cabinets in installation areas or in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

B. Environmental Limitations: Do not deliver or install cabinets until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 25 and 55 percent during the remainder of the construction period.

C. Field Measurements: Where cabinets are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication, and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

1. Locate concealed framing, blocking, and reinforcements that support cabinets by field measurements before being enclosed/concealed by construction, and indicate measurements on Shop Drawings.

D. Established Dimensions: Where cabinets are indicated to fit to other construction, establish dimensions for areas where cabinets are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

1.10 REGULATORY REQUIREMENTS

A. Operable parts for all accessible casework shall comply with CBC Section 11B-309.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-FACED ARCHITECTURAL CABINETS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of cabinets indicated for construction, finishes, installation, and other requirements.

1. Provide inspections of fabrication and installation together with labels and certificates from WI certification program indicating that woodwork complies with requirements of grades specified.
2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.

B. Grade: Premium.

C. Type of Construction: Frameless.

D. Door and Drawer-Front Style: Flush overlay.

1. Reveal Dimension: As indicated.

E. High-Pressure Decorative Laminate: NEMA LD 3, grades as indicated or if not indicated, as required by quality standard.

F. Laminate Cladding for Exposed Surfaces:

1. Horizontal Surfaces: Grade HGL.
2. Postformed Surfaces: Grade HGP.
3. Vertical Surfaces: Grade HGS.
4. Edges: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
5. Pattern Direction: Vertically for drawer fronts, doors, and fixed panels.

G. Materials for Semiexposed Surfaces:

1. Surfaces Other Than Drawer Bodies: Thermoset decorative panels.

a. Edges of Plastic-Laminate Shelves: PVC edge banding, 0.12 inch thick, matching laminate in color, pattern, and finish.
b. Edges of Thermoset Decorative Panel Shelves: PVC or polyester edge banding.
c. For semiexposed backs of panels with exposed plastic-laminate surfaces, provide surface of high-pressure decorative laminate, NEMA LD 3, Grade VGS.

2. Drawer Sides and Backs: Thermoset decorative panels with PVC or polyester edge banding.
3. Drawer Bottoms: Hardwood plywood.

H. Dust Panels: 1/4-inch plywood or tempered hardboard above compartments and drawers unless located directly under tops.

I. Concealed Backs of Panels with Exposed Plastic-Laminate Surfaces: High-pressure decorative laminate, NEMA LD 3, Grade BKL.

J. Drawer Construction: Fabricate with exposed fronts fastened to subfront with mounting screws from interior of body.

1. Join subfronts, backs, and sides with glued rabbeted joints supplemented by mechanical fasteners.

K. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from laminate manufacturer's full range in the following categories:

a. Solid colors, matte finish.
b. Patterns, matte finish.
c. Basis-of-Design: Wilsonart or Formica.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.

1. Wood Moisture Content: 8 to 13 percent.

B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of architectural cabinet and quality grade specified unless otherwise indicated.
1. Thermoset Decorative Panels: Particleboard or MDF finished with thermally fused, melamine-impregnated decorative paper and complying with requirements of NEMA LD 3, Grade VGL, for Test Methods 3.3, 3.4, 3.6, 3.8, and 3.10.

2.3 CABINET HARDWARE AND ACCESSORIES

A. General: Provide cabinet hardware and accessory materials associated with architectural cabinets except for items specified in Section 087100 "Door Hardware."

B. Butt Hinges: 2-3/4-inch, five-knuckle steel hinges made from 0.095-inch-thick metal, and as follows:

1. Semiconcealed Hinges for Flush Doors: BHMA A156.9, B01361.
2. Semiconcealed Hinges for Overlay Doors: BHMA A156.9, B01521.

C. Frameless Concealed Hinges (European Type): BHMA A156.9, B01602, 170 degrees of opening.

D. Back-Mounted Pulls: BHMA A156.9, B02011.

E. Wire Pulls: Back mounted, solid metal, 5 inches long, 2-1/2 inches deep, and 5/16 inch in diameter.

F. Catches: Magnetic catches, BHMA A156.9, B03141.

G. Adjustable Shelf Standards and Supports: BHMA A156.9, B04071; with shelf rests, B04081.

H. Shelf Rests: BHMA A156.9, B04013; metal, two-pin type with shelf hold-down clip.

I. Drawer Slides: BHMA A156.9.

1. Grade 1HD-100 and Grade 1HD-200: Side mounted; full-extension type; zinc-plated-steel ball-bearing slides.
2. For drawers not more than 3 inches high and not more than 24 inches wide, provide Grade 1.
3. For drawers more than 3 inches high, but not more than 6 inches high and not more than 24 inches wide, provide Grade 1HD-100.
4. For drawers more than 6 inches high or more than 24 inches wide, provide Grade 1HD-200.
5. For computer keyboard shelves, provide Grade 1HD-100.
6. For trash bins not more than 20 inches high and 16 inches wide, provide Grade 1HD-200.

J. Door Locks: BHMA A156.11, E07121.

K. Drawer Locks: BHMA A156.11, E07041.

L. Door and Drawer Silencers: BHMA A156.16, L03011.

M. Grommets for Cable Passage: 2-inch OD, molded-plastic grommets and matching plastic caps with slot for wire passage.

1. Color: Black.

N. Exposed Hardware Finishes: For exposed hardware, provide finish that complies with BHMA A156.18 for BHMA finish number indicated.

1. Dark, Oxidized, Satin Bronze, Oil Rubbed: BHMA 613 for bronze base; BHMA 640 for steel base; match Architect's sample.
2. Bright Brass, Clear Coated: BHMA 605 for brass base; BHMA 632 for steel base.
3. Bright Brass, Vacuum Coated: BHMA 723 for brass base; BHMA 729 for zinc-coated-steel base.
4. Satin Brass, Blackened, Bright Relieved, Clear Coated: BHMA 610 for brass base; BHMA 636 for steel base.
5. Satin Chromium Plated: BHMA 626 for brass or bronze base; BHMA 652 for steel base.
6. Bright Chromium Plated: BHMA 625 for brass or bronze base; BHMA 651 for steel base.
7. Satin Stainless Steel: BHMA 630.

O. For concealed hardware, provide manufacturer's standard finish that complies with product class requirements in BHMA A156.9.

2.4 MISCELLANEOUS MATERIALS

A. Furring, Blocking, Shims, and Hanging Strips: Softwood or hardwood lumber, kiln-dried to less than 15 percent moisture content.

B. Anchors: Select material, type, size, and finish required for each substrate for secure anchorage. Provide metal expansion sleeves or expansion bolts for post-installed anchors. Use nonferrous-metal or hot-dip galvanized anchors and inserts at inside face of exterior walls and at floors.

C. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

A. Fabricate architectural cabinets to dimensions, profiles, and details indicated.

B. Complete fabrication, including assembly and hardware application, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times architectural cabinet fabrication will be complete.
2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended and check measurements of assemblies against field measurements before disassembling for shipment.

C. Shop-cut openings to maximum extent possible to receive hardware, appliances, electrical work, and similar items. Locate openings accurately and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

D. Install glass to comply with applicable requirements in Section 088000 "Glazing" and in GANA's "Glazing Manual."

1. For glass in frames, secure glass with removable stops.
2. For exposed glass edges, polish and grind smooth.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition cabinets to humidity conditions in installation areas for not less than 72 hours.

3.2 INSTALLATION

A. Grade: Install cabinets to comply with quality standard grade of item to be installed.

B. Assemble cabinets and complete fabrication at Project site to extent that it was not completed in the shop.

C. Anchor cabinets to anchors or blocking built in or directly attached to substrates. Secure with wafer-head cabinet installation screws.

D. Install cabinets level, plumb, and true in line to a tolerance of 1/8 inch in 96 inch using concealed shims.

1. Scribe and cut cabinets to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.
2. Install cabinets without distortion so doors and drawers fit openings and are accurately aligned. Adjust hardware to center doors and drawers in openings and to provide unencumbered operation. Complete installation of hardware and accessory items as indicated.
3. Fasten wall cabinets through back, near top and bottom, and at ends not more than 16 inches o.c. with No. 10 wafer-head screws sized for not less than 1-1/2-inch penetration into wood framing, blocking, or hanging strips.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective cabinets, where possible, to eliminate functional and visual defects. Where not possible to repair, replace architectural cabinets. Adjust joinery for uniform appearance.

B. Clean, lubricate, and adjust hardware.

C. Clean cabinets on exposed and semiexposed surfaces.

END OF SECTION 064116

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Nonstaining silicone joint sealants.
   2. Urethane joint sealants.

1.2 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.3 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product.

B. Samples: For each kind and color of joint sealant required.

C. Joint-Sealant Schedule: Include the following information:

   1. Joint-sealant application, joint location, and designation.
   2. Joint-sealant manufacturer and product name.
   3. Joint-sealant formulation.
   4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Preconstruction laboratory test reports.

C. Preconstruction field-adhesion-test reports.

D. Field-adhesion-test reports.

E. Sample warranties.

1.5 QUALITY ASSURANCE

A. Testing Agency Qualifications: Qualified according to ASTM C 1021 to conduct the testing indicated.

1.6 WARRANTY

A. Special Installer's Warranty: Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer agrees to furnish joint sealants to repair or replace those joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.

1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 JOINT SEALANTS, GENERAL

A. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.

2.2 NONSTAINING SILICONE JOINT SEALANTS

A. Nonstaining Joint Sealants: No staining of substrates when tested according to ASTM C 1248.

B. Silicone, Nonstaining, S, NS, 100/50, NT: Nonstaining, single-component, nonsag, plus 100 percent and minus 50 percent movement capability, nontraffic-use, neutral-curing silicone joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Use NT.

2.3 URETHANE JOINT SEALANTS

A. Urethane, S, NS, 100/50, T, NT: Single-component, nonsag, plus 100 percent and minus 50 percent movement capability, traffic- and nontraffic-use, urethane joint sealant; ASTM C 920, Type S, Grade NS, Class 100/50, Uses T and NT.

2.4 JOINT-SEALANT BACKING

A. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.5 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions and the following requirements:

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces.

3.2 INSTALLATION OF JOINT SEALANTS

A. General: Comply with ASTM C 1193 and joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.

3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants to form smooth, uniform beads of configuration indicated. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.

1. Provide concave joint profile per Figure 8A in ASTM C 1193 unless otherwise indicated.

3.3 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:

1. Extent of Testing: Test completed and cured sealant joints as follows:

a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
b. Perform one test for each 1000 feet of joint length thereafter or one test per each floor per elevation.

2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.

B. Evaluation of Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

END OF SECTION 079200

SECTION 081113 - HOLLOW METAL DOORS AND FRAMES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes:
   1. Interior custom hollow-metal doors and frames.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: Include the following:

   1. Elevations of each door type.
   2. Details of doors, including vertical- and horizontal-edge details and metal thicknesses.
   3. Frame details for each frame type, including dimensioned profiles and metal thicknesses.

C. Product Schedule: For hollow-metal doors and frames, prepared by or under the supervision of supplier, using same reference numbers for details and openings as those on Drawings. Coordinate with final door hardware schedule.

1.4 INFORMATIONAL SUBMITTALS

A. Product test reports.

PART 2 - PRODUCTS

2.1 INTERIOR CUSTOM HOLLOW-METAL DOORS AND FRAMES

A. Hollow-Metal Doors and Frames: NAAMM-HMMA 860; SDI A250.4, Physical Performance Level A..

   1. Doors:

      a. Type: As indicated in the Door and Frame Schedule.
      b. Thickness: 1-3/4 inches.

c. Face: Metallic-coated steel sheet, minimum thickness of 0.042 inch.
d. Edge Construction: Continuously welded with no visible seam.
e. Core: Steel stiffened.

2. Frames:

a. Materials: Metallic-coated steel sheet, minimum thickness of 0.053 inch.
b. Sidelite and Transom Frames: Fabricated from same thickness material as adjacent door frame.
c. Construction: Face welded.

2.2 FRAME ANCHORS

A. Jamb Anchors:

1. Type: Anchors of minimum size and type required by applicable door and frame standard, and suitable for performance level indicated.
2. Quantity: Refer to drawings for anchor size and location.

B. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor.

C. Floor Anchors for Concrete Slabs with Underlayment: Adjustable-type anchors with extension clips, allowing not less than 2-inch height adjustment. Terminate bottom of frames at top of underlayment.

D. Material: ASTM A 879/A 879M, Commercial Steel (CS), 04Z coating designation; mill phosphatized.

1. For anchors built into exterior walls, steel sheet complying with ASTM A 1008/A 1008M or ASTM A 1011/A 1011M; hot-dip galvanized according to ASTM A 153/A 153M, Class B.

2.3 MATERIALS

A. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B; suitable for exposed applications.

B. Metallic-Coated Steel Sheet: ASTM A 653/A 653M, Commercial Steel (CS), Type B.

C. Inserts, Bolts, and Fasteners: Hot-dip galvanized according to ASTM A 153/A 153M.

D. Power-Actuated Fasteners in Concrete: Fastener system of type suitable for application indicated, fabricated from corrosion-resistant materials, with clips or other accessory devices for attaching hollow-metal frames of type indicated.

E. Glazing: Comply with requirements in Section 088813 "Fire-Resistant Glazing."

2.4 FABRICATION

A. Hollow-Metal Frames: Fabricate in one piece except where handling and shipping limitations require multiple sections. Where frames are fabricated in sections, provide alignment plates or angles at each joint, fabricated of metal of same or greater thickness as frames.

1. Sidelite and Transom Bar Frames: Provide closed tubular members with no visible face seams or joints, fabricated from same material as door frame. Fasten members at crossings and to jambs by welding, or by rigid mechanical anchors.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Door Silencers: Except on weather-stripped frames, drill stops to receive door silencers as follows. Keep holes clear during construction.

    a. Single-Door Frames: Drill stop in strike jamb to receive three door silencers.
    b. Double-Door Frames: Drill stop in head jamb to receive two door silencers.

B. Hardware Preparation: Factory prepare hollow-metal doors and frames to receive templated mortised hardware, and electrical wiring; include cutouts, reinforcement, mortising, drilling, and tapping according to SDI A250.6, the Door Hardware Schedule, and templates.

1. Reinforce doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.
2. Comply with BHMA A156.115 for preparing hollow-metal doors and frames for hardware.

C. Glazed Lites: Provide stops and moldings around glazed lites where indicated. Form corners of stops and moldings with mitered hairline joints.

1. Provide stops and moldings flush with face of door, and with beveled stops unless otherwise indicated.
2. Multiple Glazed Lites: Provide fixed and removable stops and moldings so that each glazed lite is capable of being removed independently.
3. Provide fixed frame moldings on outside of exterior and on secure side of interior doors and frames. Provide loose stops and moldings on inside of hollow-metal doors and frames.
4. Coordinate rabbet width between fixed and removable stops with glazing and installation types indicated.
5. Provide stops for installation with countersunk flat- or oval-head machine screws spaced uniformly not more than 9 inches o.c. and not more than 2 inches o.c. from each corner.

2.5 STEEL FINISHES

A. Prime Finish: Clean, pretreat, and apply manufacturer's standard primer.

1. Shop Primer: Manufacturer's standard, fast-curing, lead- and chromate-free primer complying with SDI A250.10; recommended by primer manufacturer for substrate; compatible with substrate and field-applied coatings despite prolonged exposure.

PART 3 - EXECUTION

3.1 PREPARATION

A. Remove welded-in shipping spreaders installed at factory. Restore exposed finish by grinding, filling, and dressing, as required to make repaired area smooth, flush, and invisible on exposed faces. Touch up factory-applied finishes where spreaders are removed.

B. Drill and tap doors and frames to receive nontemplated, mortised, and surface-mounted door hardware.

3.2 INSTALLATION

A. Hollow-Metal Frames: Comply with SDI A250.11.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces without damage to completed Work.

    a. Where frames are fabricated in sections, field splice at approved locations by welding face joint continuously; grind, fill, dress, and make splice smooth, flush, and invisible on exposed faces. Touch-up finishes.
    b. Install frames with removable stops located on secure side of opening.
2. Floor Anchors: Secure with postinstalled expansion anchors.

    a. Floor anchors may be set with power-actuated fasteners instead of postinstalled expansion anchors if so indicated and approved on Shop Drawings.

3. Solidly pack mineral-fiber insulation inside frames.
4. Installation Tolerances: Adjust hollow-metal frames to the following tolerances:

    a. Squareness: Plus or minus 1/16 inch, measured at door rabbet on a line 90 degrees from jamb perpendicular to frame head.
    b. Alignment: Plus or minus 1/16 inch, measured at jambs on a horizontal line parallel to plane of wall.
    c. Twist: Plus or minus 1/16 inch, measured at opposite face corners of jambs on parallel lines, and perpendicular to plane of wall.
    d. Plumbness: Plus or minus 1/16 inch, measured at jambs at floor.

B. Glazing: Comply with installation requirements in Section 088813 "Fire-Resistant Glazing" and with hollow-metal manufacturer's written instructions.

3.3 CLEANING AND TOUCHUP

A. Prime-Coat Touchup: Immediately after erection, sand smooth rusted or damaged areas of prime coat and apply touchup of compatible air-drying, rust-inhibitive primer.

B. Metallic-Coated Surface Touchup: Clean abraded areas and repair with galvanizing repair paint according to manufacturer's written instructions.

C. Touchup Painting: Cleaning and touchup painting of abraded areas of paint are specified in painting Sections.

END OF SECTION 081113

SECTION 081416 - FLUSH WOOD DOORS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Five-ply flush wood veneer-faced doors for transparent finish.
2. Factory finishing flush wood doors.
3. Factory fitting flush wood doors to frames and factory machining for hardware.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product, including the following:

1. Door core materials and construction.
2. Door edge construction
3. Door face type and characteristics.
4. Door louvers.
5. Door trim for openings.
6. Door frame construction.
7. Factory-machining criteria.
8. Factory-finishing specifications.

B. Shop Drawings: Indicate location, size, and hand of each door; elevation of each type of door; construction details not covered in Product Data; and the following:

1. Door schedule indicating door location, type, size, fire protection rating, and swing.
2. Door elevations, dimension and locations of hardware, lite and louver cutouts, and glazing thicknesses.
3. Details of frame for each frame type, including dimensions and profile.
4. Details of electrical raceway and preparation for electrified hardware, access control systems, and security systems.
5. Dimensions and locations of blocking for hardware attachment.
6. Clearances and undercuts.
7. Requirements for veneer matching.
8. Apply AWI Quality Certification Program label to Shop Drawings.

C. Samples: For factory-finished doors.

1.3 QUALITY ASSURANCE

A. Manufacturer's Certification: Licensed participant in AWI's Quality Certification Program.

PART 2 - PRODUCTS

2.1 FLUSH WOOD DOORS, GENERAL

A. Quality Standard: In addition to requirements specified, comply with WDMA I.S. 1A.

2.2 FIVE-PLY FLUSH WOOD VENEER-FACED DOORS FOR TRANSPARENT FINISH

A. Interior Doors
1. Performance Grade:

a. WDMA I.S. 1A Heavy Duty unless otherwise indicated on Drawings.
b. WDMA I.S. 1A Grade: Premium.
c. Faces: Single-ply wood veneer not less than 1/50 inch (0.508 mm) thick.
d. Species: Match existing.

2. Core for Non-Fire-Rated Doors: Either glued wood stave or WDMA I.S. 10 structural composite lumber.

3. Construction: Five plies, hot-pressed bonded (vertical and horizontal edging is bonded to core), with entire unit abrasive planed before veneering.

2.3 LIGHT FRAMES AND LOUVERS

A. Wood Beads for Light Openings in Wood Doors: Provide manufacturer's standard wood beads unless otherwise indicated.

1. Wood Species: **Same species as door faces**.
2. Profile: **Flush rectangular beads**.

2.4 FABRICATION

A. Factory fit doors to suit frame-opening sizes indicated.

1. Comply with clearance requirements of referenced quality standard for fitting unless otherwise indicated.

B. Factory machine doors for hardware that is not surface applied.

1. Locate hardware to comply with DHI-WDHS-3.
2. Comply with final hardware schedules, door frame Shop Drawings, BHMA-156.115-W, and hardware templates.
3. Coordinate with hardware mortises in metal frames, to verify dimensions and alignment before factory machining.
4. For doors scheduled to receive electrified locksets, provide factory-installed raceway and wiring to accommodate specified hardware.

5. Metal Astragals: Factory machine astragals and formed-steel edges for hardware for pairs of fire-rated doors.

C. Openings: Factory cut and trim openings through doors.

1. Light Openings: Trim openings with moldings of material and profile indicated.
2. Glazing: Factory install glazing in doors indicated to be factory finished.
3. Louvers: Factory install louvers in prepared openings.

2.5 FACTORY FINISHING

A. Comply with referenced quality standard for factory finishing.

1. Complete fabrication, including fitting doors for openings and machining for hardware that is not surface applied, before finishing.
2. Finish faces, all four edges, edges of cutouts, and mortises.
3. Stains and fillers may be omitted on[**top and**] bottom edges, edges of cutouts, and mortises.

B. Factory finish doors.

C. Transparent Finish:

1. WDMA I.S. 1A Grade: Premium.
2. Finish: Architectural Woodwork Standards System-10, UV Curable, Water Based.
3. Staining: Match existing.
4. Sheen: Match existing.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install doors to comply with manufacturer's written instructions and referenced quality standard, and as indicated.

B. Job-Fitted Doors:

1. Align and fit doors in frames with uniform clearances and bevels as indicated below.

a. Do not trim stiles and rails in excess of limits set by manufacturer or permitted for fire-rated doors.

2. Machine doors for hardware.
3. Seal edges of doors, edges of cutouts, and mortises after fitting and machining.
4. Clearances:

a. Provide 1/8 inch (3.2 mm) at heads, jambs, and between pairs of doors.

b. Provide 1/8 inch (3.2 mm) from bottom of door to top of decorative floor finish or covering unless otherwise indicated on Drawings.
c. Where threshold is shown or scheduled, provide1/4 inch (6.4 mm) from bottom of door to top of threshold unless otherwise indicated.
d. Comply with NFPA 80 for fire-rated doors.

5. Bevel non-fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock and hinge edges.
6. Bevel fire-rated doors 1/8 inch in 2 inches (3-1/2 degrees) at lock edge; trim stiles and rails only to extent permitted by labeling agency.

C. Factory-Finished Doors: Restore finish before installation if fitting or machining is required at Project site.

3.2 FIELD QUALITY CONTROL

A. Repair or remove and replace installations where inspections indicate that they do not comply with specified requirements.

B. Reinspect repaired or replaced installations to determine if replaced or repaired door assembly installations comply with specified requirements.

3.3 ADJUSTING

A. Operation: Rehang or replace doors that do not swing or operate freely.

B. Finished Doors: Replace doors that are damaged or that do not comply with requirements. Doors may be repaired or refinished if Work complies with requirements and shows no evidence of repair or refinishing.

END OF SECTION 081416

SECTION 083473 - WOOD SOUND CONTROL DOOR ASSEMBLIES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes wood sound control door assemblies.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For sound control door assemblies. Include elevations, details, seals, anchorages, and accessories.

C. Samples: For units with factory-applied finishes.

D. Schedule: Provide a schedule of sound control door assemblies prepared using same reference numbers for details and openings as those on Drawings.

1.3 INFORMATIONAL SUBMITTALS

A. Product certificates.

B. Product test reports.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.5 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of sound control door assemblies that fail in materials or workmanship within specified warranty period.

1. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. STC Rating: As indicated on Drawings as calculated by ASTM E 413 when tested in an operable condition according to ASTM E 90.

2.2 WOOD SOUND CONTROL DOORS

A. Provide sound control doors by one of the following:
   1. Eggers Industries.
   2. Krieger Specialty Products Company.
   3. Marshfield Door Systems, Inc.
   4. Overly Door Company.

B. Doors: Flush-design sound control doors, thickness as required to provide STC rating; with manufacturer's standard sound-retardant core as required to provide STC rating indicated. Fabricate according to WDMA 1.S.1-A.

C. Glazing: Manufacturers' standard factory-installed glazing.

D. Materials: Comply with Section 081416 Flush Wood Doors for grade, faces, veneer matching, fabrication, finishing, and other requirements unless otherwise indicated.

E. Finishes:

   1. Factory finish sound control wood doors to match doors specified in Section 081416 Flush Wood Doors.

2.3 SOUND CONTROL FRAMES

A. Frames: Fabricate sound control door frames with corners mitered, reinforced, and continuously welded the full depth and width of frame. Fabricate according to NAAMM-HMMA 865.

   1. Weld frames according to NAAMM-HMMA 820.
   2. Interior Frames: Fabricate from cold-rolled steel sheet unless otherwise indicated, 0.075-inch (1.90-mm) nominal thickness or thicker as required to provide STC rating indicated.
   3. Hardware Reinforcement: Fabricate according to NAAMM-HMMA 865 of same material as face sheets.

B. Materials:

   1. Cold-Rolled Steel Sheet: ASTM A 1008/A 1008M, Commercial Steel (CS), Type B.
   2. Hot-Rolled Steel Sheet: ASTM A 1011/A 1011M, Commercial Steel (CS), Type B.
   3. Mineral-Fiber Insulation: Insulation composed of rock-wool fibers, slag-wool fibers, or glass fibers.

C. Finishes:

   1. Prime Finish: Apply manufacturer's standard primer immediately after cleaning and pretreating.

2.4 HARDWARE

A. Sound Control Door Hardware: Manufacturer's standard sound control system, including head and jamb seals, door bottoms, and thresholds, as required by testing to achieve STC rating indicated.

1. Compression Seals: One-piece units consisting of closed-cell sponge neoprene or silicone seal held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.
2. Magnetic Seals: One-piece units consisting of closed-cell sponge neoprene seal and resiliently mounted magnet held in place by metal retainer, with retainer cover of same material as door frame; attached to door frame with concealed screws.
3. Automatic Door Bottoms: Neoprene or silicone gasket, held in place by metal housing, that automatically drops to form seal when door is closed; mounted to bottom edge of door with screws.
4. Door Bottoms: Neoprene or silicone gasket held in place by metal housing; mortised into bottom edge of door.
5. Cam-Lift Hinges: Full-mortise template type that raises door 1/2 inch (13 mm) when door is fully open; with hardened pin; fabricated from stainless steel.
6. Thresholds: Flat, smooth, unfluted type as recommended by manufacturer; fabricated from stainless steel.

B. Other Hardware: Comply with requirements in Section 087100 Door Hardware.

2.5 FABRICATION

A. Wood Sound Control Door Fabrication: Factory fit doors to suit frame-opening sizes indicated, with uniform clearances and bevels according to WDMA I.S.1-A unless otherwise indicated. Comply with final door hardware schedules and hardware templates.

1. Glazed Lites: Factory install glazed lites according to requirements of tested assembly to achieve STC rating indicated.
2. Locate door hardware as indicated, or if not indicated, according to DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."

    a. Coordinate measurements of hardware mortises in steel frames to verify dimensions and alignment before factory machining.

B. Sound Control Frame Fabrication:

1. Weld flush face joints continuously; grind, fill, dress, and make smooth, flush, and invisible. Where frames are fabricated in sections due to shipping or handling limitations, provide alignment plates or angles at each joint, fabricated from same thickness metal as frames.
2. Provide countersunk, flat- or oval-head exposed screws and bolts for exposed fasteners unless otherwise indicated.
3. Anchors: Provide number and spacing of anchors as indicated in NAAMM-HMMA 865.

a. Postinstalled Expansion Type: Locate anchors not more than 6 inches (152 mm) from top and bottom of frame. Space anchors not more than 26 inches (660 mm) o.c.

4. Hardware Preparation: Factory prepare sound control frames to receive templated mortised hardware; include cutouts, reinforcement, mortising, drilling, and tapping.

a. Reinforce frames to receive nontemplated mortised and surface-mounted door hardware.

5. Tolerances: Fabricate frames to tolerances indicated in NAAMM-HMMA 865.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Frames: Install sound control door frames in sizes and profiles indicated.

1. Set frames accurately in position; plumbed, aligned, and braced securely until permanent anchors are set. After wall construction is complete, remove temporary braces, leaving surfaces smooth and undamaged.

a. Where frames are fabricated in sections due to shipping or handling limitations, field splice at approved locations by welding face joint continuously; grind, fill, and dress; make splice smooth, flush, and invisible on exposed faces.
b. Install sound control frames with removable glazing stops located on secure side of opening.
c. Remove temporary braces only after frames or bucks have been properly set and secured.
d. Check squareness, twist, and plumbness of frames as walls are constructed. Shim as necessary to comply with installation tolerances.
e. Apply corrosion-resistant coating to backs of frames to be filled with mortar, grout, and plaster containing antifreezing agents.

2. Floor Anchors: Provide floor anchors for each jamb and mullion that extends to floor, and secure with postinstalled expansion anchors.
3. Metal-Stud Partitions: Fully fill frames with mineral-fiber insulation.
4. In-Place Concrete or Masonry Construction: Secure frames in place with postinstalled expansion anchors. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
5. In-Place Gypsum Board Partitions: Secure frames in place with postinstalled expansion anchors through floor anchors at each jamb. Countersink anchors, and fill and make smooth, flush, and invisible on exposed faces.
6. Ceiling Struts: Extend struts vertically from top of frame at each jamb to supporting construction above unless frame is anchored to masonry or to other structural support at each jamb. Bend top of struts to provide flush contact for securing to supporting construction above. Provide adjustable wedged or bolted anchorage to frame jamb members.

7. Installation Tolerances: Adjust sound control door frames for squareness, alignment, twist, and plumbness to the following tolerances as indicated in NAAMM-HMMA 865.

B. Doors: Fit sound control doors accurately in frames, within clearances as indicated in NAAMM-HMMA 865.

C. Sound Control Seals: Where seals have been factory prefit and preinstalled and subsequently removed for shipping, reinstall seals and adjust according to manufacturer's written instructions.

D. Cam-Lift Hinges: Install hinges according to manufacturer's written instructions.

E. Thresholds: Set thresholds in full bed of sealant complying with requirements in Section 079200 "Joint Sealants."

F. Glazing: Comply with installation requirements in Section 088000 "Glazing" and with sound control door assembly manufacturer's written instructions.

END OF SECTION 083473

SECTION 08 71 00
DOOR HARDWARE

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Door hardware.

B. Specific Omissions: Hardware for the following is specified or indicated elsewhere.

1. Cabinets, including open wall shelving and locks.
2. Signs, except where scheduled.

1.2 REFERENCES:

A. Use date of standard in effect as of Bid date.

1. American National Standards Institute
   a) ANSI 156.18 – Materials and Finishes.
   b) ICC/ANSI A117.1 - 1998 – Specifications for making buildings and facilities usable by physically handicapped people. [omit for CA work – not applicable]
2. BHMA – Builders Hardware Manufacturers Association
3. 2016 California Building Code
   a) Chapter 11B – Accessibility To Public Buildings, Public Accommodations, Commercial Buildings and Public Housing
   b) Section 11B-404 for door/doorways as part of accessible route
4. DHI – Door and Hardware Institute
5. NFPA – National Fire Protection Association
   a) NFPA 80 2016 Edition – Standard for Fire Doors and Other Opening Protectives.
   b) NFPA 105 – Smoke and Draft Control Door Assemblies
   c) NFPA 252 – Fire Tests of Door Assemblies
6. UL – Underwriters Laboratories
   a) UL10C – Positive Pressure Fire Tests of Door Assemblies.
   b) UL 305 – Panic Hardware
7. WHI – Warnock Hersey Incorporated State of California Building Code
8. Local applicable codes
9. SDI – Steel Door Institute
10. WI – Woodwork Institute
11. AWI – Architectural Woodwork Institute
12. NAAMM – National Association of Architectural Metal Manufacturers

B. Abbreviations

1. Manufacturers**:** see table at 2.1.A of this section
2. Finishes**:** see 2.7 of this section.

1.3 SUBMITTALS & SUBSTITUTIONS

A. SUBMITTALS**:** Submit six copies of schedule per D. Only submittals printed one sided will be accepted and reviewed. Organize vertically formatted schedule into "Hardware Sets" with index of doors and headings, indicating complete designations of every item required for each door or opening. Minimum 10pt font size. Include following information**:**

1. Type, style, function, size, quantity and finish of hardware items.
2. Use BHMA Finish codes per ANSI A156.18.
3. Name, part number and manufacturer of each item.
4. Fastenings and other pertinent information.
5. Location of hardware set coordinated with floor plans and door schedule.
6. Explanation of abbreviations, symbols, and codes contained in schedule.
7. Mounting locations for hardware.
8. Door and frame sizes, materials and degrees of swing.
9. List of manufacturers used and their nearest representative with address and phone number.
10. Catalog cuts.
11. Point-to-point wiring diagrams.
12. Manufacturer's technical data and installation instructions for electronic hardware.
13. Date of jobsite visit.

B. Bid and submit manufacturer's updated/improved item if scheduled item is discontinued.

C. Deviations**:** Highlight, encircle or otherwise identify deviations from "Schedule of Finish Hardware" on submittal with notations clearly designating those portions as deviating from this section.

D. If discrepancy between drawings and scheduled material in this section, bid the more expensive of the two choices, note the discrepancy in the submittal and request direction from Architect for resolution.

E. Substitutions per Division 1. Include product data and indicate benefit to the Project. Furnish operating samples on request.

F. Items listed with no substitute manufacturers have been requested by Owner to meet existing standard.

G. Furnish as-built/as-installed schedule with closeout documents, including keying schedule, riser and point-to-point wiring diagrams, manufacturers' installation, adjustment and maintenance information, and supplier's final inspection report.

1.4 QUALITY ASSURANCE**:**

A. Qualifications**:**

1. Hardware supplier**:** direct factory contract supplier who employs a certified architectural hardware consultant (AHC), available at reasonable times during course of work for project hardware consultation to Owner, Architect and Contractor.

    a) Responsible for detailing, scheduling and ordering of finish hardware. Detailing implies that the submitted schedule of hardware is correct and complete for the intended function and performance of the openings.

B. Hardware**:** Free of defects, blemishes and excessive play. Obtain each kind of hardware (latch and locksets, exit devices, hinges and closers) from one manufacturer.

C. Exit Doors**:** Operable from inside with single motion without the use of a key or special knowledge or effort.

D. Fire-Rated Openings**:** NFPA 80 compliant. Hardware UL10C (positive pressure) compliant for given type/size opening and degree of label. Provide proper latching hardware, non-flaming door closers, approved-bearing hinges, and resilient seals. Coordinate with wood door section for required intumescent seals. Furnish openings complete.

E. Furnish hardware items required to complete the work in accordance with specified performance level and design intent, complying with manufacturers' instructions and code requirements.

1.5 DELIVERY, STORAGE AND HANDLING**:**

A. Delivery**:** coordinate delivery to appropriate locations (shop or field).

1. Permanent keys and cores**:** secured delivery direct to Owner's representative.

B. Acceptance at Site**:** Items individually packaged in manufacturers' original containers, complete with proper fasteners and related pieces. Clearly mark packages to indicate contents, locations in hardware schedule and door numbers.

C. Storage**:** Provide securely locked storage area for hardware, protect from moisture, sunlight, paint, chemicals, dust, excessive heat and cold, etc.

1.6 PROJECT CONDITIONS AND COORDINATION**:**

A. Where exact types of hardware specified are not adaptable to finished shape or size of members requiring hardware, provide suitable types having as nearly as practical the same operation and quality as type specified, subject to Architect's approval.

B. Coordination**:** Coordinate hardware with other work. Furnish hardware items of proper design for use on doors and frames of the thickness, profile, swing, security and similar requirements indicated, as necessary for proper installation and function, regardless of omissions or conflicts in the information on the Contract Documents. Furnish related trades with the following information**:**

1. Location of embedded and attached items to concrete.
2. Location of wall-mounted hardware, including wall stops.
3. Location of finish floor materials and floor-mounted hardware.

4. At masonry construction, coordinate with the anchoring and hollow metal supplier prior to frame installation by placing a strip of insulation, wood, or foam, on the back of the hollow metal frame behind the rabbet section for continuous hinges, as well as at rim panic hardware strike locations, silencers, coordinators, and door closer arm locations. When the frame is grouted in place, the backing will allow drilling and tapping without dulling or breaking the installer's bits.
5. Locations for conduit and raceways as needed for electrical, electronic and electro-pneumatic hardware items. Fire/life-safety system interfacing. Point-to-point wiring diagrams plus riser diagrams to related trades.
6. Coordinate: back-up power for doors with automatic operators.
7. Coordinate: flush top rails of doors at outswinging exteriors, and throughout where adhesive-mounted seals occur.
8. Manufacturers' templates to door and frame fabricators.

C. Check Shop Drawings for doors and entrances to confirm that adequate provisions will be made for proper hardware installation.

D. Environmental considerations**:** segregate unused recyclable paper and paper product packaging, uninstalled metals, and plastics, and have these sent to a recycling center.

E. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.

1. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

PART 2 PRODUCTS

A. Manufacturers and their abbreviations used in this schedule**:**

IVE	H. B. Ives
LCN	LCN Closers
SCE	Schlage Electronics
VON	Von Duprin
ZER	Zero International
C/R	Corbin Russwin

2.2 HINGING METHODS**:**

A. Drawings typically depict doors at 90 degrees, doors will actually swing to maximum allowable. Use wide-throw conventional or continuous hinges as needed up to 8 inches in width to allow door to stand parallel to wall for true 180-degree opening. Advise architect if 8-inch width is insufficient.

B. Doors 3'6" or wider use 5" X 41/2" heavy weight hinges

C. Doors 8'0" use 4 hinges and add 1 hinge for every foot thereafter

D. Conform to manufacturer's published hinge selection standard for door dimensions, weight and frequency, and to hinge selection as scheduled. Where manufacturer's standard exceeds the scheduled product, furnish the heavier of the two choices, notify Architect of deviation from scheduled hardware.

E. Conventional Hinges**:** Steel or stainless steel pins and approved bearings. Hinge open widths minimum, but of sufficient throw to permit maximum door swing.

1. Outswinging exterior doors**:** stainless steel hinges with non-removable (NRP) pins and security studs.
2. Stainless steel material exteriors and at doors subject to corrosive atmospheric conditions.

2.3 LOCKSETS, LATCHSETS, DEADBOLTS**:**

A. Mortise Locksets and Latchsets**:** as scheduled.

1. Chassis**:** cold-rolled steel, handing field-changeable without disassembly.
2. Floating mounting tabs automatically adjusts to fit a beveled door edge.
3. Latchbolts**:** 0.75 inch throw stainless steel anti-friction type.
4. Lever Trim**:** through-bolted, accessible design, cast lever or solid extruded bar type levers as scheduled. Filled hollow tube design unacceptable.
    a) Spindles**:** security design independent breakaway. Breakage of outside lever does not allow access to inside lever's hubworks to gain wrongful entry.
    b) Inside lever applied by screwless shank mounting – no exposed trim mount screws.
    c) Levers rotate up or down for ease of use.
5. Turnpieces**:** accessible offset turn-lever design not requiring pinching or twisting motions to operate.
6. Deadbolts**:** stainless steel 1-inch throw.
7. Strikes**:** 16 gage curved steel, bronze or brass with 1 inch deep box construction, lips of sufficient length to clear trim and protect clothing.
8. Scheduled Lock Series and Design**:** Corbin Russwin
9. Certifications**:**
    a) ANSI A156.13, 1994, Grade 1 Operational,
    b) ANSI/ASTM F476-84 Grade 31 UL Listed.
10. Accessibility: Require not more than 5 lb to retract the latchbolt or deadbolt, or both, per CBC 2016 11B-404.2.7 and 11B-309.4.

2.4 EXIT DEVICES / PANIC HARDWARE

A. General features**:**

1. Independent lab-tested 1,000,000 cycles.
2. Push-through push-pad design. No exposed push-pad fasteners, no exposed cavities when operated. Return stroke fluid dampeners and rubber bottoming dampeners, plus anti-rattle devices.
3. Deadlocking latchbolts, 0.75 inch projection.

4. End caps**:** impact-resistant, flush-mounted. No raised edges or lips to catch carts or other equipment.
5. No exposed screws to show through glass doors.
6. Non-handed basic device design with center case interchangeable with all functions, no extra parts required to effect change of function.
7. Releasable in normal operation with 15-pound maximum operating force per UBC Standard 10-4, and with 32-pound maximum pressure under 250-pound load to the door.
8. Lever design to match locksets
9. Accessibility: Require not more than 5 lb to retract the latchbolt, per CBC 2016 11B-404.2.7 and 11B-309.4.
    a) Mechanical method: where touchpad directly retracts the latchbolt with 5 lb or less of force.

2.6 CLOSERS

B. Surface Closers**:** 4040-XP

1. Full rack-and-pinion type cylinder with removable non-ferrous cover and cast iron body. Double heat-treated pinion shaft, single piece forged piston, chrome-silicon steel spring.
1. ISO 2000 certified. Units stamped with date-of-manufacture code.
2. Independent lab-tested 10,000,000 cycles.
3. Non-sized, non-handed, and adjustable. Place closer inside building, stairs, and rooms.
4. Plates, brackets and special templating when needed for interface with particular header, door and wall conditions and neighboring hardware.
5. Adjust doors to open with not more than 5.0-pounds pressure to open at exterior doors and 5.0-pounds at interior doors. As allowed per 2016 California Building Code Section 11B-404.2.9, appropriate administrative authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15-pounds.
    a) Exception: exterior doors' pressure-to-open may be increased to 8.5-pounds if: at a single location, and one of a bank of eight leafs or fraction of eight, and one leaf of this bank is fitted with a low- or high-energy operator. Exception to be approved by appropriate administrative authority.
6. Separate adjusting valves for closing speed, latching speed and backcheck, fourth valve for delayed action where scheduled.
7. Extra-duty arms (EDA) at exterior doors scheduled with parallel arm units.
8. Exterior door closers**:** tested to 100 hours of ASTM B117 salt spray test, furnish data on request.
9. Exterior doors**:** seasonal adjustments not required for temperatures from 120 degrees F to -30 degrees F, furnish checking fluid data on request.
10. Non-flaming fluid, will not fuel door or floor covering fires.
11. Pressure Relief Valves (PRV) not permitted.
12. Door closing speed shall comply with 2016 CBC section 11B-404.2.8

2.7 OTHER HARDWARE

A. Kick Plates**:** Four beveled edges, .050 inches minimum thickness, height and width as scheduled. Sheet-metal screws of bronze or stainless steel to match other hardware.

B. Door Stops**:** Provide stops to protect walls, casework or other hardware.

1. Unless otherwise noted in Hardware Sets, provide floor type with appropriate fasteners. Where floor type cannot be used, provide wall type. If neither can be used, provide overhead type.
2. Locate overhead stops for maximum possible opening. Consult with Owner for furniture locations. Minimum**:** 90deg stop / 95deg deadstop. Note degree of opening in submittal.

C. Through-bolts**:** Do not use. Coordinate with wood doors; ensure provision of proper blocking to support wood screws for mounting panic hardware and door closers. Coordinate with metal doors and frames; ensure provision of proper reinforcement to support machine screws for mounting panic hardware and door closers.

1. Exception**:** surface-mounted overhead stops, holders, and friction stays.

D. Silencers**:** Interior hollow metal frames, 3 for single doors, 4 for pairs of doors. Leave no unfilled/uncovered pre-punched silencer holes. Intent**:** door bears against silencers, seals make minimal contact with minimal compression – only enough to effect a seal. Provide where seals are not used

2.8 FINISH**:**

1. Generally**:** BHMA 626 Satin Chromium Areas using BHMA 626: furnish push-plates, pulls and protection plates of BHMA 630, Satin Stainless Steel, unless otherwise scheduled.

E. Door closers**:** factory powder coated to match other hardware, unless otherwise noted.

2.9 KEYING REQUIREMENTS**:**

A. KEYING REQUIREMENTS**:**

B. Key System**:** Existing Corbin Russwin system. Meet with owner for specific keying instructions. Furnish temporary cylinders or construction keying as directed. For estimate use grand masterkey charge. 2 keys per cylinder

PART 3 - EXECUTION

3.1 ACCEPTABLE INSTALLERS**:**

A. Can read and understand manufacturers' templates, suppliers' hardware schedule and printed installation instructions. Can readily distinguish drywall screws from manufacturers' furnished fasteners. Available to meet with manufacturers' representatives and related trades to discuss installation of hardware.

3.2 PREPARATION**:**

A. Ensure that walls and frames are square and plumb before hardware installation. Make corrections before commencing hardware installation. Installation denotes acceptance of wall/frame condition.

B. Locate hardware per SDI-100 and applicable building, fire, life-safety, accessibility, and security codes.

1. Notify Architect of code conflicts before ordering material.
1. Locate latching hardware between 34 inches to 44 inches above the finished floor, per California Building Code, Section 1008.1.9.2 and 11B-404.2.7.
2. Locate panic hardware between 36 inches to 44 inches above the finished floor.
3. Where new hardware is to be installed near existing doors/hardware scheduled to remain, match locations of existing hardware.

C. Overhead stops**:** before installing, determine proposed locations of furniture items, fixtures, and other items to be protected by the overhead stop's action.

D. Existing frames and doors to be retrofitted with new hardware**:**

1. Field-verify conditions and dimensions prior to ordering hardware. Fill existing hardware cut outs not being reused by the new hardware. Remove existing hardware not being reused, return to Owner unless directed otherwise.
2. Remove existing floor closers not scheduled for reuse, fill cavities with non-shrinking concrete and finish smooth.
3. Cut and weld existing steel frames currently prepared with 2.25 inch height strikes. Cut an approximate 8 inch section from the strike jamb and weld in a reinforced section to accommodate specified hardware’s strike.
4. Patch and weld flush filler pieces into existing door hardware preparations in steel doors and frames, leave surfaces smooth.
5. Glue in solid wood block fillers to fill cut outs in existing wood doors, sand surfaces smooth. Alternatively, use an approved epoxy-based wood filler product, submit product data for approval.

3.3 INSTALLATION

A. Install hardware per manufacturer’s instructions and recommendations. Do not install surface-mounted items until finishes have been completed on substrate. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate for proper installation and operation. Remove and reinstall or replace work deemed defective by Architect.

1. Gaskets**:** install jamb-applied gaskets before closers, overhead stops, rim strikes, etc; fasten hardware over and through these seals. Install sweeps across bottoms of doors before astragals, cope sweeps around bottom pivots, trim astragals to tops of sweeps.
2. When hardware is to be attached to existing metal surface and insufficient reinforcement exists, use RivNuts, NutSerts or similar anchoring device for screws.
3. Use manufacturers' fasteners furnished with hardware items, or submit Request for Substitution with Architect.
4. Replace fasteners damaged by power-driven tools.

B. Locate floor stops no more than 4 inches from walls and not within paths of travel. See paragraph 2.2 regarding hinge widths, door should be well clear of point of wall reveal. Point of door contact no closer to the hinge edge than half the door width. Where situation is questionable or difficult, contact Architect for direction.

C. Core concrete for exterior door stop anchors. Set anchors in approved non-shrink grout.

D. Locate overhead stops for minimum 90 degrees at rest and for maximum allowable degree of swing.

E. Drill pilot holes for fasteners in wood doors and/or frames.

F. Lubricate and adjust existing hardware scheduled to remain. Carefully remove and give to Owner items not scheduled for reuse.

G. Field-verify existing conditions and measurements prior to ordering hardware. Fill existing hardware cut outs not being used by the new hardware.

H. Remove existing hardware not being reused. Tag and bag removed hardware, turn over to Owner.

I. Where existing wall conditions will not allow door to swing using the scheduled hinges, provide wide-throw hinges and if needed, extended arms on closers.

J. Provide manufacturer's recommended brackets to accommodate the mounting of closers on doors with flush transoms.

3.4. ADJUSTING

A. Adjust and check for proper operation and function. Replace units, which cannot be adjusted to operate freely and smoothly.

1. Hardware damaged by improper installation or adjustment methods**:** repair or replace to Owner's satisfaction.
2. Adjust doors to fully latch with no more than 1 pound of pressure.

a) Door closer valves: turn valves clockwise until at bottom – do not force. Turn valves back out one and one-half turns and begin adjustment process from that point. Do not force valves beyond three full turns counterclockwise.

3. Adjust delayed-action closers on fire-rated doors to fully close from fully-opened position in no more than 10 seconds.
4. Adjust door closers per 1.9 this section.

B. Fire-rated doors**:**

1. Wood doors**:** adjust to 0.125 inches clearance at heads, jambs, and meeting stiles.
2. Steel doors**:** adjust to 0.063 inches minimum to 0.188 inches maximum clearance at heads, jambs, and meeting stiles.
3. Adjust wood and steel doors to 0.75 inches maximum clearance (undercut) above threshold or finish floor material under door.

C. Final inspection**:** Installer to provide letter to Owner that upon completion installer has visited the Project and has accomplished the following**:**

1. Has re-adjusted hardware.

2. Has evaluated maintenance procedures and recommend changes or additions, and instructed Owner's personnel.
3. Has identified items that have deteriorated or failed.
4. Has submitted written report identifying problems.

3.5 DEMONSTRATION**:**

A. Demonstrate mechanical hardware and electrical, electronic and pneumatic hardware systems, including adjustment and maintenance procedures.

3.6 PROTECTION/CLEANING**:**

A. Cover installed hardware, protect from paint, cleaning agents, weathering, carts/barrows, etc. Remove covering materials and clean hardware just prior to substantial completion.

B. Clean adjacent wall, frame and door surfaces soiled from installation / reinstallation process.

3.7 SCHEDULE OF FINISH HARDWARE

A. See door schedule in drawings for hardware set assignments.

HW SET: 183

3	EA	HINGE	3CB1HW 5 X 4.5	652	IVE
1	EA	OFFICE LOCK	ML2053 NSA C6	626	C-R
1	EA	CLOSER	4040XP S-CUSH	689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW	630	IVE
1	SET	PERIMETER SEALS	188 HEAD AND JAMBS	BRN	ZER

END OF SECTION 087100

SECTION 092900 - GYPSUM BOARD

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Interior gypsum board.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each texture finish indicated on same backing indicated for Work.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Resistance-Rated Assemblies: For fire-resistance-rated assemblies, provide materials and construction identical to those tested in assembly indicated according to ASTM E 119 by an independent testing agency.

B. Gypsum board design and installation, to comply with Chapter 25 of the 2016 CBC

C. Lathing, plastering, gypsum board and gypsum panel product construction shall be done in the manner and with the materials specified in chapter 25 of the 2016 CBC and, when required for fire protection, shall also comply with the provisions of Chapter 7 of the 2016 CBC.

2.2 GYPSUM BOARD, GENERAL

A. Size: Provide maximum lengths and widths available that will minimize joints in each area and that correspond with support system indicated.

2.3 INTERIOR GYPSUM BOARD

A. Gypsum Board, Type X: ASTM C 1396/C 1396M.
1. Thickness: 5/8 inch.
2. Long Edges: Tapered.

B. Gypsum Ceiling Board: ASTM C 1396/C 1396M.
1. Thickness: 5/8 inch.

2. Long Edges: Tapered.

2.4 TRIM ACCESSORIES

A. Interior Trim: ASTM C 1047.

1. Material: Galvanized or aluminum-coated steel sheet or rolled zinc.
2. Shapes:

a. Cornerbead.
b. LC-Bead: J-shaped; exposed long flange receives joint compound.
c. L-Bead: L-shaped; exposed long flange receives joint compound.
d. Expansion (control) joint.

2.5 JOINT TREATMENT MATERIALS

A. General: Comply with ASTM C 475/C 475M.

B. Joint Tape:

1. Interior Gypsum Board: Paper.

C. Joint Compound for Interior Gypsum Board: For each coat, use formulation that is compatible with other compounds applied on previous or for successive coats.

1. Prefilling: At open joints and damaged surface areas, use setting-type taping compound.
2. Embedding and First Coat: For embedding tape and first coat on joints, fasteners, and trim flanges, use setting-type taping compound.

a. Use setting-type compound for installing paper-faced metal trim accessories.

3. Fill Coat: For second coat, use setting-type, sandable topping compound.
4. Finish Coat: For third coat, use setting-type, sandable topping compound.
5. Skim Coat: For final coat of Level 5 finish, use setting-type, sandable topping compound.

2.6 AUXILIARY MATERIALS

A. General: Provide auxiliary materials that comply with referenced installation standards and manufacturer's written instructions.

B. Steel Drill Screws: ASTM C 1002 unless otherwise indicated.

PART 3 - EXECUTION

3.1 APPLYING AND FINISHING PANELS

A. Examine panels before installation. Reject panels that are wet, moisture damaged, and mold damaged.

B. Comply with ASTM C 840.

C. Isolate perimeter of gypsum board applied to non-load-bearing partitions at structural abutments. Provide 1/4- to 1/2-inch-wide spaces at these locations and trim edges with edge trim where edges of panels are exposed. Seal joints between edges and abutting structural surfaces with acoustical sealant.

D. For trim with back flanges intended for fasteners, attach to framing with same fasteners used for panels. Otherwise, attach trim according to manufacturer's written instructions.

E. Prefill open joints and damaged surface areas.

F. Apply joint tape over gypsum board joints, except for trim products specifically indicated as not intended to receive tape.

G. Gypsum Board Finish Levels: Finish panels to levels indicated below and according to ASTM C 840:

1. Level 1: Ceiling plenum areas, concealed areas, and where indicated.
2. Level 2: Where indicated on Drawings.
3. Level 3: Where indicated on Drawings.
4. Level 4: At panel surfaces that will be exposed to view unless otherwise indicated.

5. Level 5: Where indicated on Drawings.

3.2 APPLYING TEXTURE FINISHES

A. Surface Preparation and Primer: Prepare and apply primer to gypsum panels and other surfaces receiving texture finishes. Apply primer to surfaces that are clean, dry, and smooth.

B. Texture Finish Application: Mix and apply finish using powered spray equipment, to produce a uniform texture free of starved spots or other evidence of thin application or of application patterns.

3.3 PROTECTION

A. Protect installed products from damage from weather, condensation, direct sunlight, construction, and other causes during remainder of the construction period.

B. Remove and replace panels that are wet, moisture damaged, and mold damaged.

END OF SECTION 092900

SECTION 095113 - ACOUSTICAL PANEL CEILINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes acoustical panels and exposed suspension systems for interior ceilings.

B. Products furnished, but not installed under this Section, include anchors, clips, and other ceiling attachment devices to be cast in concrete.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture specified, 6 inches in size.

C. Samples for Initial Selection: For components with factory-applied finishes.

D. Samples for Verification: For each component indicated and for each exposed finish required, prepared on Samples of sizes indicated below:

1. Acoustical Panels: Set of full-size Samples of each type, color, pattern, and texture.
2. Exposed Suspension-System Members, Moldings, and Trim: Set of 6-inch-long Samples of each type, finish, and color.

E. Delegated-Design Submittal: For seismic restraints for ceiling systems.

1. Include design calculations for seismic restraints including analysis data signed and sealed by the qualified professional engineer responsible for their preparation.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Ceiling suspension-system members.
2. Structural members to which suspension systems will be attached.
3. Method of attaching hangers to building structure.

a. Furnish layouts for cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.

4. Carrying channels or other supplemental support for hanger-wire attachment where conditions do not permit installation of hanger wires at required spacing.
5. Size and location of initial access modules for acoustical panels.
6. Items penetrating finished ceiling and ceiling-mounted items.

7. Show operation of hinged and sliding components covered by or adjacent to acoustical panels.
8. Minimum Drawing Scale: 1/8 inch = 1 foot.

B. Qualification Data: For testing agency.

C. Product Test Reports: For each acoustical panel ceiling, for tests performed by manufacturer and witnessed by a qualified testing agency, or a qualified testing agency.

D. Evaluation Reports: For each acoustical panel ceiling suspension system and anchor and fastener type, from ICC-ES.

E. Field quality-control reports.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.6 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials and execution.

1. Build mockup of typical ceiling area as shown on Drawings.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Deliver acoustical panels, suspension-system components, and accessories to Project site and store them in a fully enclosed, conditioned space where they will be protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

B. Before installing acoustical panels, permit them to reach room temperature and a stabilized moisture content.

1.8 FIELD CONDITIONS

A. Environmental Limitations: Do not install acoustical panel ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

1. Pressurized Plenums: Operate ventilation system for not less than 48 hours before beginning acoustical panel ceiling installation.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain each type of acoustical ceiling panel and its supporting suspension system from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Delegated Design: Engage a qualified professional engineer, as defined in Section 014000 "Quality Requirements," to design seismic restraints for ceiling systems.

B. Seismic Performance: Suspended ceilings shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

C. Surface-Burning Characteristics: Comply with ASTM E 84; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Flame-Spread Index: Class A according to ASTM E 1264.
2. Smoke-Developed Index: 450 or less.

D. Fire-Resistance Ratings: Comply with ASTM E 119; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

1. Indicate design designations from UL or from the listings of another qualified testing agency.

2.3 ACOUSTICAL PANELS

A. Acoustical Panel Standard: Provide manufacturer's standard panels according to ASTM E 1264 and designated by type, form, pattern, acoustical rating, and light reflectance unless otherwise indicated.

B. Classification: Provide tiles complying with ASTM 1264 panels as follows:

1. Type and Form: Type III, mineral base with painted finish; Form 1, nodular Form 2, water felted Form 4, cast or molded.

2. Type and Form: Rectangular.
3. Pattern: Armstrong Cirrus.

C. Color: White.

D. Light Reflectance (LR): Not less than 0.85.

E. Ceiling Attenuation Class (CAC): Not less than 35.

F. Articulation Class (AC): Not less than 170.

G. Edge/Joint Detail: Square.

H. Thickness: 15/16 inch.

I. Modular Size: 24 by 24 inches.

2.4 METAL SUSPENSION SYSTEM

A. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories according to ASTM C 635/C 635M and designated by type, structural classification, and finish indicated.

B. Wide-Face, Single-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet electrolytically zinc coated, with prefinished flanges of width indicated.

1. Structural Classification: Heavy-duty system.
2. Face Finish: Painted white.

2.5 ACCESSORIES

A. Wire Hangers, Braces, and Ties: Provide wires as follows:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A 641/A 641M, Class 1 zinc coating, soft temper.

B. Hanger Rods: Mild steel, zinc coated or protected with rust-inhibitive paint.

C. Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

D. Angle Hangers: Angles with legs not less than 2 inch wide; formed with 0.04-inch-thick, galvanized-steel sheet complying with ASTM A 653/A 653M, G90 coating designation; with bolted connections and 5/16-inch-diameter bolts.

E. Hold-Down Clips: Manufacturer's standard hold-down.

F. Impact Clips: Manufacturer's standard impact-clip system designed to absorb impact forces against acoustical panels.

G. Seismic Clips: Manufacturer's standard seismic clips designed to secure acoustical panels in place during a seismic event.

H. Seismic Stabilizer Bars: Manufacturer's standard perimeter stabilizers designed to accommodate seismic forces.

I. Seismic Struts: Manufacturer's standard compression struts designed to accommodate seismic forces.

2.6 METAL EDGE MOLDINGS AND TRIM

A. Roll-Formed, Sheet-Metal Edge Moldings and Trim: Type and profile indicated or, if not indicated, manufacturer's standard moldings for edges and penetrations that comply with seismic design requirements; formed from sheet metal of same material, finish, and color as that used for exposed flanges of suspension-system runners.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing to which acoustical panel ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage and with requirements for installation tolerances and other conditions affecting performance of acoustical panel ceilings.

B. Examine acoustical panels before installation. Reject acoustical panels that are wet, moisture damaged, or mold damaged.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of acoustical panels to balance border widths at opposite edges of each ceiling. Avoid using less-than-half-width panels at borders unless otherwise indicated, and comply with layout shown on reflected ceiling plans.

B. Layout openings for penetrations centered on the penetrating items.

3.3 INSTALLATION

A. Install acoustical panel ceilings according to ASTM C 636/C 636M and manufacturer's written instructions.

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required and, if permitted with fire-resistance-rated ceilings, to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling-suspension members and to supports above with a minimum of three tight turns. Connect hangers directly to structure or to inserts, eye screws, or other devices that are secure and appropriate for substrate and that will not deteriorate or otherwise fail due to age, corrosion, or elevated temperatures.
5. Secure flat, angle, channel, and rod hangers to structure, including intermediate framing members, by attaching to inserts, eye screws, or other devices that are secure and appropriate for both the structure to which hangers are attached and the type of hanger involved. Install hangers in a manner that will not cause them to deteriorate or fail due to age, corrosion, or elevated temperatures.
6. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts, postinstalled mechanical or adhesive anchors, or power-actuated fasteners that extend through forms into concrete.
7. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
8. Do not attach hangers to steel deck tabs.
9. Do not attach hangers to steel roof deck. Attach hangers to structural members.
10. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
11. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns. Suspend bracing from building's structural members as required for hangers, without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install edge moldings and trim of type indicated at perimeter of acoustical ceiling area and where necessary to conceal edges of acoustical panels.

1. Apply acoustical sealant in a continuous ribbon concealed on back of vertical legs of moldings before they are installed.
2. Screw attach moldings to substrate at intervals not more than 16 inches o.c. and not more than 3 inches from ends. Miter corners accurately and connect securely.
3. Do not use exposed fasteners, including pop rivets, on moldings and trim.

E. Install suspension-system runners so they are square and securely interlocked with one another. Remove and replace dented, bent, or kinked members.

F. Install acoustical panels with undamaged edges and fit accurately into suspension-system runners and edge moldings. Scribe and cut panels at borders and penetrations to provide precise fit.

1. Arrange directionally patterned acoustical panels as designated in drawings.

2. For square-edged panels, install panels with edges fully hidden from view by flanges of suspension-system runners and moldings.
3. Paint cut edges of panel remaining exposed after installation; match color of exposed panel surfaces using coating recommended in writing for this purpose by acoustical panel manufacturer.

3.4 ERECTION TOLERANCES

A. Suspended Ceilings: Install main and cross runners level to a tolerance of 1/8 inch in 12 feet, non-cumulative.

B. Moldings and Trim: Install moldings and trim to substrate and level with ceiling suspension system to a tolerance of 1/8 inch in 12 feet, non-cumulative.

3.5 FIELD QUALITY CONTROL

A. Special Inspections: Owner will engage a qualified special inspector to perform the following special inspections:

1. Periodic inspection during the installation of suspended ceiling grids according to ASCE/SEI 7.

B. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

C. Perform the following tests and inspections of completed installations of acoustical panel ceiling hangers and anchors and fasteners in successive stages and when installation of ceiling suspension systems on each floor has reached 20 percent completion, but no panels have been installed. Do not proceed with installations of acoustical panel ceiling hangers for the next area until test results for previously completed installations of acoustical panel ceiling hangers show compliance with requirements.

1. Within each test area, testing agency will select one of every 10 power-actuated fasteners and postinstalled anchors used to attach hangers to concrete and will test them for 200 lbf of tension; it will also test every postinstalled anchors used to attach bracing wires to concrete and will test them for 440 lbf of tension.
2. When testing discovers fasteners and anchors that do not comply with requirements, testing agency will test those anchors not previously tested until 20 pass consecutively and then will resume initial testing frequency.

D. Acoustical panel ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.

E. Prepare test and inspection reports.

3.6 CLEANING

A. Clean exposed surfaces of acoustical panel ceilings, including trim, edge moldings, and suspension-system members. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage.

B. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage.

END OF SECTION 095113

SECTION 096513 - RESILIENT BASE AND ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Resilient base.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples for Initial Selection: For each type of product indicated, not less than 12 inches long.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Furnish not less than 10 linear feet for every 500 linear feet or fraction thereof, of each type, color, pattern, and size of resilient product installed.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Store resilient products and installation materials in dry spaces protected from the weather, with ambient temperatures maintained within range recommended by manufacturer, but not less than 50 deg F or more than 90 deg F.

1.6 FIELD CONDITIONS

A. Maintain ambient temperatures within range recommended by manufacturer, but not less than 70 deg F or more than 95 deg F, in spaces to receive resilient products during the following time periods:

1. 48 hours before installation.
2. During installation.

3. 48 hours after installation.

B. After installation and until Substantial Completion, maintain ambient temperatures within range recommended by manufacturer, but not less than 55 deg F or more than 95 deg F.

C. Install resilient products after other finishing operations, including painting, have been completed.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. FloorScore Compliance: Resilient base shall comply with requirements of FloorScore certification.

B. Low-Emitting Materials: Flooring system shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

2.2 THERMOSET-RUBBER BASE

A. Manufacturers: Basis of Design is Burke Mercer Flooring Products, Division of Burke Industries.

B. Product Standard: ASTM F 1861, Type TS (rubber, vulcanized thermoset), Group I (solid, homogeneous).

1. Style: Cove.

C. Thickness: 0.125 inch.

D. Height: 2-1/2 inches.

E. Lengths: Coils in manufacturer's standard length.

F. Outside Corners: Preformed.

G. Inside Corners: Preformed.

H. Colors and Patterns: As selected by Architect from full range of manufacturer’s colors.

2.3 RUBBER MOLDING ACCESSORY

A. Manufacturers: Basis of Design is Burke Mercer Flooring Products, Division of Burke Industries.

B. Description: Rubber carpet edge for glue-down applications, nosing for carpet, nosing for resilient flooring, reducer strip for resilient flooring, joiner for tile and carpet, and transition strips.

C. Profile and Dimensions: As indicated

D. Locations: Provide rubber molding accessories at transition of the following materials.

1. Carpet
2. Ceramic Tile
3. Special Coatings
4. Sealed Concrete

E. Colors and Patterns: As selected by Architect from full range of manufacturer's colors.

2.4 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland cement based or blended hydraulic-cement-based formulation provided or approved by resilient-product manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by resilient-product manufacturer for resilient products and substrate conditions indicated.

1. Adhesives shall have a VOC content of 50 g/L or less.
2. Adhesives shall comply with the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

C. Metal Edge Strips: Extruded aluminum with mill finish of width shown, of height required to protect exposed edges of flooring, and in maximum available lengths to minimize running joints.

D. Floor Polish: Provide protective, liquid floor-polish products recommended by resilient stair-tread manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, with Installer present, for compliance with requirements for maximum moisture content and other conditions affecting performance of the Work.

1. Verify that finishes of substrates comply with tolerances and other requirements specified in other Sections and that substrates are free of cracks, ridges, depressions, scale, and foreign deposits that might interfere with adhesion of resilient products.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

1. Installation of resilient products indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Prepare substrates according to manufacturer's written instructions to ensure adhesion of resilient products.

B. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

C. Do not install resilient products until they are the same temperature as the space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient products and installation materials into spaces where they will be installed.

D. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient products.

3.3 RESILIENT BASE INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient base.

B. Apply resilient base to walls, columns, pilasters, casework and cabinets in toe spaces, and other permanent fixtures in rooms and areas where base is required.

C. Install resilient base in lengths as long as practical without gaps at seams and with tops of adjacent pieces aligned.

D. Tightly adhere resilient base to substrate throughout length of each piece, with base in continuous contact with horizontal and vertical substrates.

E. Do not stretch resilient base during installation.

F. On masonry surfaces or other similar irregular substrates, fill voids along top edge of resilient base with manufacturer's recommended adhesive filler material.

G. Preformed Corners: Install preformed corners before installing straight pieces.

3.4 RESILIENT ACCESSORY INSTALLATION

A. Comply with manufacturer's written instructions for installing resilient accessories.

B. Resilient Molding Accessories: Butt to adjacent materials and tightly adhere to substrates throughout length of each piece. Install reducer strips at edges of floor covering that would otherwise be exposed.

3.5 CLEANING AND PROTECTION

A. Comply with manufacturer's written instructions for cleaning and protecting resilient products.

B. Perform the following operations immediately after completing resilient-product installation:

1. Remove adhesive and other blemishes from exposed surfaces.
2. Sweep and vacuum horizontal surfaces thoroughly.
3. Damp-mop horizontal surfaces to remove marks and soil.

C. Protect resilient products from mars, marks, indentations, and other damage from construction operations and placement of equipment and fixtures during remainder of construction period.

D. Cover resilient products subject to wear and foot traffic until Substantial Completion.

END OF SECTION 096513

SECTION 096519 - RESILIENT TILE FLOORING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Solid vinyl floor tile.
2. Rubber floor tile.
3. Vinyl composition floor tile.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and pattern specified.

1.3 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.4 QUALITY ASSURANCE

A. Installer Qualifications: An entity that employs installers and supervisors who are competent in techniques required by manufacturer for floor tile installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: For resilient floor tile, as determined by testing identical products according to ASTM E 648 or NFPA 253 by a qualified testing agency.

1. Critical Radiant Flux Classification: Class I, not less than 0.45 W/sq. cm.

B. Resilient tile flooring shall be stable, firm, and slip resistant. CBC 11B-302.1

2.2 SOLID VINYL FLOOR TILE.

A. Shaw, Solitude, Luxury Vinyl Tile.

B. Tile Standard: ASTM F 1700.

1. Class: As indicated by product designations.
2. Type: A, Smooth Surface.

C. Thickness: 0.1970 inch.

D. Size: 6 by 48 inches.

E. Colors and Patterns: Match Architect's samples.

2.3 INSTALLATION MATERIALS

A. Trowelable Leveling and Patching Compounds: Latex-modified, portland-cement-based or blended hydraulic-cement-based formulation provided or approved by floor tile manufacturer for applications indicated.

B. Adhesives: Water-resistant type recommended by floor tile and adhesive manufacturers to suit floor tile and substrate conditions indicated.

C. Floor Polish: Provide protective, liquid floor-polish products recommended by floor tile manufacturer.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to floor tile manufacturer's written instructions to ensure adhesion of resilient products.

B. Concrete Substrates: Prepare according to ASTM F 710.

1. Verify that substrates are dry and free of curing compounds, sealers, and hardeners.
2. Remove substrate coatings and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, using mechanical methods recommended by floor tile manufacturer. Do not use solvents.
3. Alkalinity and Adhesion Testing: Perform tests recommended by floor tile manufacturer. Proceed with installation only after substrate alkalinity falls within range on pH scale recommended by manufacturer in writing, but not less than 5 or more than 10 pH.

C. Fill cracks, holes, and depressions in substrates with trowelable leveling and patching compound; remove bumps and ridges to produce a uniform and smooth substrate.

D. Do not install floor tiles until materials are the same temperature as space where they are to be installed.

1. At least 48 hours in advance of installation, move resilient floor tile and installation materials into spaces where they will be installed.

E. Immediately before installation, sweep and vacuum clean substrates to be covered by resilient floor tile.

3.2 FLOOR TILE INSTALLATION

A. Comply with manufacturer's written instructions for installing floor tile.

B. Lay out floor tiles from center marks established with principal walls, discounting minor offsets, so tiles at opposite edges of room are of equal width. Adjust as necessary to avoid using cut widths that equal less than one-half tile at perimeter.

C. Match floor tiles for color and pattern by selecting tiles from cartons in the same sequence as manufactured and packaged, if so numbered. Discard broken, cracked, chipped, or deformed tiles.

D. Scribe, cut, and fit floor tiles to butt neatly and tightly to vertical surfaces and permanent fixtures including built-in furniture, cabinets, pipes, outlets, and door frames.

E. Extend floor tiles into toe spaces, door reveals, closets, and similar openings. Extend floor tiles to center of door openings.

F. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on floor tiles as marked on substrates. Use chalk or other nonpermanent marking device.

G. Install floor tiles on covers for telephone and electrical ducts, building expansion-joint covers, and similar items in installation areas. Maintain overall continuity of color and pattern between pieces of tile installed on covers and adjoining tiles. Tightly adhere tile edges to substrates that abut covers and to cover perimeters.

H. Adhere floor tiles to substrates using a full spread of adhesive applied to substrate to produce a completed installation without open cracks, voids, raising and puckering at joints, telegraphing of adhesive spreader marks, and other surface imperfections.

I. Floor Polish: Remove soil, adhesive, and blemishes from floor tile surfaces before applying liquid floor polish.

END OF SECTION 096519

SECTION 096813 - TILE CARPETING

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes modular carpet tile.

1.2 ACTION SUBMITTALS

A. Product Data: For each type of product.

B. Samples: For each exposed product and for each color and texture required.

1.3 INFORMATIONAL SUBMITTALS

A. Product test reports.

B. Sample warranty.

1.4 CLOSEOUT SUBMITTALS

A. Maintenance data.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with CAL-Green Section 5.504.4.4 All carpet installed in the building interior shall meet the testing and product requirement of one of the following:
   1. Carpet and Rug Institute’s Green Label Plus Program.
   2. California Department of Public Health Standard Practice for the testing of VOCs

B. Carpet shall be securely attached and shall have a firm cushion, pad, backing or no cushion or pad. It shall have a level loop, textured loop. Level cut pile, or level cut/ uncut pile texture. Pile height shall be ½ inch (12.70 mm) maximum. CBC 11B-302.2

C. Exposed edges shall be fastened to floor surfaces and shall have trim on the entire length. Carpet edges shall comply with CBC 11B-302.2

2.2 CARPET TILE CPT-1

A. Basis-of-Design: Tandus or Shaw

B. Color: As selected by Architect from manufacturer's full range.

C. Pattern: Match Architect's samples.

D. Primary Backing/Backcoating: Manufacturer's standard composite materials.

E. Secondary Backing: Manufacturer's standard material.

F. Size: 24 by 24 inches.

G. Applied Treatments:

1. Soil-Resistance Treatment: Manufacturer's standard treatment.
2. Antimicrobial Treatment: Manufacturer's standard treatment that protects carpet tiles as follows:

    a. Antimicrobial Activity: Not less than 2-mm halo of inhibition for gram-positive bacteria, not less than 1-mm halo of inhibition for gram-negative bacteria, and no fungal growth, according to AATCC 174.

2.3 INSTALLATION ACCESSORIES

A. Trowelable Leveling and Patching Compounds: Latex-modified, hydraulic-cement-based formulation provided or recommended by carpet tile manufacturer.

B. Adhesives: Water-resistant, mildew-resistant, nonstaining, pressure-sensitive type to suit products and subfloor conditions indicated, that comply with flammability requirements for installed carpet tile, and are recommended by carpet tile manufacturer for releasable installation.

PART 3 - EXECUTION

3.1 PREPARATION

A. General: Comply with CRI's "CRI Carpet Installation Standards" and with carpet tile manufacturer's written installation instructions for preparing substrates indicated to receive carpet tile.

B. Use trowelable leveling and patching compounds, according to manufacturer's written instructions, to fill cracks, holes, depressions, and protrusions in substrates. Fill or level cracks, holes and depressions 1/8 inch (3 mm) wide or wider, and protrusions more than 1/32 inch (0.8 mm) unless more stringent requirements are required by manufacturer's written instructions.

C. Concrete Substrates: Remove coatings, including curing compounds, and other substances that are incompatible with adhesives and that contain soap, wax, oil, or silicone, without using solvents. Use mechanical methods recommended in writing by adhesive and carpet tile manufacturers.

D. Metal Substrates: Clean grease, oil, soil and rust, and prime if recommended in writing by adhesive manufacturer. Rough sand painted metal surfaces and remove loose paint. Sand aluminum surfaces, to remove metal oxides, immediately before applying adhesive.

E. Broom and vacuum clean substrates to be covered immediately before installing carpet tile.

3.2 INSTALLATION

A. General: Comply with CRI's "CRI Carpet Installation Standard," Section 18, "Modular Carpet" and with carpet tile manufacturer's written installation instructions.

B. Installation Method: As recommended in writing by carpet tile manufacturer.

C. Maintain dye-lot integrity. Do not mix dye lots in same area.

D. Maintain pile-direction patterns recommended in writing by carpet tile manufacturer.

E. Cut and fit carpet tile to butt tightly to vertical surfaces, permanent fixtures, and built-in furniture including cabinets, pipes, outlets, edgings, thresholds, and nosings. Bind or seal cut edges as recommended by carpet tile manufacturer.

F. Extend carpet tile into toe spaces, door reveals, closets, open-bottomed obstructions, removable flanges, alcoves, and similar openings.

G. Maintain reference markers, holes, and openings that are in place or marked for future cutting by repeating on carpet tile as marked on subfloor. Use nonpermanent, nonstaining marking device.

H. Install pattern parallel to walls and borders.

I. Access Flooring: Stagger joints of carpet tiles so carpet tile grid is offset from access flooring panel grid. Do not fill seams of access flooring panels with carpet adhesive; keep seams free of adhesive.

J. Protect carpet tile against damage from construction operations and placement of equipment and fixtures during the remainder of construction period. Use protection methods indicated or recommended in writing by carpet tile manufacturer.

END OF SECTION 096813

SECTION 097723 - FABRIC-WRAPPED PANELS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes shop-fabricated, fabric-wrapped wall panels.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Include fabric facing, panel edge, core material, and mounting indicated.

B. Shop Drawings: For panel assembly and installation.

1. Include plans, elevations, sections, and mounting devices and details.
2. Include details at panel head, base, joints, and corners; and details at ceiling, floor base, and wall intersections. Indicate panel edge profile and core materials.
3. Include details at cutouts and penetrations for other work.
4. Include direction of fabric weave and pattern matching.

C. Samples for Initial Selection: For each type of fabric facing.

1. Include Samples of hardware and accessories involving color or finish selection.

D. Samples for Verification: For the following products:

1. Fabric: Full-width by approximately 24” long Sample, but not smaller than required to show complete pattern repeat, from dye lot to be used for the Work, and with specified treatments applied. Mark top and face of fabric.
2. Panel Edge: 12-inch-long Sample(s) showing each edge profile, corner, and finish.
3. Core Material: 12-inch-square Sample at corner.
4. Mounting Devices: Full-size Samples.
5. Assembled Panels: Approximately 24 by 24 inches, including joints and mounting methods.

1.4 INFORMATIONAL SUBMITTALS

A. Coordination Drawings: Elevations and other details, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Electrical outlets, switches, and thermostats.
2. Items penetrating or covered by panels including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.
    c. Speakers.
    d. Alarms.
    e. Sprinklers.
    f. Access panels.

3. Show operation of hinged and sliding components covered by or adjacent to panels.

B. Product Certificates: For each type of panel.

C. Sample Warranty: For manufacturer's special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance Data: For each type of panel to include in maintenance manuals. Include fabric manufacturers' written cleaning and stain-removal instructions.

1.6 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials from same production run that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Fabric: For each fabric, color, and pattern installed, provide length equal to 10 percent of amount installed, but no fewer than 10 sq. yd., full width of bolt.
2. Mounting Devices: Full-size units equal to 5 percent of amount installed, but no fewer than five devices, including unopened adhesives.

1.7 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals, to demonstrate aesthetic effects, and to set quality standards for materials, fabrication, and installation.

1. Build mockup of typical wall area as shown on Drawings.
2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.

3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

1.8 DELIVERY, STORAGE, AND HANDLING

A. Comply with fabric and panel manufacturers' written instructions for minimum and maximum temperature and humidity requirements for shipment, storage, and handling.

B. Deliver materials and panels in unopened bundles and store in a temperature-controlled dry place with adequate air circulation.

1.9 FIELD CONDITIONS

A. Environmental Limitations: Do not install panels until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work at and above ceilings is complete, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.

B. Lighting: Do not install panels until a permanent level of lighting is provided on surfaces to receive the panels.

C. Air-Quality Limitations: Protect panels from exposure to airborne odors such as tobacco smoke, and install panels under conditions free from odor contamination of ambient air.

D. Field Measurements: Verify panel locations and actual dimensions of openings and penetrations by field measurements before fabrication, and indicate them on Shop Drawings.

1.10 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace panels and components that fail in materials or workmanship within specified warranty period.

1. Failures include, but are not limited to, the following:

a. Fabric sagging, distorting, or releasing from panel edge.
b. Warping of core.

2. Warranty Period: Two years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Source Limitations: Obtain fabric-wrapped wall panels from single source from single manufacturer.

2.2 PERFORMANCE REQUIREMENTS

A. Fire-Test-Response Characteristics: Panels shall comply with "Surface-Burning Characteristics" or "Fire Growth Contribution" Subparagraph below, or both, as determined by testing identical products by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:

1. Surface-Burning Characteristics: Comply with ASTM E 84 or UL 723; testing by a qualified testing agency. Identify products with appropriate markings of applicable testing agency.

    a. Flame-Spread Index: 25 or less.
    b. Smoke-Developed Index: 450 or less.

2. Fire Growth Contribution: Comply with acceptance criteria of local code and authorities having jurisdiction when tested according to NFPA 265 Method B Protocol or NFPA 286.

2.3 FABRIC-WRAPPED WALL PANELS

A. Fabric-Wrapped Wall Panel: Manufacturer's standard panel construction consisting of facing material laminated to front face, edges, and back edge border of core.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Kinetics Noise Control, Hardside Acoustical Wall Panels.

2. Panel Shape: Flat.
3. Mounting: Edge mounted with splines secured to substrate.

    a. Finish Color at Exposed Edges: As selected by Architect from manufacturer's full range.

4. Mounting: Back mounted with manufacturer's standard metal clips or bar hangers, secured to substrate.
5. Core: Glass-fiber board.
6. Edge Construction: Manufacturer's standard chemically hardened core with no frame.
7. Edge Profile: Square.
8. Corner Detail in Elevation: Square with continuous edge profile indicated.
9. Reveals between Panels: Flush reveals.
10. Facing Material: As indicated on Drawings.
11. Nominal Thickness: 2 inches.
12. Panel Width: As indicated on Drawings.
13. Panel Height: As indicated on Drawings.

2.4 MATERIALS

A. Core Materials:

1. Glass-Fiber Board: ASTM C 612; of type standard with manufacturer; nominal density of 6 to 7 lb/cu. ft., unfaced, and dimensionally stable, molded rigid board; and with maximum flame-spread and smoke-developed indexes of 25 and 50, respectively.

B. Facing Material: Fabric from same dye lot; color and pattern as selected by Architect from manufacturer's full range.

C. Lining Material: Fabric as selected by Architect from manufacturer's full range.

D. Mounting Devices: Concealed on back of panel, recommended by manufacturer to support weight of panel, and as follows:
1. Metal Clips or Bar Hangers: Manufacturer's standard two-part metal "Z" clips, with one part of each clip mechanically attached to back of panel and the other part to substrate, designed to permit unit removal.

2.5 FABRICATION

A. Standard Construction: Use manufacturer's standard construction unless otherwise indicated; with facing material applied to face, edges, and back border of dimensionally stable core; and with rigid edges to reinforce panel perimeter against warpage and damage.

B. Edge Hardening: For glass-fiber board and mineral-fiber board cores, chemically harden core edges and areas of core where mounting devices are attached.

C. Core-Face Layer: Evenly stretched over core face and edges and securely attached to core; free from puckers, ripples, wrinkles, or sags.

D. Facing Material and Lining Material: Apply fabric fully covering visible surfaces of panel; with material stretched straight, on the grain, tight, square, and free from puckers, ripples, wrinkles, sags, blisters, seams, adhesive, or other visible distortions or foreign matter.

1. Square Corners: Tailor corners.
2. Fabrics with Directional or Repeating Patterns or Directional Weave: Mark fabric top and attach fabric in same direction so pattern or weave matches in adjacent panels.

E. Dimensional Tolerances of Finished Panels: Plus or minus 1/16 inch for the following:

1. Thickness.
2. Edge straightness.
3. Overall length and width.
4. Squareness from corner to corner.
5. Chords, radii, and diameters.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine fabric, fabricated panels, substrates, areas, and conditions for compliance with requirements, installation tolerances, and other conditions affecting panel performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

A. Install panels in locations indicated. Unless otherwise indicated, install panels with vertical surfaces and edges plumb, top edges level and in alignment with other panels, faces flush, and scribed to fit adjoining work accurately at borders and at penetrations.

B. Comply with manufacturer's written instructions for installation of panels using type of mounting devices indicated. Mount panels securely to supporting substrate.

C. Align fabric pattern and grain with adjacent panels.

3.3 INSTALLATION TOLERANCES

A. Variation from Plumb and Level: Plus or minus 1/16 inch in 48 inches, noncumulative.

B. Variation of Joint Width: Not more than 1/32 inch wide from in 48 inches, noncumulative.

3.4 CLEANING

A. Clip loose threads; remove pills and extraneous materials.

B. Clean panels on completion of installation to remove dust and other foreign materials according to manufacturer's written instructions.

END OF SECTION 097723

SECTION 099123 - INTERIOR PAINTING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes surface preparation and the application of paint systems on the following interior substrates:

1. Gypsum board.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.

B. Samples for Initial Selection: For each type of topcoat product indicated.

C. Samples for Verification: For each type of paint system and in each color and gloss of topcoat indicated.

1. Submit Samples on rigid backing, 8 inches square.
2. Step coats on Samples to show each coat required for system.
3. Label each coat of each Sample.
4. Label each Sample for location and application area.

D. Product List: For each product indicated, include the following:

1. Cross-reference to paint system and locations of application areas. Use same designations indicated on Drawings and in schedules.
2. Printout of current "MPI Interior systems" for each product category specified in Part 2, with the proposed product highlighted.

1.4 MAINTENANCE MATERIAL SUBMITTALS

A. Furnish extra materials, from the same product run, that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

1. Paint: 5 percent, but not less than 1 gal. of each material and color applied.

1.5 QUALITY ASSURANCE

A. MPI Standards:

1. Preparation and Workmanship: Comply with requirements in "MPI Architectural Painting Specification Manual" for paint systems indicated.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Store materials not in use in tightly covered containers in well-ventilated areas with ambient temperatures continuously maintained at not less than 45 deg F.

1. Maintain containers in clean condition, free of foreign materials and residue.
2. Remove rags and waste from storage areas daily.

1.7 FIELD CONDITIONS

A. Apply paints only when temperature of surfaces to be painted and ambient air temperatures are between 50 and 95 deg F.

B. Do not apply paints when relative humidity exceeds 85 percent; at temperatures less than 5 deg F above the dew point; or to damp or wet surfaces.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Basis of Design: Sherwin Williams.

2.2 PAINT, GENERAL

A. Material Compatibility:

1. Provide materials for use within each paint system that are compatible with one another and substrates indicated, under conditions of service and application as demonstrated by manufacturer, based on testing and field experience.
2. For each coat in a paint system, provide products recommended in writing by manufacturers of topcoat for use in paint system and on substrate indicated.

A. VOC Content: Products shall comply with VOC limits of authorities having jurisdiction and, for interior paints and coatings applied at Project site, the following VOC limits, exclusive of colorants added to a tint base, when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

1. Flat Paints and Coatings: 50 g/L.
2. Nonflat Paints and Coatings: 150 g/L.
3. Dry-Fog Coatings: 400 g/L.
4. Primers, Sealers, and Undercoaters: 200 g/L.
5. Anticorrosive and Antirust Paints Applied to Ferrous Metals: 250 g/L.
6. Zinc-Rich Industrial Maintenance Primers: 340 g/L.
7. Pretreatment Wash Primers: 420 g/L.
8. Floor Coatings: 100 g/L.
9. Shellacs, Clear: 730 g/L.
10. Shellacs, Pigmented: 550 g/L.

B. Colors: To be selected by Architect.

2.3 PRIMERS/SEALERS

A. Interior Latex Primer/Sealer:

1. Basis of Design: Sherwin Williams; ProGreen 200 Interior Latex Primer B28W600.

B. Interior Acrylic Primer/Sealer:

1. Basis of Design: Sherwin Williams; Loxon Block Surfacer A42W200.

2.4 METAL PRIMERS

A. Rust-Inhibitive Acrylic Primer:

1. Basis of Design: Sherwin Williams; Pro Industrial Pro-Cryl Universal Primer B66-310 Series.

2.5 LATEX PAINTS

A. High Performance Architectural Interior Latex (Semigloss):

1. Basis of Design: Sherwin Williams; Pro Industrial 0 Voc Acrylic, B66-650 Series.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates and conditions, with Applicator present, for compliance with requirements for maximum moisture content and other conditions affecting performance of work.

B. Maximum Moisture Content of Substrates: When measured with an electronic moisture meter as follows:

1. Concrete: 12 percent.
2. Masonry (CMU): 12 percent.
3. Wood: 15 percent.
4. Gypsum Board: 12 percent.
5. Plaster: 12 percent.

C. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

1. Verify ph range of concrete surfaces.

D. Gypsum Board Substrates: Verify that finishing compound is sanded smooth.

E. Plaster Substrates: Verify that plaster is fully cured.

F. Verify suitability of substrates, including surface conditions and compatibility with existing finishes and primers.

G. Proceed with coating application only after unsatisfactory conditions have been corrected.

1. Application of coating indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Comply with manufacturer's written instructions and recommendations in "MPI Architectural Painting Specification Manual" applicable to substrates indicated.

B. Remove hardware, covers, plates, and similar items already in place that are removable and are not to be painted. If removal is impractical or impossible because of size or weight of item, provide surface-applied protection before surface preparation and painting.

1. After completing painting operations, use workers skilled in the trades involved to reinstall items that were removed. Remove surface-applied protection if any.

C. Clean substrates of substances that could impair bond of paints, including dirt, oil, grease, and incompatible paints and encapsulants.

1. Remove incompatible primers and reprime substrate with compatible primers as required to produce paint systems indicated.

D. Concrete Substrates: Remove release agents, curing compounds, efflorescence, and chalk. Do not paint surfaces if moisture content or alkalinity of surfaces to be painted exceeds that permitted in manufacturer's written instructions.

1. Verify with Contractor that surface meets requirements for surfaces receiving a painted finish as defined in Division 3 Sections for concrete finishes.

E. Masonry Substrates: Remove efflorescence and chalk. Do not paint surfaces if moisture content of surfaces or alkalinity of mortar joints to be painted exceed that permitted in manufacturer's written instructions.

F. Steel Substrates: Remove rust, loose mill scale, and shop primer, if any. Clean using methods recommended in writing by paint manufacturer but not less than the following:

1. SSPC-SP 2, "Hand Tool Cleaning."
2. SSPC-SP 3, "Power Tool Cleaning."
3. SSPC-SP 7/NACE No. 4, "Brush-off Blast Cleaning."
4. SSPC-SP 11, "Power Tool Cleaning to Bare Metal."

G. Shop-Primed Steel Substrates: Clean field welds, bolted connections, and abraded areas of shop paint, and paint exposed areas with the same material as used for shop priming to comply with SSPC-PA 1 for touching up shop-primed surfaces.

H. Galvanized-Metal Substrates: Remove grease and oil residue from galvanized sheet metal fabricated from coil stock by mechanical methods to produce clean, lightly etched surfaces that promote adhesion of subsequently applied paints.

I. Aluminum Substrates: Remove surface oxidation.

J. Wood Substrates:

1. Scrape and clean knots, and apply coat of knot sealer before applying primer.
2. Sand surfaces that will be exposed to view, and dust off.
3. Prime edges, ends, faces, undersides, and backsides of wood.
4. After priming, fill holes and imperfections in the finish surfaces with putty or plastic wood filler. Sand smooth when dried.

K. Gypsum Board Substrates: Do not begin paint application until finishing compound is dry and sanded smooth.

3.3 APPLICATION

A. Apply paints according to manufacturer's written instructions.

1. Use applicators and techniques suited for paint and substrate indicated.
2. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces. Before final installation, paint surfaces behind permanently fixed equipment or furniture with prime coat only.
3. Paint front and backsides of access panels and doors, removable or hinged covers, and similar hinged items to match exposed surfaces.
4. Do not paint over labels of independent testing agencies or equipment name, identification, performance rating, or nomenclature plates.
5. Primers specified in painting schedules may be omitted on items that are factory primed or factory finished if acceptable to topcoat manufacturers.

B. Tint each undercoat a lighter shade to facilitate identification of each coat if multiple coats of same material are to be applied. Tint undercoats to match color of topcoat, but provide sufficient difference in shade of undercoats to distinguish each separate coat.

C. If undercoats or other conditions show through topcoat, apply additional coats until cured film has a uniform paint finish, color, and appearance.

D. Apply paints to produce surface films without cloudiness, spotting, holidays, laps, brush marks, roller tracking, runs, sags, ropiness, or other surface imperfections. Cut in sharp lines and color breaks.

E. Painting Fire Suppression, Plumbing, HVAC, Electrical, Communication, and Electronic Safety and Security Work:

1. Paint the following work where exposed in equipment rooms:
    a. Equipment, including panelboards and switch gear.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Tanks that do not have factory-applied final finishes.
    h. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
2. Paint the following work where exposed in occupied spaces:
    a. Equipment, including panelboards.
    b. Uninsulated metal piping.
    c. Uninsulated plastic piping.
    d. Pipe hangers and supports.
    e. Metal conduit.
    f. Plastic conduit.
    g. Duct, equipment, and pipe insulation having cotton or canvas insulation covering or other paintable jacket material.
    h. Other items as directed by Architect.
3. Paint portions of internal surfaces of metal ducts, without liner, behind air inlets and outlets that are visible from occupied spaces.

F. Painting Fire and/or Smoke ratings on Walls: Indicate fire rating and/or smoke rating on all fire and/or smoke rated walls by painting in 2-inch high block lettering the fire and/or smoke rating of the wall as indicated on the Code Plans in the Drawings.

1. Use same designation for wall rating as indicated on the code plans in the drawings
2. Locate painted rating above ceiling line or 12 feet above floor where no ceiling exists.
    a. Do not paint rating designations of walls inside of cell areas.

3.4 FIELD QUALITY CONTROL

A. Dry Film Thickness Testing: Owner may engage the services of a qualified testing and inspecting agency to inspect and test paint for dry film thickness.

1. Contractor shall touch up and restore painted surfaces damaged by testing.
2. If test results show that dry film thickness of applied paint does not comply with paint manufacturer's written recommendations, Contractor shall pay for testing and apply additional coats as needed to provide dry film thickness that complies with paint manufacturer's written recommendations.

3.5 CLEANING AND PROTECTION

A. At end of each workday, remove rubbish, empty cans, rags, and other discarded materials from Project site.

B. After completing paint application, clean spattered surfaces. Remove spattered paints by washing, scraping, or other methods. Do not scratch or damage adjacent finished surfaces.

C. Protect work of other trades against damage from paint application. Correct damage to work of other trades by cleaning, repairing, replacing, and refinishing, as approved by Architect, and leave in an undamaged condition.

D. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces.

3.6 INTERIOR PAINTING SCHEDULE

A. Concrete Substrates, Walls and Ceilings:

1. High-Performance Architectural Latex System: MPI INT 3.1C.
   a. Prime Coat: Interior acrylic primer/sealer.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex (semigloss).

B. Concrete Substrates, Traffic Surfaces:

1. Floor Enamel System: MPI INT 3.2A.
   a. Prime Coat: Exterior/interior floor enamel (gloss).
   b. Topcoat: Exterior/interior floor enamel (gloss).

2. Concrete Sealer: See part 2.4D, this spec section.

C. CMU Substrates:

1. High-Performance Architectural Latex System: MPI INT 4.2D.
   a. Prime Coat: Interior/exterior latex block filler.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex **(**semigloss**)**.

D. Steel Substrates:

1. High-Performance Architectural Latex System: MPI INT 5.1R.
   a. Prime Coat: Rust inhibitive Acrylic metal primer.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex **(**semigloss**)**.

E. Galvanized-Metal Substrates:

1. High-Performance Architectural Latex System: MPI INT 5.3M.
   a. Prime Coat: Rust inhibitive Acrylic metal primer.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex **(**semigloss**)**.

F. Aluminum (Not Anodized or Otherwise Coated) Substrates:

1. High-Performance Architectural Latex System: MPI INT 5.4F.
   a. Prime Coat: High-performance architectural latex matching topcoat.
   b. Topcoat: High-performance architectural latex **(**semigloss**)**.

G. Wood Panel Substrates: Including painted plywood, medium-density fiberboard and hardboard.

1. High-Performance Architectural Latex System: MPI INT 6.4S.
   a. Prime Coat: Wood Knot Sealer.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex (semigloss).

H. Gypsum Board Substrates:

1. High-Performance Architectural Latex System: MPI INT 9.2B.
   a. Prime Coat: Interior latex primer/sealer.
   b. Intermediate Coat: High-performance architectural latex matching topcoat.
   c. Topcoat: High-performance architectural latex (semigloss**)**.

END OF SECTION 099123

SECTION 101400 - SIGNAGE

PART 1 GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Building Code required signage.
   2. Signage indicated on Drawings.

1.2 DEFINITIONS

A. Accessible: In accordance with the accessibility standard.

1.3 COORDINATION

A. Furnish templates for placement of sign-anchorage devices embedded in permanent construction by other installers.

B. Furnish templates for placement of electrical service embedded in permanent construction by other installers.

1.4 SUBMITTALS

A. Product Data: For each type of product.

B. Shop Drawings: For panel signs.
   1. Include fabrication and installation details and attachments to other work.
   2. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
   3. Show message list, type styles, graphic elements, including raised characters and Braille, and layout for each sign at least half size.
   4. Show locations of electrical service connections.
   5. Include diagrams for power, signal, and control wiring.

C. Samples for Initial Selection: For each type of sign assembly, exposed component, and exposed finish.
   1. Include representative Samples of available type styles and graphic symbols.

D. Samples for Verification: For each type of sign assembly showing all components and with the required finishes, in manufacturer's standard size unless otherwise indicated and as follows:
   1. Room-Identification Signs: Full-size Sample.
   2. Field-Applied, Vinyl-Character Signs: Full-size Sample of characters on glass.
   3. Variable Component Materials: Full-size Sample of each base material, character (letter, number, and graphic element) in each exposed color and finish not included in Samples above.
   4. Exposed Accessories: Full-size Sample of each accessory type.

E. Template: Submit full-size template drawing for approval of letter size, stock, spacing, setting screws.

F. Sign Schedule: Use same designations specified or indicated on Drawings or in a sign schedule.

G. Delegated-Design Submittal: For signs indicated in "Performance Requirements" Article.

1. Include structural analysis calculations for signs indicated to comply with design loads; signed and sealed by the qualified professional engineer responsible for their preparation.

H. Qualification Data: For installer.

I. Sample Warranty: For special warranty.

J. Maintenance Data: For signs to include in maintenance manuals.

1.5 QUALITY ASSURANCE

A. Single-Source Responsibility: For each separate sign type required, obtain signs from one source of a single manufacturer.

B. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.

1.6 FIELD CONDITIONS

A. Field Measurements: Verify locations of anchorage devices and electrical service embedded in permanent construction by other installers by field measurements before fabrication, and indicate measurements on Shop Drawings.

1.7 DELIVERY AND STORAGE

A. Deliver and store identifying devices in protective wrappings until ready for installation.

1.8 WARRANTY

A. Special Warranty: Manufacturer agrees to repair or replace components of signs that fail in materials or workmanship within specified warranty period.
1. Failures include, but are not limited to, the following:
a. Deterioration of finishes beyond normal weathering.
b. Deterioration of embedded graphic image.
c. Separation or delamination of sheet materials and components.
2. Warranty Period: 5 years from date of Substantial Completion.

1.9 REGULATORY REQUIREMENTS

A. Raised characters shall comply with CBC Section 11B-703.2:
1. Depth: It shall be 1/32 inch minimum above their background and shall be sans serif uppercase and be duplicated in Braille.
2. Height: It shall be 5/8 inch minimum and 2 inches maximum based on the height of the uppercase letter “I” per CBC Section 11B-703.2.5.
3. Finish and contrast: Characters and their background shall have a non-glare finish. Character shall contrast with their background with either light characters on a dark background or dark characters on a light background per CBC Section 11B-703.5.1.
4. Proportions: It shall be selected from fonts where the width of the uppercase letter “O” is 60% minimum and 110% maximum of the height of the uppercase letter “I”. Stroke thickness of the uppercase letter “I” shall be 15% maximum of the height of the character per CBC Sections 11B-703.2.4 and 11B-703.2.6.
5. Character Spacing: Spacing between individual raised characters shall comply with CBC Section 11B-703.2.7 and 11B-703.2.8.
6. Format: Text shall be in a horizontal format per CBC Section 11B-703.2.9.
7. Braille: It shall be contracted (Grade 2) and shall comply with CBC Sections 11B-703.3 and 11B-703.4. Braille dots shall have a domed or rounded shape and shall comply with CBC

Table and Figure 11B-703.3.1.

8. Mounting height: Tactile characters on signs shall be located 48" minimum to the baseline of the lowest Braille cells and 60" maximum to the baseline of the highest line of raised characters above the finish floor or ground surface per CBC Section and Figure 11B-703.4.1.
9. Mounting location: A tactile sign shall be located per CBC Section and Figure 11B -703.4.2 as follows:
   a. Alongside a single door at the latch side.
   b. On the inactive leaf at double doors with one active leaf.
   c. To the right of the right hand door at double doors with two active leafs.
   d. On the nearest adjacent wall where there is no wall space at the latch side of a single door or at the right side of double doors with two active leafs.
   e. So that a clear floor space of 18” x 18” minimum, centered on the tactile characters, is provided beyond the arc of any door swing between the closed position and 45 degree open position.

B. Visual characters shall comply with CBC Section 11B-703.5 and shall be 40” minimum above finish floor or ground.

C. Pictograms shall comply with CBC Section 11B-703.6.

D. Symbol of accessibility shall comply with CBC Section 11B-703.7.

E. Variable message signs shall comply with CBC Section 11B-703.8.

PART 2 PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Thermal Movements: For exterior signs, allow for thermal movements from ambient and surface temperature changes.
   1. Temperature Change: 120 deg F, ambient; 180 deg F, material surfaces.

B. Accessibility Standard: Comply with applicable provisions in the U.S. Architectural & Transportation Barriers Compliance Board's ADA-ABA Accessibility Guidelines for Buildings and Facilities and ICC A117.1 for signs.

C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, by a qualified testing agency, and marked for intended location and application.

2.2 PROJECT SIGNAGE

A. Signage provided in this section is for only Code required signage. The Owner is to retain a Signage Consultant for building addresses, unit numbers, etc.

2.3 MATERIALS

A. Aluminum Extrusions: Extrusions of alloy and temper recommended by sign manufacturer for type of use and finish indicated, and with not less than strength and durability properties specified in ASTM B221 for 6063-T5.

B. Fasteners: Use concealed fasteners fabricated from metals that are not corrosive to sign material and mounting surface.

C. Colored Coatings for Acrylic Plastic Sheet: Colored coatings, including inks and paints for

copy and background colors; recommended by acrylic manufacturers for optimum adherence to acrylic surface, and nonfading for application intended.

2.4 CODE SIGNAGE

A. Braille: Use Contracted Grade 2 Braille whenever Braille symbols are specifically required. Dots shall be 1/10 inch on center within each cell with 2/10 inch space between cells. Dots shall be raised 1/40 inch above background. Refer to CBC Section 11B-703.5.1

B. Sign Schedule: Provide signage as required by codes and accessibility regulations and requirements. These include, but are not limited to:
   1. Illuminated Exit Signs: Refer to Division 26.
   2. Fire Doors (CBC Section 1008)
   3. Room Capacity (CBC Section 1004.3)
   4. Accessibility signs (ADA Accessibility 28 CFR 35 Requirements including Braille) including toilet facilities, doors to exitways. (CBC Sections 1013.4, 11B-703, 11B-216.8.1, and 11B-504).

2.5 PANEL SIGNS

A. Produce smooth, even, level sign panel surfaces, constructed to remain flat under installed conditions.

B. Unframed Panel Signs: Fabricate signs with edges mechanically and smoothly finished to conform with following requirements:
   1. Edge Condition: Square cut.
   2. Edge Color for Plastic Laminate: Edge color same as background.
   3. Corner Condition: Square corners.

C. Framed Panel Signs: Fabricate frames to profile indicated; comply with following requirements for materials and corner conditions:
   1. Material: Aluminum, extruded or cast.
   2. Corner Condition: Square corners.

D. Graphic Content and Style: Sign copy that complies with requirements indicated for size, style, spacing, content, position, material, finishes, and colors of letters, numbers, and other graphic devices.

2.6 ACCESSORIES – GENERAL

A. Adhesives & Sealants: Only use adhesives and sealants in the interior of the building that meet or do not exceed the VOC limits of the CURRENT requirements of South Coast Air Quality Management District (SCAQMD) Rule No. 1168, CAL-Green Table 5.504.4.1 Adhesive VOC Limit, and Cal GREEN Table 5.504.4.2 Sealant VOC Limit requirements.
   1. Current requirement refers to the date on which the materials are installed in the building.
   2. A copy of SCAQMD Rule #1168 is referenced in Section 018114 that was current as of the date of this specification. Refer to www.aqmd.gov/rules for the actual current version of the rule that will be applicable at the date of installation during construction.

B. Paint Maximum Product Emissions Limits: Top coat and primer interior paints must meet current requirements for VOC (Volatile Organic Compounds) limits of South Coast Air Quality Management District (SCAQMD) Rule No. 1113 and CAL-Green Table 5.504.4.3 for VOC Content Limits for Architectural Coatings.

1. CAL-Green Requirements for typical paint coatings:
   a. Primers, Sealers, and Undercoaters: 100 grams per liter of product minus water.
   b. Flats: 50 grams per liter of product minus water.
   c. Non-flats: 100 grams per liter of product minus water.
   d. Non-flat High Gloss: 150 grams per liter of product minus water.

2.7 FABRICATION

A. General: Provide manufacturer's standard sign assemblies according to requirements indicated.

1. Preassemble signs and assemblies in shop to greatest extent possible. Disassemble signs and assemblies only as necessary for shipping and handling limitations. Clearly mark units for reassembly and installation; apply markings in locations concealed from view after final assembly.
2. Mill joints to a tight, hairline fit. Form assemblies and joints exposed to weather to resist water penetration and retention.
3. Comply with AWS for recommended practices in welding and brazing. Provide welds and brazes behind finished surfaces without distorting or discoloring exposed side. Clean exposed welded and brazed connections of flux, and dress exposed and contact surfaces.
4. Conceal connections if possible; otherwise, locate connections where they are inconspicuous.
5. Internally brace signs for stability and for securing fasteners.
6. Provide rebates, lugs, and brackets necessary to assemble components and to attach to existing work. Drill and tap for required fasteners. Use concealed fasteners where possible; use exposed fasteners that match sign finish.

B. Shop-Applied Vinyl: Align vinyl film in final position and apply to surface. Firmly press film from the middle outward to obtain good bond without blisters or fishmouths.

C. Brackets: Fabricate brackets, fittings, and hardware for bracket-mounted signs to suit sign construction and mounting conditions indicated. Modify manufacturer's standard brackets as required.

PART 3 EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for installation tolerances and other conditions affecting performance of signage work.

B. Verify that sign-support surfaces are within tolerances to accommodate signs without gaps or irregularities between backs of signs and support surfaces unless otherwise indicated.

C. Verify that anchor inserts are correctly sized and located to accommodate signs.

D. Verify that electrical service is correctly sized and located to accommodate signs.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION - GENERAL

A. General: Install signs using mounting methods indicated and according to manufacturer's

written instructions.

1. Install signs level, plumb, true to line, and at locations and heights indicated, with sign surfaces free of distortion and other defects in appearance.
2. Install signs so they do not protrude or obstruct according to the accessibility standard.
3. Before installation, verify that sign surfaces are clean and free of materials or debris that would impair installation.
4. Corrosion Protection: Coat concealed surfaces of exterior aluminum in contact with grout, concrete, masonry, wood, or dissimilar metals, with a heavy coat of bituminous paint.

3.3 INTERIOR INSTALLATION - ROOM SIGNS

A. Install signs plumb, level and square and in proper planes with other work, at heights as indicated by Architect.

B. Mount on wall surface, 56 inches above finish floor surface to bottom of sign; 4 inches from door frame to meet ADA and CBC Accessibility Requirements.

C. Anchor each plastic sign with sufficient amount adhesive for proper installation as recommended by manufacturer for substrate.

D. Room-Identification Signs and Other Accessible Signage: Install in locations on walls as indicated and according to accessibility standard.

E. Mounting Methods:
   1. Two-Face Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage. Keep strips away from edges to prevent visibility at sign edges. Place sign in position, and push to engage tape adhesive.
   2. Hook-and-Loop Tape: Clean bond-breaking materials from substrate surface and remove loose debris. Apply sign component of two-part tape strips symmetrically to back of sign and of suitable quantity to support weight of sign without slippage; push to engage tape adhesive. Keep tape strips 0.250 inch away from edges to prevent visibility at sign edges when sign is initially installed or reinstalled. Apply substrate component of tape to substrate in locations aligning with tape on back of sign; push and rub well to fully engage tape adhesive to substrate.

F. Field-Applied, Vinyl-Character Signs: Clean and dry substrate. Align sign characters in final position before removing release liner. Remove release liner in stages, and apply and firmly press characters into final position. Press from the middle outward to obtain good bond without blisters or fishmouths. Remove carrier film without disturbing applied vinyl film.

G. Signs Mounted on Glass: Provide opaque sheet matching sign material and finish onto opposite side of glass to conceal back of sign.

3.4 ADJUSTING AND CLEANING

A. Remove and replace damaged or deformed signs and signs that do not comply with specified requirements. Replace signs with damaged or deteriorated finishes or components that cannot be successfully repaired by finish touchup or similar minor repair procedures.

B. Remove temporary protective coverings and strippable films as signs are installed.

C. On completion of installation, clean exposed surfaces of signs according to manufacturer's

written instructions, and touch up minor nicks and abrasions in finish. Maintain signs in a clean condition during construction and protect from damage until acceptance by Owner.

1. Clean surfaces with plain water or water with soap or household detergent.

END OF SECTION 101400

SECTION 123623 - PLASTIC-LAMINATE-CLAD COUNTERTOPS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section includes plastic-laminate-clad countertops.

B. Related Sections:
   1. Section 064116 “Plastic-Laminate-Faced Architectural Cabinets”.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product.

   1. Include data for fire-retardant treatment from chemical-treatment manufacturer and certification by treating plant that treated materials comply with requirements.

B. Shop Drawings: For plastic-laminate-clad countertops.

   1. Include plans, sections, details, and attachments to other work. Detail fabrication and installation, including field joints.
   2. Show locations and sizes of cutouts and holes for items installed in plastic-laminate-clad countertops.
   3. Apply WI Certified Compliance Program label to Shop Drawings.

C. Samples: Plastic laminates in each type, color, pattern, and surface finish required in manufacturer's standard size.

D. Samples for Initial Selection: For plastic laminates.

E. Samples for Verification: As follows:

   1. Plastic Laminates: For each type, color, pattern, and surface finish required, 8 by 10 inches or 12 by 12 inches in size.
   2. Fabrication Sample: For each type and profile of countertop required, provide one sample applied to core material with specified edge material applied to one edge.

1.4 INFORMATIONAL SUBMITTALS

A. Qualification Data: For Installer and fabricator.

B. Product Certificates: For the following:

1. Composite wood and agrifiber products.
2. High-pressure decorative laminate.
3. Chemical-resistant, high-pressure decorative laminate.
4. Adhesives.

C. Quality Standard Compliance Certificates: WI Certified Compliance Program.

D. Evaluation Reports: For fire-retardant-treated materials, from ICC-ES.

1.5 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate products similar to those required for this Project and whose products have a record of successful in-service performance.

1. Shop Certification: WI's Certified Compliance Program licensee.

B. Installer Qualifications: WI's Certified Compliance Program licensee.

1.6 DELIVERY, STORAGE, AND HANDLING

A. Deliver countertops only after casework and supports on which they will be installed have been completed in installation areas.

B. Store countertops in areas where environmental conditions comply with requirements specified in "Field Conditions" Article.

C. Keep surfaces of countertops covered with protective covering during handling and installation.

1.7 FIELD CONDITIONS

A. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned for building occupants during the remainder of the construction period.

B. Environmental Limitations: Do not deliver or install countertops until building is enclosed, wet-work is complete, and HVAC system is operating and maintaining temperature between 60 and 90 deg F and relative humidity between 17 and 50 percent during the remainder of the construction period.

C. Field Measurements: Where countertops are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication and indicate measurements on Shop Drawings. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

D. Established Dimensions: Where countertops are indicated to fit to other construction, establish dimensions for areas where countertops are to fit. Provide allowance for trimming at site, and coordinate construction to ensure that actual dimensions correspond to established dimensions.

PART 2 - PRODUCTS

2.1 PLASTIC-LAMINATE-CLAD COUNTERTOPS

A. Quality Standard: Unless otherwise indicated, comply with the "Architectural Woodwork Standards" for grades of plastic-laminate-clad countertops indicated for construction, finishes, installation, and other requirements.

1. Provide inspections of fabrication and installation together with labels and certificates from WI certification program indicating that countertops comply with requirements of grades specified.
2. The Contract Documents contain requirements that are more stringent than the referenced quality standard. Comply with requirements of Contract Documents in addition to those of the referenced quality standard.

B. Grade: Premium.

C. Colors, Patterns, and Finishes: Provide materials and products that result in colors and textures of exposed laminate surfaces complying with the following requirements:
1. As selected by Architect from manufacturer's full range in the following categories:

a. Solid colors, matte finish.
b. Solid colors with core same color as surface, matte finish.
c. Wood grains, matte finish with grain running parallel to length of countertop.
d. Patterns, matte finish.

D. Edge Treatment: As indicated on Drawings.

E. Core Material: As selected by fabricator to comply with quality standard.

F. Core Thickness: 3/4 inch.

1. Build up countertop thickness to 1-1/2 inches at front, back, and ends with additional layers of core material laminated to top.

G. Backer Sheet: Provide plastic-laminate backer sheet, NEMA LD 3, Grade BKL, on underside of countertop substrate.

H. Paper Backing: Provide paper backing on underside of countertop substrate.

2.2 WOOD MATERIALS

A. Wood Products: Provide materials that comply with requirements of referenced quality standard unless otherwise indicated.

1. Wood Moisture Content: 8 to 13 percent.

B. Composite Wood and Agrifiber Products: Provide materials that comply with requirements of referenced quality standard for each type of countertop and quality grade specified unless otherwise indicated.
1. MDF: Medium-density fiberboard, ANSI A208.2, Grade 130.

2.3 ACCESSORIES

A. Wire-Management Grommets: Circular, molded-plastic grommets and matching plastic caps with slot for wire passage.
1. Outside Diameter: Indicated on drawings.
2. Color: To selected by Architect from full range of manufacturers' colors.

2.4 MISCELLANEOUS MATERIALS

A. Adhesive for Bonding Plastic Laminate: Unpigmented contact cement.

1. Adhesive for Bonding Edges: Hot-melt adhesive or adhesive specified above for faces.

2.5 FABRICATION

A. Fabricate countertops to dimensions, profiles, and details indicated. Provide front and end overhang of 1 inch over base cabinets. Ease edges to radius indicated for the following:

1. Solid-Wood (Lumber) Members: 1/16 inch unless otherwise indicated.

B. Complete fabrication, including assembly, to maximum extent possible before shipment to Project site. Disassemble components only as necessary for shipment and installation. Where necessary for fitting at site, provide ample allowance for scribing, trimming, and fitting.

1. Notify Architect seven days in advance of the dates and times countertop fabrication will be complete.
2. Trial fit assemblies at fabrication shop that cannot be shipped completely assembled. Install dowels, screws, bolted connectors, and other fastening devices that can be removed after trial fitting. Verify that various parts fit as intended, and check measurements of assemblies against field measurements before disassembling for shipment.

C. Shop cut openings to maximum extent possible to receive appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately, and use templates or roughing-in

diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.

1. Seal edges of cutouts by saturating with varnish.

PART 3 - EXECUTION

3.1 PREPARATION

A. Before installation, condition countertops to average prevailing humidity conditions in installation areas.

B. Before installing countertops, examine shop-fabricated work for completion and complete work as required, including removal of packing.

3.2 INSTALLATION

A. Grade: Install countertops to comply with same grade as item to be installed.

B. Assemble countertops and complete fabrication at Project site to the extent that it was not completed in the shop.

1. Provide cutouts for appliances, plumbing fixtures, electrical work, and similar items. Locate openings accurately, and use templates or roughing-in diagrams to produce accurately sized and shaped openings. Sand edges of cutouts to remove splinters and burrs.
2. Seal edges of cutouts by saturating with varnish.

C. Field Jointing: Where possible, make in the same manner as shop jointing, using dowels, splines, adhesives, and fasteners recommended by manufacturer. Prepare edges to be joined in shop so Project-site processing of top and edge surfaces is not required. Locate field joints where shown on Shop Drawings.

1. Secure field joints in countertops with concealed clamping devices located within 6 inches of front and back edges and at intervals not exceeding 24 inches. Tighten according to manufacturer's written instructions to exert a constant, heavy-clamping pressure at joints.

D. Scribe and cut countertops to fit adjoining work, refinish cut surfaces, and repair damaged finish at cuts.

E. Countertop Installation: Anchor securely by screwing through corner blocks of base cabinets or other supports into underside of countertop.

1. Install countertops level and true in line. Use concealed shims as required to maintain not more than a 1/8-inch-in-96-inchesvariation from a straight, level plane.

2. Seal joints between countertop and backsplash, if any, and joints where countertop and backsplash abut walls with mildew-resistant silicone sealant or another permanently elastic sealing compound recommended by countertop material manufacturer.

3.3 ADJUSTING AND CLEANING

A. Repair damaged and defective countertops, where possible, to eliminate functional and visual defects. Where not possible to repair, replace countertops. Adjust joinery for uniform appearance.

B. Clean countertops on exposed and semiexposed surfaces.

C. Protection: Provide Kraft paper or other suitable covering over countertop surfaces, taped to underside of countertop at a minimum of 48 inches o.c. Remove protection at Substantial Completion.

END OF SECTION 123623.13

SECTION 230529 - HANGERS AND SUPPORTS FOR HVAC PIPING AND EQUIPMENT

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:

1. Steel pipe hangers and supports.
2. Trapeze pipe hangers.
3. Metal framing systems.
4. Fastener systems.
5. Equipment supports.

B. See Division 05 Section "Metal Fabrications" for structural-steel shapes and plates for trapeze hangers for pipe and equipment supports.

C. See Division 23 Section(s) "Metal Ducts" for duct hangers and supports.

1.2 DEFINITIONS

A. Terminology: As defined in MSS SP-90, "Guidelines on Terminology for Pipe Hangers and Supports."

1.3 PERFORMANCE REQUIREMENTS

A. Design supports for multiple pipes capable of supporting combined weight of supported systems, system contents, and test water. Design per 13.6.7 & 13.6.8 of ASCE 7-10.

B. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

C. Design seismic-restraint hangers and supports for piping and equipment and obtain approval from authorities having jurisdiction.

1.4 SUBMITTALS

A. Product Data: For the following:

1. Steel pipe hangers and supports.
2. Powder-actuated fastener systems.

B. Welding certificates.

1.5 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to ASME Boiler and Pressure Vessel Code: Section IX.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
2. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 STEEL PIPE HANGERS AND SUPPORTS

A. Description: MSS SP-58, Types 1 through 58, factory-fabricated components. Refer to Part 3 "Hanger and Support Applications" Article for where to use specific hanger and support types.

B. Manufacturers:

1. AAA Technology & Specialties Co., Inc.
2. Bergen-Power Pipe Supports.
3. B-Line Systems, Inc.; a division of Cooper Industries.
4. Globe Pipe Hanger Products, Inc.
5. Grinnell Corp.
6. GS Metals Corp.
7. Piping Technology & Products, Inc.
8. Tolco Inc.

C. Galvanized, Metallic Coatings: Pregalvanized or hot dipped.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

E. Padded Hangers: Hanger with fiberglass or other pipe insulation pad or cushion for support of bearing surface of piping.

2.3 TRAPEZE PIPE HANGERS

A. Description: MSS SP-69, Type 59, shop- or field-fabricated pipe-support assembly made from structural-steel shapes with MSS SP-58 hanger rods, nuts, saddles, and U-bolts.

2.4 METAL FRAMING SYSTEMS

A. Description: MFMA-3, shop- or field-fabricated pipe-support assembly made of steel channels and other components.

B. Manufacturers:

1. B-Line Systems, Inc.; a division of Cooper Industries.
2. Power-Strut Div.; Tyco International, Ltd.
3. Thomas & Betts Corporation.
4. Tolco Inc.
5. Unistrut Corp.; Tyco International, Ltd.

C. Coatings: Pregalvanized or hot dipped for outdoors. Manufacturers standard finish indoors.

D. Nonmetallic Coatings: Plastic coating, jacket, or liner.

2.5 FASTENER SYSTEMS

A. Mechanical-Expansion Anchors: Insert-wedge-type stainless steel, for use in hardened portland cement concrete with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

1. Manufacturers:

a. B-Line Systems, Inc.; a division of Cooper Industries.
b. Hilti, Inc.
c. ITW Ramset/Red Head.
d. MKT Fastening, LLC.
e. Powers Fasteners.

2.6 EQUIPMENT SUPPORTS

A. Description: Welded, shop- or field-fabricated equipment support made from structural-steel shapes.

2.7 MISCELLANEOUS MATERIALS

A. Structural Steel: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

B. Grout: ASTM C 1107, factory-mixed and -packaged, dry, hydraulic-cement, nonshrink and nonmetallic grout; suitable for interior and exterior applications.

1. Properties: Nonstaining, noncorrosive, and nongaseous.
2. Design Mix: 5000-psi, 28-day compressive strength.

PART 3 - EXECUTION

3.1 HANGER AND SUPPORT APPLICATIONS

A. Specific hanger and support requirements are specified in Sections specifying piping systems and equipment.

B. Comply with MSS SP-69 for pipe hanger selections and applications that are not specified in piping system Sections.

C. Use hangers and supports with galvanized, metallic coatings for piping and equipment that will not have field-applied finish.

D. Use nonmetallic coatings on attachments for electrolytic protection where attachments are in direct contact with copper tubing.

E. Use padded hangers for piping that is subject to scratching.

F. Horizontal-Piping Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Adjustable, Steel Clevis Hangers (MSS Type 1): For suspension of noninsulated or insulated stationary pipes, NPS 1/2 to NPS 30.
2. Yoke-Type Pipe Clamps (MSS Type 2): For suspension of 120 to 450 deg F pipes, NPS 4 to NPS 16, requiring up to 4 inches of insulation.
3. Carbon- or Alloy-Steel, Double-Bolt Pipe Clamps (MSS Type 3): For suspension of pipes, NPS 3/4 to NPS 24, requiring clamp flexibility and up to 4 inches of insulation.
4. Adjustable, Steel Band Hangers (MSS Type 7): For suspension of noninsulated stationary pipes, NPS 1/2 to NPS 8.
5. U-Bolts (MSS Type 24): For support of heavy pipes, NPS 1/2 to NPS 30.
6. Pipe Saddle Supports (MSS Type 36): For support of pipes, NPS 4 to NPS 36, with steel pipe base stanchion support and cast-iron floor flange.
7. Single Pipe Rolls (MSS Type 41): For suspension of pipes, NPS 1 to NPS 30, from 2 rods if longitudinal movement caused by expansion and contraction might occur.
8. Complete Pipe Rolls (MSS Type 44): For support of pipes, NPS 2 to NPS 42, if longitudinal movement caused by expansion and contraction might occur but vertical adjustment is not necessary.

G. Vertical-Piping Clamps: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Extension Pipe or Riser Clamps (MSS Type 8): For support of pipe risers, NPS 3/4 to NPS 20.
2. Carbon- or Alloy-Steel Riser Clamps (MSS Type 42): For support of pipe risers, NPS 3/4 to NPS 20, if longer ends are required for riser clamps.

H. Hanger-Rod Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Turnbuckles (MSS Type 13): For adjustment up to 6 inches for heavy loads.
2. Steel Clevises (MSS Type 14): For 120 to 450 deg F piping installations.

I. Building Attachments: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel or Malleable Concrete Inserts (MSS Type 18): For upper attachment to suspend pipe hangers from concrete ceiling.
2. Top-Beam C-Clamps (MSS Type 19): For use under roof installations with bar-joist construction to attach to top flange of structural shape.
3. Side-Beam or Channel Clamps (MSS Type 20): For attaching to bottom flange of beams, channels, or angles.
4. Center-Beam Clamps (MSS Type 21): For attaching to center of bottom flange of beams.
5. Welded Beam Attachments (MSS Type 22): For attaching to bottom of beams if loads are considerable and rod sizes are large.
6. C-Clamps (MSS Type 23): For structural shapes.
7. Welded-Steel Brackets: For support of pipes from below, or for suspending from above by using clip and rod. Use one of the following for indicated loads:

    a. Light (MSS Type 31): 750 lb.
    b. Medium (MSS Type 32): 1500 lb.
    c. Heavy (MSS Type 33): 3000 lb.

8. Side-Beam Brackets (MSS Type 34): For sides of steel or wooden beams.
9. Plate Lugs (MSS Type 57): For attaching to steel beams if flexibility at beam is required.

J. Saddles and Shields: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Steel Pipe-Covering Protection Saddles (MSS Type 39): To fill interior voids with insulation that matches adjoining insulation.
2. Protection Shields (MSS Type 40): Of length recommended in writing by manufacturer to prevent crushing insulation.
3. Thermal-Hanger Shield Inserts: For supporting insulated pipe.

K. Spring Hangers and Supports: Unless otherwise indicated and except as specified in piping system Sections, install the following types:

1. Spring Cushions (MSS Type 48): For light loads if vertical movement does not exceed 1 1/4 inches.
2. Spring-Cushion Roll Hangers (MSS Type 49): For equipping Type 41 roll hanger with springs.
3. Variable-Spring Base Supports (MSS Type 52): Preset to indicated load and limit variability factor to 25 percent to absorb expansion and contraction of piping system from base support.

L. Comply with MSS SP-69 for trapeze pipe hanger selections and applications that are not specified in piping system Sections.

M. Comply with MFMA-102 for metal framing system selections and applications that are not specified in piping system Sections.

N. Use mechanical-expansion anchors instead of building attachments where required in concrete construction.

3.2 HANGER AND SUPPORT INSTALLATION

A. Steel Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Install hangers, supports, clamps, and attachments as required to properly support piping from building structure.

B. Trapeze Pipe Hanger Installation: Comply with MSS SP-69 and MSS SP-89. Arrange for grouping of parallel runs of horizontal piping and support together on field-fabricated trapeze pipe hangers.

1. Pipes of Various Sizes: Support together and space trapezes for smallest pipe size or install intermediate supports for smaller diameter pipes as specified above for individual pipe hangers.
2. Field fabricate from ASTM A 36/A 36M, steel shapes selected for loads being supported. Weld steel according to AWS D1.1.

C. Metal Framing System Installation: Arrange for grouping of parallel runs of piping and support together on field-assembled metal framing systems.

D. Fastener System Installation:

1. Install powder-actuated fasteners in concrete after concrete is placed and completely cured. Use operators that are licensed by powder-actuated tool manufacturer. Install fasteners according to powder-actuated tool manufacturer's operating manual.
2. Install mechanical-expansion anchors in concrete after concrete is placed and completely cured. Install fasteners according to manufacturer's written instructions.

E. Install hangers and supports complete with necessary inserts, bolts, rods, nuts, washers, and other accessories.

F. Equipment Support Installation: Fabricate from welded-structural-steel shapes.

G. Install hangers and supports to allow controlled thermal and seismic movement of piping systems, to permit freedom of movement between pipe anchors, and to facilitate action of expansion joints, expansion loops, expansion bends, and similar units.

H. Install lateral bracing with pipe hangers and supports to prevent swaying.

I. Install building attachments within concrete slabs or attach to structural steel. Install additional attachments at concentrated loads, including valves, flanges, and strainers, NPS 2-1/2 and larger and at changes in direction of piping. Install concrete inserts before concrete is placed; fasten inserts to forms and install reinforcing bars through openings at top of inserts.

J. Load Distribution: Install hangers and supports so piping live and dead loads and stresses from movement will not be transmitted to connected equipment.

K. Pipe Slopes: Install hangers and supports to provide indicated pipe slopes and so maximum pipe deflections allowed by ASME B31.1 (for power piping) and ASME B31.9 (for building services piping) are not exceeded.

L. Insulated Piping: Comply with the following:

1. Attach clamps and spacers to piping.

    a. Piping Operating above Ambient Air Temperature: Clamp may project through insulation.
    b. Piping Operating below Ambient Air Temperature: Use thermal-hanger shield insert with clamp sized to match OD of insert.
    c. Do not exceed pipe stress limits according to ASME B31.1 for power piping and ASME B31.9 for building services piping.

2. Install MSS SP-58, Type 39, protection saddles if insulation without vapor barrier is indicated. Fill interior voids with insulation that matches adjoining insulation.
3. Install MSS SP-58, Type 40, protective shields on cold piping with vapor barrier. Shields shall span an arc of 180 degrees.
4. Shield Dimensions for Pipe: Not less than the following:

    a. NPS 1/4 to NPS 3-1/2: 12 inches long and 0.048 inch thick.
    b. NPS 4: 12 inches long and 0.06 inch thick.
    c. NPS 5 and NPS 6: 18 inches long and 0.06 inch thick.
    d. NPS 8 to NPS 14: 24 inches long and 0.075 inch thick.
    e. NPS 16 to NPS 24: 24 inches long and 0.105 inch thick.

5. Pipes NPS 8 and Larger: Include wood inserts.
6. Insert Material: Length at least as long as protective shield.

3.3 EQUIPMENT SUPPORTS

A. Fabricate structural-steel stands to suspend equipment from structure overhead or to support equipment above floor.

B. Grouting: Place grout under supports for equipment and make smooth bearing surface.

C. Provide lateral bracing, to prevent swaying, for equipment supports.

3.4 METAL FABRICATIONS

A. Cut, drill, and fit miscellaneous metal fabrications for equipment supports.

B. Fit exposed connections together to form hairline joints. Field weld connections that cannot be shop welded because of shipping size limitations.

C. Field Welding: Comply with AWS D1.1 procedures for shielded metal arc welding, appearance and quality of welds, and methods used in correcting welding work, and with the following:

1. Use materials and methods that minimize distortion and develop strength and corrosion resistance of base metals.
2. Obtain fusion without undercut or overlap.
3. Remove welding flux immediately.
4. Finish welds at exposed connections so no roughness shows after finishing and contours of welded surfaces match adjacent contours.

3.5 ADJUSTING

A. Hanger Adjustments: Adjust hangers to distribute loads equally on attachments and to achieve indicated slope of pipe.

3.6 PAINTING

A. Touch Up: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils.

B. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 230529

SECTION 230593 - TESTING, ADJUSTING, AND BALANCING FOR HVAC

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes TAB to produce design objectives for the following:

1. Balance Air Systems:

a. Constant-volume air systems.

2. Kitchen hood airflow balancing.
3. Verifying that automatic control devices are functioning properly.
4. Reporting results of activities and procedures specified in this Section.

1.2 INFORMATIONAL SUBMITTALS

A. Qualification Data: Within 30 days of Contractor's Notice to Proceed, submit documentation that the TAB contractor and this Project's TAB team members meet the qualifications specified in "Quality Assurance" Article.

B. Contract Documents Examination Report: Within 30 45 days of Contractor's Notice to Proceed, submit the Contract Documents review report as specified in Part 3.

C. Strategies and Procedures Plan: Within 30 days of Contractor's Notice to Proceed, submit TAB strategies and step-by-step procedures as specified in "Preparation" Article.

D. Certified TAB reports.

E. Sample report forms.

F. Instrument calibration reports, to include the following:

1. Instrument type and make.
2. Serial number.
3. Application.
4. Dates of use.
5. Dates of calibration.

1.3 QUALITY ASSURANCE

A. TAB Firm Qualifications: Engage one of the following TAB firms certified by AABC.

1. American Air Balance Company.
2. Winaire.

3. Los Angeles Air Balance Co., Inc.

B. Certification of TAB Reports: Certify TAB field data reports. This certification includes the following:

1. Review field data reports to validate accuracy of data and to prepare certified TAB reports.
2. Certify that TAB team complied with approved TAB plan and the procedures specified and referenced in this Specification.

C. TAB Report Forms: Use standard forms from AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems."

1.4 COORDINATION

A. Coordinate the efforts of factory-authorized service representatives for systems and equipment, HVAC controls installers, and other mechanics to operate HVAC systems and equipment to support and assist TAB activities.

B. Perform TAB after leakage and pressure tests on air and water distribution systems have been satisfactorily completed.

1.5 WARRANTY

A. National Project Performance Guarantee: Provide a guarantee on AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" forms stating that AABC will assist in completing requirements of the Contract Documents if TAB firm fails to comply with the Contract Documents. Guarantee includes the following provisions:

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine the Contract Documents to become familiar with Project requirements and to discover conditions in systems' designs that may preclude proper TAB of systems and equipment.

1. Verify that balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are required by the Contract Documents. Verify that quantities and locations of these balancing devices are accessible and appropriate for effective balancing and for efficient system and equipment operation.

B. Examine approved submittal data of HVAC systems and equipment.

C. Examine design data, including HVAC system descriptions, statements of design assumptions for environmental conditions and systems' output, and statements of philosophies and assumptions about HVAC system and equipment controls.

D. Examine equipment performance data including fan and pump curves. Relate performance data to Project conditions and requirements, including system effects that can create undesired or unpredicted conditions that cause reduced capacities in all or part of a system. Calculate system effect factors to reduce performance ratings of HVAC equipment when installed under conditions different from those presented when the equipment was performance tested at the factory. To calculate system effects for air systems, use tables and charts found in AMCA 201, "Fans and Systems," Sections 7 through 10; or in SMACNA's "HVAC Systems--Duct Design," Sections 5 and 6. Compare this data with the design data and installed conditions.

E. Examine system and equipment installations to verify that they are complete and that testing, cleaning, adjusting, and commissioning specified in individual Sections have been performed.

F. Examine system and equipment test reports.

G. Examine HVAC system and equipment installations to verify that indicated balancing devices, such as test ports, gage cocks, thermometer wells, flow-control devices, balancing valves and fittings, and manual volume dampers, are properly installed, and that their locations are accessible and appropriate for effective balancing and for efficient system and equipment operation.

H. Examine systems for functional deficiencies that cannot be corrected by adjusting and balancing.

I. Examine HVAC equipment to ensure that clean filters have been installed, bearings are greased, belts are aligned and tight, and equipment with functioning controls is ready for operation.

J. Examine plenum ceilings used for supply air to verify that they are airtight. Verify that pipe penetrations and other holes are sealed.

K. Examine heat-transfer coils for correct piping connections and for clean and straight fins.

L. Examine equipment for installation and for properly operating safety interlocks and controls.

M. Examine automatic temperature system components to verify the following:

1. Dampers, valves, and other controlled devices are operated by the intended controller.
2. Dampers and valves are in the position indicated by the controller.
3. Integrity of valves and dampers for free and full operation and for tightness of fully closed and fully open positions. This includes dampers in multizone units, mixing boxes, and variable-air-volume terminals.
4. Automatic modulating and shutoff valves, including two-way valves and three-way mixing and diverting valves, are properly connected.
5. Thermostats and humidistats are located to avoid adverse effects of sunlight, drafts, and cold walls.
6. Sensors are located to sense only the intended conditions.

7. Sequence of operation for control modes is according to the Contract Documents.
8. Controller set points are set at indicated values.
9. Interlocked systems are operating.
10. Changeover from heating to cooling mode occurs according to indicated values.

N. Report deficiencies discovered before and during performance of TAB procedures. Observe and record system reactions to changes in conditions. Record default set points if different from indicated values.

3.2 PREPARATION

A. Complete system readiness checks and prepare system readiness reports. Verify the following:

1. Permanent electrical power wiring is complete.
2. Automatic temperature-control systems are operational.
3. Equipment and duct access doors are securely closed.
4. Balance, smoke, and fire dampers are open.
5. Isolating and balancing valves are open and control valves are operational.
6. Ceilings are installed in critical areas where air-pattern adjustments are required and access to balancing devices is provided.
7. Windows and doors can be closed so indicated conditions for system operations can be met.

3.3 GENERAL PROCEDURES FOR TESTING AND BALANCING

A. Perform testing and balancing procedures on each system according to the procedures contained in AABC's "National Standards for Testing and Balancing Heating, Ventilating, and Air Conditioning Systems" and this Section.

B. Cut insulation, ducts, pipes, and equipment cabinets for installation of test probes to the minimum extent necessary to allow adequate performance of procedures. After testing and balancing, close probe holes and patch insulation with new materials identical to those removed. Restore vapor barrier and finish according to insulation Specifications for this Project.

C. Mark equipment and balancing device settings with paint or other suitable, permanent identification material, including damper-control positions, valve position indicators, fan-speed-control levers, and similar controls and devices, to show final settings.

3.4 GENERAL PROCEDURES FOR BALANCING AIR SYSTEMS

A. Prepare test reports for both fans and outlets. Obtain manufacturer's outlet factors and recommended testing procedures. Crosscheck the summation of required outlet volumes with required fan volumes.

B. Prepare schematic diagrams of systems' "as-built" duct layouts.

C. Determine the best locations in main and branch ducts for accurate duct airflow measurements.

D. Check airflow patterns from the outside-air louvers and dampers and the return- and exhaust-air dampers, through the supply-fan discharge and mixing dampers.

E. Locate start-stop and disconnect switches, electrical interlocks, and motor starters.

F. Verify that motor starters are equipped with properly sized thermal protection.

G. Check dampers for proper position to achieve desired airflow path.

H. Check for airflow blockages.

I. Check condensate drains for proper connections and functioning.

J. Check for proper sealing of air-handling unit components.

K. Check for proper sealing of air duct system.

3.5 PROCEDURES FOR CONSTANT-VOLUME AIR SYSTEMS

A. Adjust fans to deliver total indicated airflows within the maximum allowable fan speed listed by fan manufacturer.

1. Measure fan static pressures to determine actual static pressure as follows:

    a. Measure outlet static pressure as far downstream from the fan as practicable and upstream from restrictions in ducts such as elbows and transitions.
    b. Measure static pressure directly at the fan outlet or through the flexible connection.
    c. Measure inlet static pressure of single-inlet fans in the inlet duct as near the fan as possible, upstream from flexible connection and downstream from duct restrictions.
    d. Measure inlet static pressure of double-inlet fans through the wall of the plenum that houses the fan.

2. Measure static pressure across each component that makes up an air-handling unit, rooftop unit, and other air-handling and -treating equipment.

    a. Simulate dirty filter operation and record the point at which maintenance personnel must change filters.

3. Measure static pressures entering and leaving other devices such as sound traps, heat recovery equipment, and air washers, under final balanced conditions.
4. Compare design data with installed conditions to determine variations in design static pressures versus actual static pressures. Compare actual system effect factors with calculated system effect factors to identify where variations occur. Recommend corrective action to align design and actual conditions.
5. Obtain approval from Architect for adjustment of fan speed higher or lower than indicated speed. Make required adjustments to pulley sizes, motor sizes, and electrical connections to accommodate fan-speed changes.

6. Do not make fan-speed adjustments that result in motor overload. Consult equipment manufacturers about fan-speed safety factors. Modulate dampers and measure fan-motor amperage to ensure that no overload will occur. Measure amperage in full cooling, full heating, economizer, and any other operating modes to determine the maximum required brake horsepower.

B. Adjust volume dampers for main duct, submain ducts, and major branch ducts to indicated airflows within specified tolerances.

1. Measure static pressure at a point downstream from the balancing damper and adjust volume dampers until the proper static pressure is achieved.

a. Where sufficient space in submain and branch ducts is unavailable for Pitot-tube traverse measurements, measure airflow at terminal outlets and inlets and calculate the total airflow for that zone.

2. Remeasure each submain and branch duct after all have been adjusted. Continue to adjust submain and branch ducts to indicated airflows within specified tolerances.

3.6 PROCEDURES FOR COMMERCIAL KITCHEN HOODS

A. Measure, adjust, and record the airflow of each kitchen hood. For kitchen hoods designed with integral makeup air, measure and adjust the exhaust and makeup airflow. Measure airflow by duct Pitot-tube traverse. If a duct Pitot-tube traverse is not possible, provide an explanation in the report of the reason(s) why and also the reason why the method used was chosen.

1. Install welded test ports in the sides of the exhaust duct for the duct Pitot-tube traverse. Install each test port with a threaded cap that is liquid tight.

B. After balancing is complete, do the following:

1. Measure and record the static pressure at the hood exhaust-duct connection.
2. Measure and record the hood face velocity. Make measurements at multiple points across the face of the hood. Perform measurements at a maximum of 12 inches between points and between any point and the perimeter. Calculate the average of the measurements recorded. Verify that the hood average face velocity complies with the Contract Documents and governing codes.
3. Check the hood for capture and containment of smoke using a smoke emitting device. Observe the smoke pattern. Make adjustments to room airflow patterns to achieve optimum results.

3.7 PROCEDURES FOR MOTORS

A. Motors, 1/2 HP and Larger: Test at final balanced conditions and record the following data:

1. Manufacturer, model, and serial numbers.
2. Motor horsepower rating.
3. Motor rpm.

4. Efficiency rating.
5. Nameplate and measured voltage, each phase.
6. Nameplate and measured amperage, each phase.
7. Starter thermal-protection-element rating.

3.8 PROCEDURES FOR CONDENSING UNITS

A. Verify proper rotation of fans.

B. Measure entering- and leaving-air temperatures.

C. Record compressor data.

3.9 PROCEDURES FOR HEAT-TRANSFER COILS

A. Refrigerant Coils: Measure the following data for each coil:

1. Dry-bulb temperature of entering and leaving air.
2. Wet-bulb temperature of entering and leaving air.
3. Airflow.
4. Air pressure drop.
5. Refrigerant suction pressure and temperature.

3.10 PROCEDURES FOR TEMPERATURE MEASUREMENTS

A. During TAB, report the need for adjustment in temperature regulation within the automatic temperature-control system.

B. Measure indoor wet- and dry-bulb temperatures every other hour for a period of two successive eight-hour days, in each separately controlled zone, to prove correctness of final temperature settings. Measure when the building or zone is occupied.

C. Measure outside-air, wet- and dry-bulb temperatures.

3.11 TEMPERATURE-CONTROL VERIFICATION

A. Verify that controllers are calibrated and commissioned.

B. Check transmitter and controller locations and note conditions that would adversely affect control functions.

C. Record controller settings and note variances between set points and actual measurements.

D. Check the operation of limiting controllers (i.e., high- and low-temperature controllers).

E. Check free travel and proper operation of control devices such as damper and valve operators.

F. Check the sequence of operation of control devices. Note air pressures and device positions and correlate with airflow and water flow measurements. Note the speed of response to input changes.

G. Check the interaction of electrically operated switch transducers.

H. Check the interaction of interlock and lockout systems.

I. Check main control supply-air pressure and observe compressor and dryer operations.

J. Record voltages of power supply and controller output. Determine whether the system operates on a grounded or nongrounded power supply.

K. Note operation of electric actuators using spring return for proper fail-safe operations.

3.12 TOLERANCES

A. Set HVAC system airflow and water flow rates within the following tolerances:

1. Supply, Return, and Exhaust Fans and Equipment with Fans: Plus or minus 10 percent of design CFM.
2. Air Outlets and Inlets: Plus or minus 10 percent of design CFM.

3.13 FINAL REPORT

A. General: Typewritten, or computer printout in letter-quality font, on standard bond paper, in three-ring binder, tabulated and divided into sections by tested and balanced systems.

B. Include a certification sheet in front of binder signed and sealed by the certified testing and balancing engineer.

1. Include a list of instruments used for procedures, along with proof of calibration.

C. Final Report Contents: In addition to certified field report data, include the following:

1. Fan curves.
2. Manufacturers' test data.
3. Field test reports prepared by system and equipment installers.
4. Other information relative to equipment performance, but do not include Shop Drawings and Product Data.

D. General Report Data: In addition to form titles and entries, include the following data in the final report, as applicable:

1. Title page.
2. Name and address of TAB firm.
3. Project name.
4. Project location.
5. Architect's name and address.

6. Engineer's name and address.
7. Contractor's name and address.
8. Report date.
9. Signature of TAB firm who certifies the report.
10. Table of Contents with the total number of pages defined for each section of the report. Number each page in the report.
11. Summary of contents including the following:

    a. Indicated versus final performance.
    b. Notable characteristics of systems.
    c. Description of system operation sequence if it varies from the Contract Documents.

12. Nomenclature sheets for each item of equipment.
13. Notes to explain why certain final data in the body of reports varies from indicated values.
14. Test conditions for fans and pump performance forms including the following:

    a. Settings for outside-, return-, and exhaust-air dampers.
    b. Conditions of filters.
    c. Cooling coil, wet- and dry-bulb conditions.
    d. Face and bypass damper settings at coils.
    e. Fan drive settings including settings and percentage of maximum pitch diameter.
    f. Settings for supply-air, static-pressure controller.
    g. Other system operating conditions that affect performance.

E. System Diagrams: Include schematic layouts of air and hydronic distribution systems. A copy of the original mechanical design drawings is NOT acceptable. Present each system with single-line diagram and include the following:

1. Quantities of outside, supply, return, and exhaust airflows.
2. Duct, outlet, and inlet sizes.
3. Balancing stations.
4. Position of balancing devices.
5. Floor plan with room names.

3.14 INSPECTIONS

A. Initial Inspection:

1. After testing and balancing are complete, operate each system and randomly check measurements to verify that the system is operating according to the final test and balance readings documented in the final report.
2. Check the following for each system:

    a. Measure airflow of at least 10 percent of air outlets.
    b. Measure room temperature at each thermostat/temperature sensor. Compare the reading to the set point.
    c. Verify that balancing devices are marked with final balance position.
    d. Note deviations from the Contract Documents in the final report.

B. Final Inspection:

1. After initial inspection is complete and documentation by random checks verifies that testing and balancing are complete and accurately documented in the final report, request that a final inspection be made by Owner.
2. The TAB contractor's test and balance engineer shall conduct the inspection in the presence of Owner.
3. Owner shall randomly select measurements, documented in the final report, to be rechecked. Rechecking shall be limited to either 10 percent of the total measurements recorded or the extent of measurements that can be accomplished in a normal 8-hour business day.
4. If rechecks yield measurements that differ from the measurements documented in the final report by more than the tolerances allowed, the measurements shall be noted as "FAILED."
5. If the number of "FAILED" measurements is greater than 10 percent of the total measurements checked during the final inspection, the testing and balancing shall be considered incomplete and shall be rejected.

C. TAB Work will be considered defective if it does not pass final inspections. If TAB Work fails, proceed as follows:

1. Recheck all measurements and make adjustments. Revise the final report and balancing device settings to include all changes; resubmit the final report and request a second final inspection.
2. If the second final inspection also fails, Owner may contract the services of another TAB contractor to complete TAB Work according to the Contract Documents and deduct the cost of the services from the original TAB contractor's final payment.

D. Prepare test and inspection reports

3.15 ADDITIONAL TESTS

A. Within 90 days of completing TAB, perform additional testing and balancing to verify that balanced conditions are being maintained throughout and to correct unusual conditions.

B. Seasonal Periods: If initial TAB procedures were not performed during near-peak summer and winter conditions, perform additional testing, inspecting, and adjusting during near-peak summer and winter conditions.

END OF SECTION 230593

SECTION 230713 - DUCT INSULATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes insulating the following duct services:

1. Indoor, concealed supply and return air.
2. Outdoor, exposed supply and return.

B. Related Sections:

1. Division 23 Section "HVAC Piping Insulation."

1.2 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Include plans, elevations, sections, details, and attachments to other work.

1. Detail application of protective shields, saddles, and inserts at hangers for each type of insulation and hanger.
2. Detail insulation application at elbows, fittings, dampers, specialties and flanges for each type of insulation.
3. Detail application of field-applied jackets.
4. Detail application at linkages of control devices.

C. Field quality-control reports.

1.3 QUALITY ASSURANCE

A. Surface-Burning Characteristics: For insulation and related materials, as determined by testing identical products according to ASTM E 84, by a testing agency acceptable to authorities having jurisdiction. Factory label insulation and jacket materials and adhesive, mastic, tapes, and cement material containers, with appropriate markings of applicable testing agency.

1. Insulation Installed Indoors: Flame-spread index of 25 or less, and smoke-developed index of 50 or less.
2. Insulation Installed Outdoors: Flame-spread index of 75 or less, and smoke-developed index of 150 or less.

PART 2 - PRODUCTS

2.1 INSULATION MATERIALS

A. Comply with requirements in "Duct Insulation Schedule, General," "Indoor Duct and Plenum Insulation Schedule," and "Aboveground, Outdoor Duct and Plenum Insulation Schedule" articles for where insulating materials shall be applied.

B. Products shall not contain asbestos, lead, mercury, or mercury compounds.

C. Products that come in contact with stainless steel shall have a leachable chloride content of less than 50 ppm when tested according to ASTM C 871.

D. Insulation materials for use on austenitic stainless steel shall be qualified as acceptable according to ASTM C 795.

E. Foam insulation materials shall not use CFC or HCFC blowing agents in the manufacturing process.

F. Mineral-Fiber Blanket Insulation: Mineral or glass fibers bonded with a thermosetting resin. Comply with ASTM C 553, Type II and ASTM C 1290, Type III with factory-applied FSK jacket. Factory-applied jacket requirements are specified in "Factory-Applied Jackets" Article.

1. Products: Subject to compliance with requirements, provide one of the following:

a. CertainTeed Corp.; SoftTouch Duct Wrap.
b. Johns Manville; Microlite.
c. Knauf Insulation; Friendly Feel Duct Wrap.
d. Owens Corning; SOFTR All-Service Duct Wrap.

2.2 ADHESIVES

A. Materials shall be compatible with insulation materials, jackets, and substrates and for bonding insulation to itself and to surfaces to be insulated unless otherwise indicated.

B. Mineral-Fiber Adhesive: Comply with MIL-A-3316C, Class 2, Grade A.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Childers Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; CP-127.
b. Eagle Bridges - Marathon Industries; 225.
c. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; 85-60/85-70.
d. Mon-Eco Industries, Inc.; 22-25.

2. For indoor applications, use adhesive that has a VOC content of 80 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

3. Use adhesive that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers," including 2004 Addenda.

C. ASJ Adhesive, and FSK Jacket Adhesive: Comply with MIL-A-3316C, Class 2, Grade A for bonding insulation jacket lap seams and joints.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Childers Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; CP-82.
b. Eagle Bridges - Marathon Industries; 225.
c. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; 85-50.
d. Mon-Eco Industries, Inc.; 22-25.

2. For indoor applications, use adhesive that has a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
3. Use adhesive that complies with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers," including 2004 Addenda.

2.3 MASTICS

A. Materials shall be compatible with insulation materials, jackets, and substrates; comply with MIL-PRF-19565C, Type II.

1. For indoor applications, use mastics that have a VOC content of 50 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).

B. Vapor-Barrier Mastic: Water based; suitable for indoor use on below ambient services.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; 30-80/30-90.
b. Vimasco Corporation; 749.

2. Water-Vapor Permeance: ASTM E 96/E 96M, Procedure B, 0.013 perm at 43-mil dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Solids Content: ASTM D 1644, 58 percent by volume and 70 percent by weight.
5. Color: White.

C. Breather Mastic: Water based; suitable for indoor and outdoor use on above ambient services.

1. Products: Subject to compliance with requirements, provide one of the following:

a. Childers Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; CP-10.
b. Eagle Bridges - Marathon Industries; 550.
c. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; 46-50.
d. Mon-Eco Industries, Inc.; 55-50.
e. Vimasco Corporation; WC-1/WC-5.

2. Water-Vapor Permeance: ASTM F 1249, 1.8 perms at 0.0625-inch dry film thickness.
3. Service Temperature Range: Minus 20 to plus 180 deg F.
4. Solids Content: 60 percent by volume and 66 percent by weight.
5. Color: White.

2.4 SEALANTS

A. FSK and Metal Jacket Flashing Sealants:

1. Products: Subject to compliance with requirements, provide one of the following:

a. Childers Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; CP-76.
b. Eagle Bridges - Marathon Industries; 405.
c. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; 95-44.
d. Mon-Eco Industries, Inc.; 44-05.

2. Materials shall be compatible with insulation materials, jackets, and substrates.
3. Fire- and water-resistant, flexible, elastomeric sealant.
4. Service Temperature Range: Minus 40 to plus 250 deg F.
5. Color: Aluminum.
6. For indoor applications, use sealants that have a VOC content of 420 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
7. Use sealants that comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers," including 2004 Addenda.

2.5 FACTORY-APPLIED JACKETS

A. Insulation system schedules indicate factory-applied jackets on various applications. When factory-applied jackets are indicated, comply with the following:

1. FSK Jacket: Aluminum-foil, fiberglass-reinforced scrim with kraft-paper backing; complying with ASTM C 1136, Type II.

2.6 FIELD-APPLIED FABRIC-REINFORCING MESH

A. Woven Polyester Fabric: Approximately 1 oz./sq. yd. with a thread count of 10 strands by 10 strands/sq. in., in a Leno weave, for ducts.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. Foster Brand, Specialty Construction Brands, Inc., a business of H. B. Fuller Company; Mast-A-Fab.
   b. Vimasco Corporation; Elastafab 894.

2.7 TAPES

A. FSK Tape: Foil-face, vapor-retarder tape matching factory-applied jacket with acrylic adhesive; complying with ASTM C 1136.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. ABI, Ideal Tape Division; 491 AWF FSK.
   b. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0827.
   c. Compac Corporation; 110 and 111.
   d. Venture Tape; 1525 CW NT, 1528 CW, and 1528 CW/SQ.

2. Width: 3 inches.
3. Thickness: 6.5 mils.
4. Adhesion: 90 ounces force/inch in width.
5. Elongation: 2 percent.
6. Tensile Strength: 40 lbf/inch in width.
7. FSK Tape Disks and Squares: Precut disks or squares of FSK tape.

B. Aluminum-Foil Tape: Vapor-retarder tape with acrylic adhesive.

1. Products: Subject to compliance with requirements, provide one of the following:

   a. ABI, Ideal Tape Division; 488 AWF.
   b. Avery Dennison Corporation, Specialty Tapes Division; Fasson 0800.
   c. Compac Corporation; 120.
   d. Venture Tape; 3520 CW.

2. Width: 2 inches.
3. Thickness: 3.7 mils.
4. Adhesion: 100 ounces force/inch in width.
5. Elongation: 5 percent.
6. Tensile Strength: 34 lbf/inch in width.

2.8 SECUREMENTS

A. Aluminum Bands: ASTM B 209, Alloy 3003, 3005, 3105, or 5005; Temper H-14, 0.020 inch thick, 1/2 inch wide with wing seal or closed seal.

1. Products: Subject to compliance with requirements, provide one of the following:

a. ITW Insulation Systems; Gerrard Strapping and Seals.
b. RPR Products, Inc.; Insul-Mate Strapping, Seals, and Springs.

B. Insulation Pins and Hangers:

1. Metal, Adhesively Attached, Perforated-Base Insulation Hangers: Baseplate welded to projecting spindle that is capable of holding insulation, of thickness indicated, securely in position indicated when self-locking washer is in place. Comply with the following requirements:

a. Products: Subject to compliance with requirements, provide one of the following:

1) AGM Industries, Inc.; Tactoo Perforated Base Insul-Hangers.
2) GEMCO; Perforated Base.
3) Midwest Fasteners, Inc.; Spindle.

b. Baseplate: Perforated, galvanized carbon-steel sheet, 0.030 inch thick by 2 inches square.
c. Spindle: Copper- or zinc-coated, low-carbon steel, fully annealed, 0.106-inch-diameter shank, length to suit depth of insulation indicated.
d. Adhesive: Recommended by hanger manufacturer. Product with demonstrated capability to bond insulation hanger securely to substrates indicated without damaging insulation, hangers, and substrates.

2. Insulation-Retaining Washers: Self-locking washers formed from 0.016-inch- thick, galvanized-steel sheet, with beveled edge sized as required to hold insulation securely in place but not less than 1-1/2 inches in diameter.

a. Products: Subject to compliance with requirements, provide one of the following:

1) AGM Industries, Inc.; RC-150.
2) GEMCO; R-150.
3) Midwest Fasteners, Inc.; WA-150.
4) Nelson Stud Welding; Speed Clips.

b. Protect ends with capped self-locking washers incorporating a spring steel insert to ensure permanent retention of cap in exposed locations.

C. Staples: Outward-clinching insulation staples, nominal 3/4-inch- wide, stainless steel or Monel.

D. Wire: 0.080-inch nickel-copper alloy.

1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:

    a. C & F Wire.

PART 3 - EXECUTION

3.1 PREPARATION

A. Surface Preparation: Clean and dry surfaces to receive insulation. Remove materials that will adversely affect insulation application.

3.2 3.02 GENERAL INSTALLATION REQUIREMENTS

A. Install insulation materials, accessories, and finishes with smooth, straight, and even surfaces; free of voids throughout the length of ducts and fittings.

B. Install insulation materials, vapor barriers or retarders, jackets, and thicknesses required for each item of duct system as specified in insulation system schedules.

C. Install accessories compatible with insulation materials and suitable for the service. Install accessories that do not corrode, soften, or otherwise attack insulation or jacket in either wet or dry state.

D. Install insulation with longitudinal seams at top and bottom of horizontal runs.

E. Install multiple layers of insulation with longitudinal and end seams staggered.

F. Keep insulation materials dry during application and finishing.

G. Install insulation with tight longitudinal seams and end joints. Bond seams and joints with adhesive recommended by insulation material manufacturer.

H. Install insulation with least number of joints practical.

I. Where vapor barrier is indicated, seal joints, seams, and penetrations in insulation at hangers, supports, anchors, and other projections with vapor-barrier mastic.

1. Install insulation continuously through hangers and around anchor attachments.
2. For insulation application where vapor barriers are indicated, extend insulation on anchor legs from point of attachment to supported item to point of attachment to structure. Taper and seal ends at attachment to structure with vapor-barrier mastic.
3. Install insert materials and install insulation to tightly join the insert. Seal insulation to insulation inserts with adhesive or sealing compound recommended by insulation material manufacturer.

J. Apply adhesives, mastics, and sealants at manufacturer's recommended coverage rate and wet and dry film thicknesses.

K. Install insulation with factory-applied jackets as follows:

1. Draw jacket tight and smooth.
2. Cover circumferential joints with 3-inch- wide strips, of same material as insulation jacket. Secure strips with adhesive and outward clinching staples along both edges of strip, spaced 4 inches o.c.
3. Overlap jacket longitudinal seams at least 1-1/2 inches. Clean and dry surface to receive self-sealing lap. Staple laps with outward clinching staples along edge at 2 inches o.c.

    a. For below ambient services, apply vapor-barrier mastic over staples.

4. Cover joints and seams with tape, according to insulation material manufacturer's written instructions, to maintain vapor seal.
5. Where vapor barriers are indicated, apply vapor-barrier mastic on seams and joints and at ends adjacent to duct flanges and fittings.

L. Cut insulation in a manner to avoid compressing insulation more than 75 percent of its nominal thickness.

M. Finish installation with systems at operating conditions. Repair joint separations and cracking due to thermal movement.

N. Repair damaged insulation facings by applying same facing material over damaged areas. Extend patches at least 4 inches beyond damaged areas. Adhere, staple, and seal patches similar to butt joints.

3.3 3.03 INSTALLATION OF MINERAL-FIBER INSULATION

A. Blanket Insulation Installation on Ducts and Plenums: Secure with adhesive and insulation pins.

1. Apply adhesives according to manufacturer's recommended coverage rates per unit area, for 100 percent coverage of duct and plenum surfaces.
2. Apply adhesive to entire circumference of ducts and to all surfaces of fittings and transitions.
3. Install either capacitor-discharge-weld pins and speed washers or cupped-head, capacitor-discharge-weld pins on sides and bottom of horizontal ducts and sides of vertical ducts as follows:

    a. On duct sides with dimensions 18 inches and smaller, place pins along longitudinal centerline of duct. Space 3 inches maximum from insulation end joints, and 16 inches o.c.
    b. On duct sides with dimensions larger than 18 inches, place pins 16 inches o.c. each way, and 3 inches maximum from insulation joints. Install additional pins to hold insulation tightly against surface at cross bracing.
    c. Pins may be omitted from top surface of horizontal, rectangular ducts and plenums.

d. Do not overcompress insulation during installation.
e. Impale insulation over pins and attach speed washers.
f. Cut excess portion of pins extending beyond speed washers or bend parallel with insulation surface. Cover exposed pins and washers with tape matching insulation facing.

4. For ducts and plenums with surface temperatures below ambient, install a continuous unbroken vapor barrier. Create a facing lap for longitudinal seams and end joints with insulation by removing 2 inches from one edge and one end of insulation segment. Secure laps to adjacent insulation section with 1/2-inch outward-clinching staples, 1 inch o.c. Install vapor barrier consisting of factory- or field-applied jacket, adhesive, vapor-barrier mastic, and sealant at joints, seams, and protrusions.

   a. Repair punctures, tears, and penetrations with tape or mastic to maintain vapor-barrier seal.
   b. Install vapor stops for ductwork and plenums operating below 50 deg F at 18-foot intervals. Vapor stops shall consist of vapor-barrier mastic applied in a Z-shaped pattern over insulation face, along butt end of insulation, and over the surface. Cover insulation face and surface to be insulated a width equal to two times the insulation thickness, but not less than 3 inches.

5. Overlap unfaced blankets a minimum of 2 inches on longitudinal seams and end joints. At end joints, secure with steel bands spaced a maximum of 18 inches o.c.
6. Install insulation on rectangular duct elbows and transitions with a full insulation section for each surface. Install insulation on round and flat-oval duct elbows with individually mitered gores cut to fit the elbow.
7. Insulate duct stiffeners, hangers, and flanges that protrude beyond insulation surface with 6-inch- wide strips of same material used to insulate duct. Secure on alternating sides of stiffener, hanger, and flange with pins spaced 6 inches o.c.

3.4 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Tests and Inspections:
   1. Inspect ductwork, randomly selected by Architect, by removinginsulation in layers in reverse order of their installation. Extent of inspection shall be limited to one location(s) for each duct system defined in the "Duct Insulation Schedule, General" Article.

C. All insulation applications will be considered defective Work if sample inspection reveals noncompliance with requirements.

3.5 DUCT INSULATION SCHEDULE, GENERAL

A. Plenums and Ducts Requiring Insulation:

   1. Indoor, concealed supply and return air.

B. Items Not Insulated:

1. Double-wall ducts.
2. Metal ducts with duct liner of sufficient thickness to comply with energy code and ASHRAE/IESNA 90.1.
3. Factory-insulated flexible ducts.
4. Factory-insulated plenums and casings.
5. Flexible connectors.
6. Vibration-control devices.
7. Factory-insulated access panels and doors.

3.6 INDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Concealed, Supply-Air Duct, Return-Air Duct Insulation: Mineral-fiber blanket, 3 inches thick and 0.75-lb/cu. ft. nominal density. Installed insulating resistance value of R-8.0, minimum.

3.7 ABOVE GROUND, OUTDOOR DUCT AND PLENUM INSULATION SCHEDULE

A. Exposed, rectangular, supply-air duct, return-air duct insulation: Fibrous-glass duct liner, 2 inches think and 1.5-lb/cu. ft. nominal density. Installed insulation resistance value R-8.0, minimum.

END OF SECTION 230713

SECTION 233113 - METAL DUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Single-wall rectangular ducts and fittings.
2. Double-wall rectangular ducts and fittings.
3. Single-wall round ducts and fittings.
4. Sheet metal materials.
5. Duct Liner.
6. Sealants and gaskets.
7. Hangers and supports.
8. Seismic-restraint devices.

B. Related Sections:

1. Division 23 Section "Testing, Adjusting, and Balancing for HVAC" for testing, adjusting, and balancing requirements for metal ducts.
2. Division 23 Section "Air Duct Accessories" for dampers, sound-control devices, duct-mounting access doors and panels, turning vanes, and flexible ducts.

1.3 PERFORMANCE REQUIREMENTS

A. Delegated Duct Design: Duct construction, including sheet metal thicknesses, seam and joint construction, reinforcements, and hangers and supports, shall comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and performance requirements and design criteria indicated in "Duct Schedule" Article.

B. Structural Performance: Duct hangers and supports and seismic restraints shall withstand the effects of gravity and seismic loads and stresses within limits and under conditions described in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" and ASCE/SEI 7.

1. Seismic Hazard Level A: Seismic force to weight ratio, 0.48.

C. Airstream Surfaces: Surfaces in contact with the airstream shall comply with requirements in ASHRAE 62.1.

1.4 SUBMITTALS

A. Product Data: For each type of the following products:

1. Liners and adhesives.
2. Sealants and gaskets.
3. Seismic-restraint devices.

B. Shop Drawings:

1. Fabrication, assembly, and installation, including plans, elevations, sections, components, and attachments to other work.
2. Factory- and shop-fabricated ducts and fittings.
3. Duct layout indicating sizes, configuration, liner material, and static-pressure classes.
4. Elevation of top and bottom of ducts.
5. Dimensions of main duct runs from building grid lines.
6. Fittings.
7. Reinforcement and spacing.
8. Seam and joint construction.
9. Penetrations through fire-rated and other partitions.
10. Equipment installation based on equipment being used on Project.
11. Locations for duct accessories, including dampers, turning vanes, and access doors and panels.
12. Hangers and supports, including methods for duct and building attachment, seismic restraints, and vibration isolation.

C. Delegated-Design Submittal:

1. Sheet metal thicknesses.
2. Joint and seam construction and sealing.
3. Reinforcement details and spacing.
4. Materials, fabrication, assembly, and spacing of hangers and supports.
5. Design Calculations: Calculations, including analysis data signed and sealed by the qualified professional engineer responsible for their preparation for selecting hangers and supports and seismic restraints.

D. Coordination Drawings: Plans, drawn to scale, on which the following items are shown and coordinated with each other, using input from installers of the items involved:

1. Duct installation in congested spaces, indicating coordination with general construction, building components, and other building services. Indicate proposed changes to duct layout.
2. Suspended ceiling components.
3. Structural members to which duct will be attached.
4. Size and location of initial access modules for acoustical tile.
5. Penetrations of smoke barriers and fire-rated construction.
6. Items penetrating finished ceiling including the following:

    a. Lighting fixtures.
    b. Air outlets and inlets.

c. Speakers.
d. Sprinklers.
e. Access panels.
f. Perimeter moldings.

E. Welding certificates.

F. Field quality-control reports.

1.5 QUALITY ASSURANCE

A. Welding Qualifications: Qualify procedures and personnel according to the following:

1. AWS D1.1/D1.1M, "Structural Welding Code - Steel," for hangers and supports.
2. AWS D1.2/D1.2M, "Structural Welding Code - Aluminum," for aluminum supports.
3. AWS D9.1M/D9.1, "Sheet Metal Welding Code," for duct joint and seam welding.

B. ASHRAE Compliance: Applicable requirements in ASHRAE 62.1, Section 5 - "Systems and Equipment" and Section 7 - "Construction and System Start-Up."

C. ASHRAE/IESNA Compliance: Applicable requirements in ASHRAE/IESNA 90.1, Section 6.4.4 - "HVAC System Construction and Insulation."

PART 2 - PRODUCTS

2.1 SINGLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

D. Elbows, Transitions, Offsets, Branch Connections, and Other Duct Construction: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 4, "Fittings and Other Construction," for static-pressure class, applicable

sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.2 DOUBLE-WALL RECTANGULAR DUCTS AND FITTINGS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. McGill AirFlow LLC.
2. Sheet Metal Connectors, Inc.
3. Or Equivalent

B. Rectangular Ducts: Fabricate ducts with indicated dimensions for the inner duct.

C. Outer Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" based on indicated static-pressure class unless otherwise indicated.

D. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

E. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

F. Interstitial Insulation: Fibrous-glass liner complying with ASTM C 1071, NFPA 90A, or NFPA 90B; and with NAIMA AH124, "Fibrous Glass Duct Liner Standard."

1. Maximum Thermal Conductivity: 0.13 Btu x in./h x sq. ft. x deg F at 75 deg F mean temperature.
2. Install spacers that position the inner duct at uniform distance from outer duct without compressing insulation.
3. Coat insulation with antimicrobial coating.
4. Cover insulation with polyester film complying with UL 181, Class 1.

G. Inner Duct: Minimum 0.028-inch solid sheet steel.

H. Formed-on Transverse Joints (Flanges): Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-1, "Rectangular Duct/Traverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

I. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 2-2, "Rectangular Duct/Longitudinal

Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.3 SINGLE-WALL ROUND DUCTS AND FITTINGS

A. General Fabrication Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 3, "Round, Oval, and Flexible Duct," based on indicated static-pressure class unless otherwise indicated.

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

   a. Lindab Inc.
   b. McGill AirFlow LLC.
   c. SEMCO Incorporated.
   d. Sheet Metal Connectors, Inc.
   e. Spiral Manufacturing Co., Inc.

B. Transverse Joints: Select joint types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-1, "Round Duct Transverse Joints," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Transverse Joints in Ducts Larger Than 60 Inches in Diameter: Flanged.

C. Longitudinal Seams: Select seam types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-2, "Round Duct Longitudinal Seams," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

1. Fabricate round ducts larger than 90 inches in diameter with butt-welded longitudinal seams.
2. Fabricate flat-oval ducts larger than 72 inches in width (major dimension) with butt-welded longitudinal seams.

D. Tees and Laterals: Select types and fabricate according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees," for static-pressure class, applicable sealing requirements, materials involved, duct-support intervals, and other provisions in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

2.4 SHEET METAL MATERIALS

A. General Material Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct

construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G90.
2. Finishes for Surfaces Exposed to View: Mill phosphatized.

C. Reinforcement Shapes and Plates: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

1. Where black- and galvanized-steel shapes and plates are used to reinforce aluminum ducts, isolate the different metals with butyl rubber, neoprene, or EPDM gasket materials.

D. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

a. CertainTeed Corporation; Insulation Group.
b. Johns Manville.
c. Knauf Insulation.
d. Owens Corning.

2.5 SEALANT AND GASKETS

A. General Sealant and Gasket Requirements: Surface-burning characteristics for sealants and gaskets shall be a maximum flame-spread index of 25 and a maximum smoke-developed index of 50 when tested according to UL 723; certified by an NRTL.

B. Water-Based Joint and Seam Sealant:

1. Application Method: Brush on.
2. Solids Content: Minimum 65 percent.
3. Shore A Hardness: Minimum 20.
4. Water resistant.
5. Mold and mildew resistant.
6. VOC: Maximum 75 g/L (less water).
7. Maximum Static-Pressure Class: 10-inch wg, positive and negative.
8. Service: Indoor or outdoor.
9. Substrate: Compatible with galvanized sheet steel (both PVC coated and bare), stainless steel, or aluminum sheets.

C. Flanged Joint Sealant: Comply with ASTM C 920.

1. General: Single-component, acid-curing, silicone, elastomeric.
2. Type: S.
3. Grade: NS.
4. Class: 25.
5. Use: O.

6. For indoor applications, use sealant that has a VOC content of 250 g/L or less when calculated according to 40 CFR 59, Subpart D (EPA Method 24).
7. Sealant shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."

D. Flange Gaskets: Butyl rubber, neoprene, or EPDM polymer with polyisobutylene plasticizer.

2.6 HANGERS AND SUPPORTS

A. Hanger Rods for Noncorrosive Environments: Cadmium-plated steel rods and nuts.

B. Hanger Rods for Corrosive Environments: Electrogalvanized, all-thread rods or galvanized rods with threads painted with zinc-chromate primer after installation.

C. Strap and Rod Sizes: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum Hanger Sizes for Round Duct."

D. Steel Cables for Galvanized-Steel Ducts: Galvanized steel complying with ASTM A 603.

E. Steel Cables for Stainless-Steel Ducts: Stainless steel complying with ASTM A 492.

F. Steel Cable End Connections: Cadmium-plated steel assemblies with brackets, swivel, and bolts designed for duct hanger service; with an automatic-locking and clamping device.

G. Duct Attachments: Sheet metal screws, blind rivets, or self-tapping metal screws; compatible with duct materials.

H. Trapeze and Riser Supports:

1. Supports for Galvanized-Steel Ducts: Galvanized-steel shapes and plates.
2. Supports for Stainless-Steel Ducts: Stainless-steel shapes and plates.
3. Supports for Aluminum Ducts: Aluminum or galvanized steel coated with zinc chromate.

2.7 SEISMIC-RESTRAINT DEVICES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Cooper B-Line, Inc.; a division of Cooper Industries.
2. Ductmate Industries, Inc.
3. Hilti Corp.
4. Mason Industries.
5. TOLCO; a brand of NIBCO INC.
6. Unistrut Corporation; Tyco International, Ltd.

B. General Requirements for Restraint Components: Rated strengths, features, and applications shall be as defined in reports by the Office of Statewide Health Planning and Development for the State of California.

1. Structural Safety Factor: Allowable strength in tension, shear, and pullout force of components shall be at least four times the maximum seismic forces to which they will be subjected.

C. Channel Support System: Shop- or field-fabricated support assembly made of slotted steel channels rated in tension, compression, and torsion forces and with accessories for attachment to braced component at one end and to building structure at the other end. Include matching components and corrosion-resistant coating.

D. Restraint Cables: ASTM A 603, galvanized-steel cables with end connections made of cadmium-plated steel assemblies with brackets, swivel, and bolts designed for restraining cable service; and with an automatic-locking and clamping device or double-cable clips.

E. Hanger Rod Stiffener: Steel tube or steel slotted-support-system sleeve with internally bolted connections to hanger rod.

F. Mechanical Anchor Bolts: Drilled-in and stud-wedge or female-wedge type. Select anchor bolts with strength required for anchor and as tested according to ASTM E 488.

PART 3 - EXECUTION

3.1 DUCT INSTALLATION

A. Drawing plans, schematics, and diagrams indicate general location and arrangement of duct system. Indicated duct locations, configurations, and arrangements were used to size ducts and calculate friction loss for air-handling equipment sizing and for other design considerations. Install duct systems as indicated unless deviations to layout are approved on Shop Drawings and Coordination Drawings.

B. Install ducts according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" unless otherwise indicated.

C. Install round ducts in maximum practical lengths.

D. Install ducts with fewest possible joints.

E. Install factory- or shop-fabricated fittings for changes in direction, size, and shape and for branch connections.

F. Unless otherwise indicated, install ducts vertically and horizontally, and parallel and perpendicular to building lines.

G. Install ducts close to walls, overhead construction, columns, and other structural and permanent enclosure elements of building.

H. Install ducts with a clearance of 1 inch, plus allowance for insulation thickness.

I. Route ducts to avoid passing through transformer vaults and electrical equipment rooms and enclosures.

J. Where ducts pass through non-fire-rated interior partitions and exterior walls and are exposed to view, cover the opening between the partition and duct or duct insulation with sheet metal flanges of same metal thickness as the duct. Overlap openings on four sides by at least 1-1/2 inches.

K. Where ducts pass through fire-rated interior partitions and exterior walls, install fire dampers. Comply with requirements in Division 23 Section "Air Duct Accessories" for fire and smoke dampers.

L. Protect duct interiors from moisture, construction debris and dust, and other foreign materials. Comply with SMACNA's "IAQ Guidelines for Occupied Buildings Under Construction," Appendix G, "Duct Cleanliness for New Construction Guidelines."

3.2 DUCT SEALING

A. Seal ducts for duct static-pressure, seal classes, and leakage classes specified in "Duct Schedule" Article according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."

B. Seal ducts to the following seal classes according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible":

1. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible."
2. Unconditioned Space, Supply-Air Ducts in Pressure Classes 2-Inch wg and Lower: Seal Class B.
3. Unconditioned Space, Supply-Air Ducts in Pressure Classes Higher Than 2-Inch wg: Seal Class A.
4. Unconditioned Space, Exhaust Ducts: Seal Class C.
5. Unconditioned Space, Return-Air Ducts: Seal Class B.
6. Outdoor, Supply-Air Ducts: Seal Class A.
7. Outdoor, Return-Air Ducts: Seal Class A.

3.3 HANGER AND SUPPORT INSTALLATION

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Chapter 5, "Hangers and Supports."

B. Building Attachments: Steel fasteners appropriate for construction materials to which hangers are being attached.

C. Hanger Spacing: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 5-1, "Rectangular Duct Hangers Minimum Size," and Table 5-2, "Minimum

Hanger Sizes for Round Duct," for maximum hanger spacing; install hangers and supports within 24 inches of each elbow and within 48 inches of each branch intersection.

D. Support vertical ducts with steel angles or channel secured to the sides of the duct with welds, bolts, sheet metal screws, or blind rivets; support at each floor and at a maximum intervals of 16 feet.

E. Install upper attachments to structures. Select and size upper attachments with pull-out, tension, and shear capacities appropriate for supported loads and building materials where used.

3.4 SEISMIC-RESTRAINT-DEVICE INSTALLATION

A. Install ducts with hangers and braces designed to support the duct and to restrain against seismic forces required by applicable building codes. Comply with ASCE/SEI 7.

1. Space lateral supports a maximum of 40 feet o.c., and longitudinal supports a maximum of 80 feet o.c.
2. Brace a change of direction longer than 12 feet.

B. Select seismic-restraint devices with capacities adequate to carry present and future static and seismic loads.

C. Install cables so they do not bend across edges of adjacent equipment or building structure.

D. Install cable restraints on ducts that are suspended with vibration isolators.

E. Install seismic-restraint devices using methods approved by the Office of Statewide Health Planning and Development for the State of California.

F. Attachment to Structure: If specific attachment is not indicated, anchor bracing and restraints to structure, to flanges of beams, or to upper truss chords of bar joists.

3.5 CONNECTIONS

A. Make connections to equipment with flexible connectors complying with Division 23 Section "Air Duct Accessories."

B. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for branch, outlet and inlet, and terminal unit connections.

3.6 FIELD QUALITY CONTROL

A. Perform tests and inspections.

B. Leakage Tests:

1. Comply with SMACNA's "HVAC Air Duct Leakage Test Manual." Submit a test report for each test.

2. Test the following systems:

    a. New ducts over 1, 000 CFM and all new ducts upstream of terminal units for a maximum leak class per Table 4-1 of SMACNA HVAC Air Duct Leakage Test Manual.

3. Disassemble, reassemble, and seal segments of systems to accommodate leakage testing and for compliance with test requirements.
4. Test for leaks before applying external insulation.
5. Conduct tests at static pressures equal to maximum design pressure of system or section being tested. If static-pressure classes are not indicated, test system at maximum system design pressure. Do not pressurize systems above maximum design operating pressure.
6. Give seven days' advance notice for testing.

C. Duct System Cleanliness Tests:

1. Visually inspect duct system to ensure that no visible contaminants are present.
2. Test sections of metal duct system, chosen randomly by Owner, for cleanliness according to "Vacuum Test" in NADCA ACR, "Assessment, Cleaning and Restoration of HVAC Systems."

    a. Acceptable Cleanliness Level: Net weight of debris collected on the filter media shall not exceed 0.75 mg/100 sq. cm.

D. Duct system will be considered defective if it does not pass tests and inspections.

E. Prepare test and inspection reports.

3.7 DUCT CLEANING

A. Clean new duct system(s) as well as existing main ducts in the scope of the project before testing, adjusting, and balancing. Existing ducts outside the project area will not require duct cleaning.

B. Use service openings for entry and inspection.

1. Create new openings and install access panels appropriate for duct static-pressure class if required for cleaning access. Provide insulated panels for insulated or lined duct. Patch insulation and liner as recommended by duct liner manufacturer. Comply with Division 23 Section "Air Duct Accessories" for access panels and doors.
2. Disconnect and reconnect flexible ducts as needed for cleaning and inspection.
3. Remove and reinstall ceiling to gain access during the cleaning process.

C. Particulate Collection and Odor Control:

1. When venting vacuuming system inside the building, use HEPA filtration with 99.97 percent collection efficiency for 0.3-micron-size (or larger) particles.

2. When venting vacuuming system to outdoors, use filter to collect debris removed from HVAC system, and locate exhaust downwind and away from air intakes and other points of entry into building.

D. Clean the following components by removing surface contaminants and deposits:

1. Air outlets and inlets (registers, grilles, and diffusers).
2. Supply, return, and exhaust fans including fan housings, plenums (except ceiling supply and return plenums), scrolls, blades or vanes, shafts, baffles, dampers, and drive assemblies.
3. Air-handling unit internal surfaces and components including mixing box, coil section, air wash systems, spray eliminators, condensate drain pans, humidifiers and dehumidifiers, filters and filter sections, and condensate collectors and drains.
4. Coils and related components.
5. Return-air ducts, dampers, actuators, and turning vanes except in ceiling plenums and mechanical equipment rooms.
6. Supply-air ducts, dampers, actuators, and turning vanes.
7. Dedicated exhaust and ventilation components and makeup air systems.

E. Mechanical Cleaning Methodology:

1. Clean metal duct systems using mechanical cleaning methods that extract contaminants from within duct systems and remove contaminants from building.
2. Use vacuum-collection devices that are operated continuously during cleaning. Connect vacuum device to downstream end of duct sections so areas being cleaned are under negative pressure.
3. Use mechanical agitation to dislodge debris adhered to interior duct surfaces without damaging integrity of metal ducts, duct liner, or duct accessories.
4. Clean fibrous-glass duct liner with HEPA vacuuming equipment; do not permit duct liner to get wet. Replace fibrous-glass duct liner that is damaged, deteriorated, or delaminated or that has friable material, mold, or fungus growth.
5. Clean coils and coil drain pans according to NADCA 1992. Keep drain pan operational. Rinse coils with clean water to remove latent residues and cleaning materials; comb and straighten fins.
6. Provide drainage and cleanup for wash-down procedures.

3.8 START UP

A. Air Balance: Comply with requirements in Division 23 Section "Testing, Adjusting, and Balancing for HVAC."

3.9 DUCT SCHEDULE

A. Fabricate ducts with galvanized sheet steel except as otherwise indicated and as follows:

B. Supply Ducts:

1. Ducts Connected to Air Conditioning Units:

a. Pressure Class: Positive 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12

2. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

C. Return Ducts:

1. Ducts Connected to Air Conditioning Units:

a. Pressure Class: Positive or negative 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

2. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive or negative 2-inch wg .
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

D. Exhaust Ducts:

1. Ducts Connected to Fans Exhausting (ASHRAE 62.1, Class 1 and 2) Air:

a. Pressure Class: Negative 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

2. Ducts Connected to Equipment Not Listed Above:

a. Pressure Class: Positive or negative 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 24.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

E. Outdoor-Air (Not Filtered, Heated, or Cooled) Ducts:

1. Ducts Connected to Fan Coil Units

a. Pressure Class: Positive or negative 2-inch wg.
b. SMACNA Leakage Class for Rectangular: 12.
c. SMACNA Leakage Class for Round and Flat Oval: 12.

F. Intermediate Reinforcement:

1. Galvanized-Steel Ducts: Galvanized steel.

G. Elbow Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

   a. Velocity 1000 fpm or Lower:

      1) Radius Type RE 1 with minimum 0.5 radius-to-diameter ratio.
      2) Mitered Type RE 4 without vanes.

   b. Velocity 1000 to 1500 fpm:

      1) Radius Type RE 1 with minimum 1.0 radius-to-diameter ratio.
      2) Radius Type RE 3 with minimum 0.5 radius-to-diameter ratio and two vanes.
      3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

   c. Velocity 1500 fpm or Higher:

      1) Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
      2) Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
      3) Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

2. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-2, "Rectangular Elbows."

   a. Radius Type RE 1 with minimum 1.5 radius-to-diameter ratio.
   b. Radius Type RE 3 with minimum 1.0 radius-to-diameter ratio and two vanes.
   c. Mitered Type RE 2 with vanes complying with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-3, "Vanes and Vane Runners," and Figure 4-4, "Vane Support in Elbows."

3. Round Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-4, "Round Duct Elbows."

   a. Minimum Radius-to-Diameter Ratio and Elbow Segments: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Table 3-1, "Mitered Elbows." Elbows with less than 90-degree change of direction have proportionately fewer segments.

      1) Velocity 1000 fpm or Lower: 0.5 radius-to-diameter ratio and three segments for 90-degree elbow.
      2) Velocity 1000 to 1500 fpm: 1.0 radius-to-diameter ratio and four segments for 90-degree elbow.

3) Velocity 1500 fpm or Higher: 1.5 radius-to-diameter ratio and five segments for 90-degree elbow.
4) Radius-to Diameter Ratio: 1.5.

b. Round Elbows, 12 Inches and Smaller in Diameter: Stamped or pleated.
c. Round Elbows, 14 Inches and Larger in Diameter: Standing seam.

H. Branch Configuration:

1. Rectangular Duct: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 4-6, "Branch Connection."

a. Rectangular Main to Rectangular Branch: 45-degree entry.
b. Rectangular Main to Round Branch: Spin in.

2. Round and Flat Oval: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible," Figure 3-5, "90 Degree Tees and Laterals," and Figure 3-6, "Conical Tees." Saddle taps are permitted in existing duct.

a. Velocity 1000 fpm or Lower: 90-degree tap.
b. Velocity 1000 to 1500 fpm: Conical tap.
c. Velocity 1500 fpm or Higher: 45-degree lateral.

END OF SECTION 233113

SECTION 233300 - AIR DUCT ACCESSORIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:

1. Backdraft and pressure relief dampers.
2. Manual volume dampers.
3. Flange connectors.
4. Turning vanes.
5. Remote damper operators.
6. Duct-mounted access doors.
7. Flexible connectors.
8. Flexible ducts.
9. Rooftop duct supports.
10. Combination smoke and fire dampers.
11. Duct accessory hardware.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.

1. For duct silencers, include pressure drop and dynamic insertion loss data. Include breakout noise calculations for high transmission loss casings.

B. Shop Drawings: For duct accessories. Include plans, elevations, sections, details and attachments to other work.

1. Detail duct accessories fabrication and installation in ducts and other construction. Include dimensions, weights, loads, and required clearances; and method of field assembly into duct systems and other construction. Include the following:

a. Special fittings.
b. Manual volume damper installations.
c. Duct-mounted access doors and remote damper operators.
d. Wiring Diagrams: For power, signal, and control wiring.

C. Coordination Drawings: Reflected ceiling plans, drawn to scale, on which ceiling-mounted access panels and access doors required for access to duct accessories are shown and coordinated with each other, using input from Installers of the items involved.

D. Source quality-control reports.

E. Operation and Maintenance Data: For air duct accessories to include in operation and maintenance manuals.

1.4 QUALITY ASSURANCE

A. Comply with NFPA 90A, "Installation of Air Conditioning and Ventilating Systems," and with NFPA 90B, "Installation of Warm Air Heating and Air Conditioning Systems."

B. Comply with AMCA 500-D testing for damper rating.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for acceptable materials, material thicknesses, and duct construction methods unless otherwise indicated. Sheet metal materials shall be free of pitting, seam marks, roller marks, stains, discolorations, and other imperfections.

B. Galvanized Sheet Steel: Comply with ASTM A 653/A 653M.

1. Galvanized Coating Designation: G90.
2. Exposed-Surface Finish: Mill phosphatized.

C. Stainless-Steel Sheets: Comply with ASTM A 480/A 480M, Type 304, and having a No. 2 finish for concealed ducts and No. 4D finish for exposed ducts.

D. Aluminum Sheets: Comply with ASTM B 209, Alloy 3003, Temper H14; with mill finish for concealed ducts and standard, 1-side bright finish for exposed ducts.

E. Extruded Aluminum: Comply with ASTM B 221, Alloy 6063, Temper T6.

F. Reinforcement Shapes and Plates: Galvanized-steel reinforcement where installed on galvanized sheet metal ducts; compatible materials for aluminum and stainless-steel ducts.

G. Tie Rods: Galvanized steel, 1/4-inch minimum diameter for lengths 36 inches or less; 3/8-inch minimum diameter for lengths longer than 36 inches.

2.2 BACKDRAFT AND PRESSURE RELIEF DAMPERS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Air Balance Inc.; a division of Mestek, Inc.
2. Duro Dyne Inc.
3. Pottorff; a division of PCI Industries, Inc.
4. Ruskin Company.

B. Description: Gravity balanced.

C. Maximum Air Velocity: 2000 fpm.

D. Maximum System Pressure: 2-inch wg.

E. Frame: 0.052-inch- thick, galvanized sheet steel, with welded corners.

F. Blades: Multiple single-piece blades, center-pivoted, maximum 6-inch width, 0.025-inch-thick, roll-formed aluminum with sealed edges.

G. Blade Action: Parallel.

H. Blade Seals: Neoprene, mechanically locked.

I. Blade Axles:

1. Material: Aluminum.
2. Diameter: 0.20 inch .

J. Tie Bars and Brackets: Aluminum.

K. Return Spring: Adjustable tension.

L. Bearings: Steel ball or synthetic pivot bushings.

M. Accessories:

1. Adjustment device to permit setting for varying differential static pressure.
2. Counterweights and spring-assist kits for vertical airflow installations.
3. Screen Mounting: Front mounted in sleeve.
    a. Sleeve Thickness: 20-gage minimum.
    b. Sleeve Length: 6 inches minimum.
4. Screen Mounting: Rear mounted.
5. Screen Material: Aluminum.
6. Screen Type: Bird.
7. 90-degree stops.

2.3 MANUAL VOLUME DAMPERS

A. Standard, Steel, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Air Balance Inc.; a division of Mestek, Inc.
    b. Flexmaster U.S.A., Inc.
    c. Pottorff; a division of PCI Industries, Inc.
    d. Ruskin Company.

2. Standard leakage rating, with linkage outside airstream.
3. Suitable for horizontal or vertical applications.
4. Frames:

    a. Hat-shaped, galvanized-steel channels, 0.064-inch minimum thickness.
    b. Mitered and welded corners.
    c. Flanges for attaching to walls and flangeless frames for installing in ducts.

5. Blades:

    a. Multiple or single blade.
    b. Parallel- or opposed-blade design.
    c. Stiffen damper blades for stability.
    d. Galvanized-steel, 0.064 inch thick.

6. Blade Axles: Galvanized steel.
7. Bearings:

    a. Molded synthetic.
    b. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.

8. Tie Bars and Brackets: Galvanized steel.

B. Standard, Aluminum, Manual Volume Dampers:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Air Balance Inc.; a division of Mestek, Inc.
    b. Flexmaster U.S.A., Inc.
    c. Pottorff; a division of PCI Industries, Inc.
    d. Ruskin Company.

2. Standard leakage rating, with linkage outside airstream.
3. Suitable for horizontal or vertical applications.
4. Frames: Hat-shaped, 0.10-inch- thick, aluminum sheet channels; frames with flanges for attaching to walls and flangeless frames for installing in ducts.

5. Blades:

    a. Multiple or single blade.
    b. Parallel- or opposed-blade design.
    c. Stiffen damper blades for stability.
    d. Roll-Formed Aluminum Blades: 0.10-inch- thick aluminum sheet.
    e. Extruded-Aluminum Blades: 0.050-inch- thick extruded aluminum.

6. Blade Axles: Nonferrous metal.
7. Bearings:
    a. Molded synthetic.
    b. Dampers in ducts with pressure classes of 3-inch wg or less shall have axles full length of damper blades and bearings at both ends of operating shaft.

8. Tie Bars and Brackets: Aluminum.

C. Jackshaft:

1. Size: 1-inch diameter.
2. Material: Galvanized-steel pipe rotating within pipe-bearing assembly mounted on supports at each mullion and at each end of multiple-damper assemblies.
3. Length and Number of Mountings: As required to connect linkage of each damper in multiple-damper assembly.

D. Damper Hardware:

1. Zinc-plated, die-cast core with dial and handle made of 3/32-inch- thick zinc-plated steel, and a 3/4-inch hexagon locking nut.
2. Include center hole to suit damper operating-rod size.
3. Include elevated platform for insulated duct mounting.

2.4 FLANGE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Nexus PDQ; Division of Shilco Holdings Inc.
3. Ward Industries, Inc.; a division of Hart & Cooley, Inc.

B. Description: Add-on or roll-formed, factory-fabricated, slide-on transverse flange connectors, gaskets, and components.

C. Material: Galvanized steel.

D. Gage and Shape: Match connecting ductwork.

2.5 TURNING VANES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Duro Dyne Inc.

B. Manufactured Turning Vanes for Metal Ducts: Curved blades of galvanized sheet steel; support with bars perpendicular to blades set; set into vane runners suitable for duct mounting.

C. General Requirements: Comply with SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 4-3, "Vanes and Vane Runners," and 4-4, "Vane Support in Elbows."

D. Vane Construction: Single wall for ducts up to [48 inches] wide and double wall for larger dimensions.

2.6 REMOTE DAMPER OPERATORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Greenheck
2. Enertech
3. Metropolitan Air Technology

B. Description: 24V remote control type.

C. Ceiling/Wall-Box Mounting: Recessed, 3/4 inches deep.

D. Wall-Box Cover-Plate Material: White plastic.

2.7 DUCT-MOUNTED ACCESS DOORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Flexmaster U.S.A., Inc.
3. Pottorff; a division of PCI Industries, Inc.

B. Duct-Mounted Access Doors: Fabricate access panels according to SMACNA's "HVAC Duct Construction Standards - Metal and Flexible"; Figures 7-2, "Duct Access Doors and Panels," and 7-3, "Access Doors - Round Duct."

1. Door:

a. Double wall, rectangular.

b. Galvanized sheet metal with insulation fill and thickness as indicated for duct pressure class.
c. Vision panel.
d. Hinges and Latches: 1-by-1-inch butt or piano hinge and cam latches.
e. Fabricate doors airtight and suitable for duct pressure class.

2. Frame: Galvanized sheet steel, with bend-over tabs and foam gaskets.
3. Number of Hinges and Locks:

a. Access Doors Less Than 12 Inches Square: No hinges and two sash locks.
b. Access Doors up to 18 Inches Square: Two hinges and two sash locks.
c. Access Doors up to 24 by 48 Inches: Three hinges and two compression latches with outside and inside handles.
d. Access Doors Larger Than 24 by 48 Inches: Four hinges and two compression latches with outside and inside handles.

2.8 FLEXIBLE CONNECTORS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Ductmate Industries, Inc.
2. Duro Dyne Inc.

B. Materials: Flame-retardant or noncombustible fabrics.

C. Coatings and Adhesives: Comply with UL 181, Class 1.

D. Metal-Edged Connectors: Factory fabricated with a fabric strip [3-1/2 inches] [5-3/4 inches] wide attached to 2 strips of 2-3/4-inch- wide, 0.028-inch- thick, galvanized sheet steel or 0.032-inch- thick aluminum sheets. Provide metal compatible with connected ducts.

E. Indoor System, Flexible Connector Fabric: Glass fabric double coated with neoprene.

1. Minimum Weight: 26 oz./sq. yd..
2. Tensile Strength: 480 lbf/inch in the warp and 360 lbf/inch in the filling.
3. Service Temperature: Minus 40 to plus 200 deg F.

F. Thrust Limits: Combination coil spring and elastomeric insert with spring and insert in compression, and with a load stop. Include rod and angle-iron brackets for attaching to fan discharge and duct.

1. Frame: Steel, fabricated for connection to threaded rods and to allow for a maximum of 30 degrees of angular rod misalignment without binding or reducing isolation efficiency.
2. Outdoor Spring Diameter: Not less than 80 percent of the compressed height of the spring at rated load.
3. Minimum Additional Travel: 50 percent of the required deflection at rated load.
4. Lateral Stiffness: More than 80 percent of rated vertical stiffness.

5. Overload Capacity: Support 200 percent of rated load, fully compressed, without deformation or failure.
6. Elastomeric Element: Molded, oil-resistant rubber or neoprene.
7. Coil Spring: Factory set and field adjustable for a maximum of 1/4-inch movement at start and stop.

2.9 FLEXIBLE DUCTS

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Casco, Inc. (“Silent Flex II”)

B. Acoustical Insulated, Flexible Duct: UL 181, Class 1, 2-ply vinyl film supported by helically wound, spring-steel wire; fibrous-glass insulation; polyethylene vapor-barrier film.

1. Pressure Rating: 2-inch wg positive and 1/2-inch wg negative.
2. Maximum Air Velocity: 4000 fpm.
3. Temperature Range: 0 to plus 200 deg F.
4. Insulation R-value: 8.0.

C. Flexible Duct Connectors:

1. Clamps: Stainless-steel band with cadmium-plated hex screw to tighten band with a worm-gear action in sizes 3 through 18 inches, to suit duct size.

2.10 Rooftop duct supports

A. Manufacturers: Subject to compliance with requirements, provide products by the following:

1. Miro Industries, Inc.

B. Type: Adjustable height duct support, model ‘8-DS’.

C. Base material: Polycarbonate plastic.

D. Supports: 1 5/8” x 1 5/8” hot-dip galvanized steel.

E. Height: Adjustable.

2.11 Combination fire and smoke dampers

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1. Greenheck Fan Corporation.
2. Ruskin Company.
3. Pottorff.

B. Type: Dynamic; rated and labeled according to UL 555 and UL 555S by an NRTL.

C. Closing rating in ducts up to 4-inch wg static pressure class and minimum 4000-fpm velocity,

D. Fire Rating: 1-1/2 hours.

E. Frame: Multiple-blade type; fabricated with roll-formed, 0.034-inch-thick galvanized steel; with mitered and interlocking corners.

F. Heat-Responsive Device: Electric resettable link and switch package, factory installed, rated.

G. Smoke Detector: Integral, factory wired for single-point connection.

H. Blades: Roll-formed, horizontal, interlocking, 0.034-inch-thick galvanized sheet steel. In place of interlocking blades, use full-length, 0.034-inch-thick galvanized-steel blade connectors.

I. Leakage: Class II.

J. Rated pressure and velocity to exceed design airflow conditions.

K. Mounting Sleeve: Factory-installed, 0.052-inch-thick, galvanized sheet steel; length to suit wall or floor application.

L. Damper Motors: two-position action.

M. Comply with NEMA designation, temperature rating, service factor, enclosure type, and efficiency requirements for motors specified in Division 23 Section “Common Motor Requirements for HVAC Equipment.”

1. Motor Size: Minimum size as indicated. If not indicated, large enough so driven load will not require motor to operate in service factor range above 1.0.
2. Controllers, Electrical Devices, and Wiring: Comply with requirements for electrical devices and connections specified in ECMS specification sections.
3. Permanent-Split-Capacitor or Shaded-Pole Motors: With oil-immersed and sealed gear trains.
4. Spring-Return Motors: Equip with an integral spiral-spring mechanism where indicated. Enclose entire spring mechanism in a removable housing designed for service or adjustments. Size for running torque rating of 150 in. x lbf and breakaway torque rating of 150 in. x lbf.
5. Outdoor Motors and Motors in Outdoor-Air Intakes: Equip with O-ring gaskets designed to make motors weatherproof. Equip motors with internal heaters to permit normal operation at minus 40 deg F.
6. Nonspring Return Motors: For dampers larger than 25 sq. ft., size motor for running torque rating of 150 in. x lbf and breakaway torque rating of 300 in. x lbf.
7. Electrical Connection: 115 V, single phase, 60Hz.

N. Accessories:

1. Auxiliary switches for position indication.
2. Test and reset switches, damper mounted.

2.12 DUCT ACCESSORY HARDWARE

A. Instrument Test Holes: Cast iron or cast aluminum to suit duct material, including screw cap and gasket. Size to allow insertion of pitot tube and other testing instruments and of length to suit duct-insulation thickness.

B. Adhesives: High strength, quick setting, neoprene based, waterproof, and resistant to gasoline and grease.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install duct accessories according to applicable details in SMACNA's "HVAC Duct Construction Standards - Metal and Flexible" for metal ducts and in NAIMA AH116, "Fibrous Glass Duct Construction Standards," for fibrous-glass ducts.

B. Install duct accessories of materials suited to duct materials; use galvanized-steel accessories in galvanized-steel and fibrous-glass ducts, stainless-steel accessories in stainless-steel ducts, and aluminum accessories in aluminum ducts.I

C. Install backdraft dampers at inlet of exhaust fans or exhaust ducts as close as possible to exhaust fan unless otherwise indicated.

D. Install volume dampers at points on supply, return, and exhaust systems where branches extend from larger ducts no further than 2 ft. from branch takeoff. Where dampers are installed in ducts having duct liner, install dampers with hat channels of same depth as liner, and terminate liner with nosing at hat channel.

1. Install steel volume dampers in steel ducts.
2. Install aluminum volume dampers in aluminum ducts.

E. Set dampers to fully open position before testing, adjusting, and balancing.

F. Install test holes at fan inlets and outlets and elsewhere as indicated.

G. Install duct access doors on sides of ducts to allow for inspecting, adjusting, and maintaining accessories and equipment at the following locations:

1. On both sides of duct coils.
2. Upstream from duct filters.
3. At outdoor-air intakes and mixed-air plenums.
4. At drain pans and seals.
5. Downstream from manual volume dampers, control dampers, backdraft dampers, and equipment.
6. Adjacent to and close enough to fire or smoke dampers, to reset or reinstall fusible links. Access doors for access to fire or smoke dampers having fusible links shall be pressure

relief access doors and shall be outward operation for access doors installed upstream from dampers and inward operation for access doors installed downstream from dampers.

7. At each change in direction and at maximum 50-foot spacing.
8. Upstream from turning vanes.
9. Upstream or downstream from duct silencers.
10. Control devices requiring inspection.
11. Elsewhere as indicated.

H. Install access doors with swing against duct static pressure.

I. Access Door Sizes:

1. One-Hand or Inspection Access: 8 by 5 inches.
2. Two-Hand Access: 12 by 6 inches.
3. Head and Hand Access: 18 by 10 inches.
4. Head and Shoulders Access: 21 by 14 inches.
5. Body Access: 25 by 14 inches.
6. Body plus Ladder Access: 25 by 17 inches.

J. Label access doors according to Division 23 Section "Identification for HVAC Piping and Equipment" to indicate the purpose of access door.

K. Install flexible connectors to connect ducts to equipment.

L. For fans developing static pressures of 5-inch wg and more, cover flexible connectors with loaded vinyl sheet held in place with metal straps.

M. Connect terminal units to supply ducts directly or with maximum lengths of flexible duct. Do not use flexible ducts.

N. Connect diffusers to ducts with maximum 60-inch lengths of flexible duct clamped or strapped in place.

O. Connect flexible ducts to metal ducts with draw bands.

P. Install duct test holes where required for testing and balancing purposes.

Q. Install thrust limits at centerline of thrust, symmetrical on both sides of equipment. Attach thrust limits at centerline of thrust and adjust to a maximum of 1/4-inch movement during start and stop of fans.

R. Install fire and smoke dampers according to manufacturer’s UL-approved written instructions.

3.2 FIELD QUALITY CONTROL

A. Tests and Inspections:

1. Operate dampers to verify full range of movement.

2. Inspect locations of access doors and verify that purpose of access door can be performed.
3. Operate fire, smoke, and combination fire and smoke dampers to verify full range of movement and verify that proper heat-response device is installed.
4. Inspect turning vanes for proper and secure installation.
5. Operate remote damper operators to verify full range of movement of operator and damper.

END OF SECTION 233300

SECTION 233713 - DIFFUSERS, REGISTERS, AND GRILLES

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes ceiling- and wall-mounted diffusers, registers, and grilles.

1.2 SUBMITTALS

A. Product Data: For each product indicated, include the following:

1. Data Sheet: Indicate materials of construction, finish, and mounting details; and performance data including throw and drop, static-pressure drop, and noise ratings.
2. Diffuser, Register, and Grille Schedule: Indicate Drawing designation, room location, quantity, model number, size, and accessories furnished.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. In other Part 2 articles where titles below introduce lists, the following requirements apply to product selection:

1. Available Products: Subject to compliance with requirements, products that may be incorporated into the Work include, but are not limited to, products specified.
2. Products: Subject to compliance with requirements, provide one of the products specified.
3. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, manufacturers specified.
4. Manufacturers: Subject to compliance with requirements, provide products by one of the manufacturers specified.

2.2 GRILLES AND REGISTERS

A. Fixed Face Grille EG-1/RG-1/TG-1: See schedule on drawing for products.

1. Manufacturers:

a. Price.
b. Krueger.
c. Price.
d. Titus.

2. Material: Steel.
3. Finish: Baked enamel or powder coat, Bright white.
4. Face Arrangement: Fixed blades at 30-45 degree angle, ¾ inch spacing.
5. Mounting: Concealed to match ceiling type.

2.3 CEILING DIFFUSER OUTLETS

A. Diffusers CD-1: See schedule on drawing for products.

1. Manufacturers:

   a. Krueger.
   b. Price.
   c. Titus.

2. Material: Steel.
3. Finish: Baked enamel or powder coat, white.
4. Face Style: Perforated
5. Pattern: 4-way.
6. Panel: 12”x12” at hard lids. 24”x24” at areas with suspended t-bar ceiling.

2.4 SOURCE QUALITY CONTROL

A. Verification of Performance: Rate diffusers, registers, and grilles according to ASHRAE 70, "Method of Testing for Rating the Performance of Air Outlets and Inlets."

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install diffusers, registers, and grilles level and plumb.

B. Ceiling-Mounted Outlets and Inlets: Drawings indicate general arrangement of ducts, fittings, and accessories. Air outlet and inlet locations have been indicated to achieve design requirements for air volume, noise criteria, airflow pattern, throw, and pressure drop. Make final locations where indicated, as much as practicable. For units installed in lay-in ceiling panels, locate units in the center of panel. Where architectural features or other items conflict with installation, notify Architect for a determination of final location.

C. Install diffusers, registers, and grilles with airtight connections to ducts and to allow service and maintenance of dampers, air extractors, and fire dampers.

3.2 ADJUSTING

A. After installation, adjust diffusers, registers, and grilles to air patterns indicated, or as directed, before starting air balancing.

END OF SECTION 233713

SECTION 260010 - BASIC ELECTRICAL REQUIREMENTS

PART 1 - GENERAL

1.1 SCOPE

A. This section supplements all sections of this division and shall apply to all phases of work hereinafter specified, shown on the drawings, or required to provide a complete installation of electrical systems for the Project. The work required under this division is not limited to the electrical specifications and drawings. Refer to all bid documents including Site, Architectural, Structural, and Mechanical documents which may designate Work to be accomplished. The intent of the Specifications is to provide a complete and operable electrical system which shall include all documents which are a part of the Contract.

1. Work included: Furnish all labor, material, tools, equipment, facilities, transportation, skilled supervision necessary for, and incidental to, performing operations in connection with furnishing, delivery, and installation of the work in this division complete as shown or noted on the Drawings and specified herein.

B. Related Work Specified Elsewhere:

1. Refer to all sections in the general contract conditions, Contract Requirements and Division 1, General Requirements.

C. Work Installed but Furnished by Others:

1. The electrical work includes the installation or connection of certain materials and equipment furnished by others. Verify installation details. Foundations for apparatus and equipment will be furnished by others unless otherwise noted or detailed.

1.2 GENERAL REQUIREMENTS

A. Guarantee See General Conditions:

1. Except as may be specified under other Sections in the specification, guarantee equipment furnished under the specifications for a period of one year, except for equipment required to have a longer guarantee period, from date of final completion. Guarantee all work against defective workmanship, material, and improper installation. Upon notification of failure, correct deficiency immediately and without additional cost to the Owner.
2. Standard warranty of manufacturer shall apply for replacement of parts after expiration of the above period. Manufacturer shall furnish replacement parts to the Owner or his service agency as approved. Furnish to the Owner, through the Architect, printed manufacturer's warranties complete with material included and expiration dates, upon completion of project. Conform to Division 01.

B. Equipment Safety: All electrical materials and equipment shall be new and shall be listed by Underwriter's Laboratories and bear their label, or listed and certified by a nationally recognized testing authority where UL does not have an approval. Custom made equipment must have complete test data submitted by the manufacturer attesting to its safety.

C. Codes and Regulations:

1. Design, manufacturer, testing and method of installation of all apparatus and materials furnished under the requirements of these specifications shall conform to the latest publications or standard rules of the following:

a. Institute of Electrical and Electronic Engineers - IEEE
b. National Electrical Manufacturers' Association - NEMA
c. Underwriters' Laboratories, Inc. - UL
d. National Fire Protection Association - NFPA
e. American Society for Testing and Materials - ASTM
f. American National Standards Institute - ANSI
g. 2016 California Electrical Code – CEC, Title 24, Part 3
h. 2016 California Code of Regulations, Title 8, Subchapter 5
i. 2016 California Building Code-CBC, Title 24 Parts 1 &2
j. State & Municipal Codes in Force in the Specific Project Area
k. Occupational Safety & Health Administration – OSHA
l. California State Fire Marshal.
m. 2016 California Fire Code- CFC, Title 24 Part 9

2. The term "Code", when used within the specifications, shall refer to the Publications, Standards, ordinances and codes, listed above. In the case where the codes have different levels of requirements the most stringent rules shall apply.

D. Requirements of Regulatory Agencies:

1. Codes, Permits, and Fees: Where the Contract Documents exceed minimum requirements, the Contract Documents take precedence. Where code conflicts occur, the most stringent shall apply. The most stringent condition shall be as interpreted by the Engineer.

a. Comply with all requirements for permits, licenses, fees and Code. Permits, licenses, fees, inspections and arrangements required for the Work shall be obtained by the Contractor at his expense, unless otherwise specified.
b. Comply with the requirements of the applicable utility companies serving the Project. Make all arrangements with the utility companies for proper coordination of the Work.

E. Shop Drawings:

1. See Division 01 for additional requirements.
2. Time Schedules for Submission and Ordering: The Contractor shall prepare, review and coordinate his schedule of submissions carefully, determining the necessary lead time for preparing, submitting, checking, ordering and delivery of materials and equipment for

timely arrival. The Contractor shall be responsible for conformance with the overall construction schedule.

3. Submittals will be checked for general compliance with specifications only. The Contractor shall be responsible for deviations from the drawings or specifications and for errors or omissions of any sort in submittals.
4. Submit a complete list of materials and equipment proposed for the job, including manufacturers names and catalog numbers.
5. Shop drawings shall be submitted in completed groups of materials (i.e., lighting fixtures or switchgear). The Contractor shall add and sign the following paragraph on equipment and materials submitted for review. "It is hereby certified that the (equipment) (material) shown and marked in this submittal is that proposed to be incorporated into the project; is in compliance with the Contract Drawings and specifications and can be installed in the allocated spaces". Failure to add the above written statement for compliance will result in return of submittals without review.

    a. Bind catalog cuts, plate numbers, descriptive bulletins and drawings, 11" x 17" or smaller, in sets with covers neatly showing titles.
    b. The Contractor shall verify dimensions of equipment and be satisfied as to Code compliance for fit prior to submitting shop drawings for approval.
    c. Where current limiting devices are specified, submit technical data to substantiate adequate protection of equipment cascaded downstream. Submittals shall not be reviewed unless supporting calculations and data are submitted therewith.
    d. Include complete catalog information such as construction, ratings, insulation systems, as applicable.
    e. For any material specified to meet UL or trade standards, furnish the manufacturer's or vendor's certification that the material furnished for the work does in fact equal or exceed such specifications.
    f. Reference listings to the specifications' Sections and Article to which each is applicable.
    g. Equipment Floor Plans: After approval of material is secured prepare a floor plan of each electrical and communication equipment space, room or yard, drawn to scale at 1/2 inch equals 1 foot and submit for approval in the same manner as for shop drawings. The layout drawings shall be exact scale.

6. Contractor shall prepare coordinated drawings when required by Division 01.

F. Interpretations: Requests for interpretations of drawings and specifications must be made by the Contractor through the Architect. Any such requests made by equipment manufacturers or suppliers will be referred to the Contractor.

G. Standard of Quality

1. The contract Drawings and Specifications establish the “MINIMUM STANDARD OF QUALITY” each product and/or system must meet to be considered acceptable. Products of other manufactures will be considered if the product and/or system meet or exceed the “MINIMUM STANDARD OF QUALITY” established by this Contract Document.

H. Submit comprehensive material list, shop drawings and complete technical data for the following equipment and materials:

1. General Requirements:

    a. Conduits
    b. Conductors, include all selected insulation types.
    c. Pullboxes.
    d. Lighting fixtures.
    e. Control devices, standard and special receptacles, switches, outlets and finish device plates.
    f. Cabinets for signal and telephone system, special terminals and cabinets. Include all cabinet dimensions.
    g. Fire alarm system.
    h. Transformers.
    i. Data/telephone cables, devices and terminations.
    j. Panelboards.

I. Power Service to Site:

1. Existing.

J. Record Drawings: Refer to Division 01 and 1.3 of this section.

K. Work Responsibilities:

1. The drawings indicate diagrammatically the desired locations or arrangement of conduit runs, outlets, junction boxes and equipment and are to be followed. Execute the work so as to secure the best possible installation in the available space and to overcome local difficulties due to space limitations. The Contractor is responsible for the correct placing of his work. Where conflicts occur in plans and/or specifications, the most stringent application shall apply and shall be part of the base bid.
2. Locations shown on architectural plan or on wall elevations shall take precedence over electrical plan locations, but where a major conflict is evident, notify the Architect.
3. In the event minor changes in the indicated locations or arrangement are necessary due to developed conditions in the building construction or rearrangement of furnishings or equipment or due to interference with other trades, such changes shall be made without extra cost.
4. Verify dimensions and the correct location of Owner-Furnished equipment before proceeding with the roughing-in of connections.
5. All scaled and figured dimensions are approximate of typical equipment of the class indicated. Before proceeding with work carefully check and verify dimensions and sizes with the drawings to see that the furnished equipment will fit into the spaces provided without violation of applicable Codes.
6. Should any changes to the work indicated on the drawings or described in the specifications be necessary in order to comply with the above requirements, notify the Architect.
7. Contractor shall be responsible for coordination of coordinated drawings when required by the Architect.
8. Replace or repair, without additional compensation any work which does not comply with or which is installed in violation of any of these requirements.

L. Installation General: For special requirements, refer to specific equipment under these requirements.

1. Unless otherwise specified elsewhere in the specifications, do all excavating necessary for the proper installation of the electrical work.
2. Locations of Openings: Locate chases, shafts and openings required for the installation of the electrical work during framing of the structure. Do any additional cutting and patching required. Cutting or drilling in any structural member is prohibited without approval of the Architect. Furnish all access panels to make all boxes, connections and devices accessible as required by CEC.
3. Location of Sleeves: Where conduits pass through concrete walls, suspended slabs or metal deck floors, install sleeves of adequate size to permit installation of conduit. Sleeves shall be installed prior to pouring of concrete and shall have ends flush with the wall or extend 2 inches above floor surfaces. Verify locations.
4. Type of Sleeves: Sleeves shall be steel pipe.
5. Finish Around Sleeves: Rough edges shall be finished smooth. Space between conduit and sleeves where conduit passes through exterior walls shall be sealed to permit movement of conduit, but prevent entrance of water. Space between conduit and sleeves where conduit passes through fire rated interior walls and slabs shall be sealed with approved materials to provide a fire barrier conforming to the requirements of the governing authorities having jurisdiction, using UL Approved Firestopping Systems.
6. Wherever conduit extends through roof, install flashings in accordance with drawings and details.
7. Contractor shall be responsible for cutting and patching which may be required for the proper installation of the electrical work.
8. Protect work, materials and equipment cause whatever and provide adequate and proper storage facilities during the progress of the work. Storage outdoors shall be weather protected and shall include space heaters to prevent condensation. Provide for the safety and good condition of all work until final acceptance of the work. Replace all damaged or defective work, materials and equipment before requesting final acceptance.
9. Conduit and Equipment to be Installed: Clean thoroughly to remove plaster, spattered paint, cement and dirt on both exterior and interior. All underground conduit shall be mandrelled prior to pulling wire.
10. Conduit and Equipment to be Painted: Clean conduit exposed to view in completed structure by removing plaster and dirt. Remove grease, oil and similar material from conduit and equipment by wiping with clean rags and suitable solvents in preparation for paint.
11. Items with Factory Finish: Remove cement, plaster, grease and oil, and leave surfaces, including cracks and corners, clean and polished. Touch up scratched or bare spots to match finish.
12. Site Cleaning: Remove from site all packing cartons, scrap materials and other rubbish on a weekly basis. Vacuum out all cabinets, switchgear and panels prior to pulling any conductors.
13. Electrical equipment and materials exposed to public and in finished areas shall be finish-painted after installation in accordance with the Painting Section. All exposed screw-type fasteners, exterior, or interior in restrooms, shall be vandal-resistant spanner type; include tool.

M. Excavation, Cutting and Patching:

1. N/A.

N. Tests

1. Equipment and systems for which the National Electrical Testing Association (NETA) has an approved or recommended procedure, shall be tested in accordance with that procedure. Test values shall equal values recommended by NETA. Copies of test reports shall be submitted as required under shop drawing submittals.
2. Resistance to ground tests shall be accomplished by a qualified independent testing firm to measure resistance to ground at grounding electrodes. Make tests before slabs or affected areas are poured in order that corrective measures, if required, may be taken. Submit a report showing the results of these measurements. If the resistances exceed values specified elsewhere or NETA test procedure recommendations, perform corrective measures required to reduce resistance to acceptable values.
3. Prior to energizing any motor, measure the service voltage for phase balance and report if unbalance exceeds 1% from mean.
4. Measure the three-phase voltage at no load and at maximum load conditions and submit to the engineer a report showing the results of these measurements.
5. Upon completion of the work and adjustment of all equipment, conduct an operating test. Conduct the test in the presence of an authorized representative of the Architect. Demonstrate system and equipment to operate in accordance with requirements of the Contract Documents and to be free from electrical and mechanical defects. Provide systems free from short circuits and grounds and show an insulation resistance between phase conductors and ground not less than the requirements of the governing electric code. Test circuits for proper neutral connection.
6. Complete tests prior to final inspection of project, including corrective work based on the results of the tests.
7. Perform special tests on systems and equipment as specified herein using personnel qualified to perform such tests.

O. Protection: Protect finish parts of the materials and equipment against damage during the progress of the work and until final completion and acceptance. Cover materials and equipment in storage and during construction in such a manner that no finished surfaces will be damaged or marred. Keep moving parts clean, dry and lubricated.

P. Cleaning Up:

1. Upon completion of the work and at various time during the progress of the work, remove from the building all surplus materials, rubbish and debris resulting from the work of this Division.
2. Thoroughly clean switchgear including busses, apparatus, exposed conduit, metal work including the exterior and interior, and accessories for the work of this Division, of cement, plaster and other deleterious materials; remove grease and oil spots with cleaning solvent; carefully wipe surfaces and scrape cracks and corners clean.
3. Thoroughly polish chromium or plated work. Remove dirt and stains from lighting fixtures.
4. Leave the entire installation in a clean condition.

Q. Completion:

1. The work will not be reviewed for final acceptance until operating and maintenance data, manufacturer's literature, panel directories and nameplates specified herein have been approved and properly posted or installed and final cleaning of equipment and premises has been completed.
2. When the installation is complete and adjustments have been made, operate the system for a period of one week, during which time demonstrate that systems are completed and operating in conformance with the specifications.

R. Operating and Maintenance Data: Submit complete and at one time, prior to acceptance of the installation, 4 copies of manufacturer's instructions for operation and maintenance of electrical equipment, including replacement parts lists, as specified in Division 01.

S. Inspection and Acceptance Procedures: The Architect will submit observation reports periodically during the construction phase detailing Contract deficiencies. The Contractor is responsible for making corrections immediately. Notice of Completion of the project will not be made until all items have been corrected.

T. Final Completion of Electrical Systems:

1. Prior to Final Completion of operating electrical systems, the Contractor shall:

   a. Provide materials of the type and quality specified and as necessary for proper operation, tested and ready for use.
   b. Deliver to the Architect, the Project Record Drawings per Division 01 and 1.3 below minimum.
   c. Furnish the required Operating and Maintenance Data/Manuals.
   d. Clean up of the project pertaining to this Division of the work.
   e. After installation has been completed and adjustments made, operate the system for a period of one week, during which time, demonstrate to the Architect that systems are complete and operating in conformance with Contract Documents.
   f. Conduct tests required and as specified in this Division and submit test reports and corrective actions taken.
   g. Submission of warranties and guarantees.

2. Final Completion of Work Shall be Contingent On:

   a. Contractor replacing defective materials and workmanship.
   b. Upon completion of work and adjustments made, Contractor shall conduct an operating test for each system for approval at such time as Architect directs. Conduct test in presence of authorized representative of Architect and demonstrate that systems and equipment do operate in accordance with requirements of the Contract Documents and are free from electrical and mechanical defects.
   c. Contractor shall provide the necessary training programs and instructions to the Owner's representative. Number of hours shall be a minimum of four (4) hours for each system or days as required under separate Sections of these Specifications. Complete operation and maintenance manuals shall be provided at least two (2) weeks prior to training.
   d. Submit copies of manufacturer's instructions and maintenance of electrical equipment including replacement parts lists. Each set shall include one set of shop drawings of equipment installed.

U. Submittals for Change Orders: When changes are made during the construction phase, deletions and additions shall be presented in a manner that will indicate the cost of each item of material and corresponding labor. Markup shall be then added in accordance with the requirements of the General Conditions as modified by the Supplementary Conditions.

V. The Contractor at a time convenient to the Owner shall provide instruction to the Owner's operating personnel in the proper operation and maintenance of all equipment and systems. The instructors shall have received factory training and shall be thoroughly familiar with the equipment installed. The operating personnel shall receive the number of days instruction as indicated in other sections.

1.3 ELECTRICAL PROJECT RECORD DOCUMENTS

A. Record Drawings: CAD: Use a computer aided drafting (CAD) system in the preparation of record drawings for this Project. Acceptable CAD systems shall be capable of producing files in AutoCAD Version 2014 or later compatible DWG or DXF format. Owner's consultant will furnish CAD backgrounds for use by the Contractor after construction is 90% complete except where prohibited by Contract.

B. At all times when the work is in progress, maintain at the workplace, fabrication shop or Project Site as applies, a complete separate, clean, undamaged set of the latest stamped, actioned submittals. As work progresses, maintain records of "as installed" conditions on this set in suitable ink or chemical fluid. Update the set daily. After successful completion of Project Site testing specified herein, and after completion of Punch List corrections, copy all records of "as installed" conditions on to originals.

C. Quantity:

1. Review sets: As for Shop and Field Drawings.
2. Record set: Three (3) Blackline.

D. Format: Record Drawings:

1. Pencil, permanent ink or permanent photographic process.

   a. Front face only of Mylar at least 3.0 mils thick.
   b. Appliqué film or lettering prohibited.
   c. Suitable for microfilming. Lettering 1/8" (.8 mm) high minimum.

2. Disk copy of Record Drawings - 1 copy of each drawing file in format noted above, CD-ROM.

E. Content: All drawings required under "Field and Shop Drawings". Show "as installed" condition. Where room designations according to Project permanent signage differ from construction designations in the Contract Documents, show both designations.

F. Warranty Certificates: Comply with Division 01.

PART 2 - PRODUCTS

Not Used

PART3 - EXECUTION

Not Used

END OF SECTION 260010

SECTION 260111 - CONDUIT

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Rigid metal conduit and fittings.

B. Intermediate metal conduit and fittings.

C. Electrical metallic tubing and fittings.

D. Flexible metal conduit and fittings.

E. Non-metallic conduit and fittings.

F. Intermediate metal conduit and fittings.

1.2 REFERENCES

A. ANSI C80.1 - Rigid Steel Conduit, Zinc Coated.

B. ANSI C80.3 - Electrical Metallic Tubing, Zinc Coated.

C. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies.

D. ANSI/NFPA 70 - National Electrical Code.

E. CEC – California Electrical Code..

F. NEMA RN 1 - Polyvinyl Chloride (PVC) Externally-Coated Galvanized Rigid Steel Conduit and Electrical Metallic Tubing.

G. NEMA TC 3 - PVC Fittings for Use with Rigid PVC Conduit and Tubing.

H. FS-WW-C-581 - Specification for Galvanized Rigid Conduit.

I. FS-WW-C-566 - Specification for Flexible Metal Conduit.

J. FS-WC-1094A - Electrical Non-Metallic Conduit.

K. NEMA-TC-2 - Electrical Plastic Tubing and Conduit.

1.3 DELIVERY, STORAGE AND HANDLING

A. Deliver, store, protect, and handle Products to site under provisions of Section 26 00 10 “Basic Electrical Requirements”.

B. Protect conduit from corrosion and entrance of debris by storing above grade. Provide appropriate covering.

C. Protect PVC conduit from sunlight.

1.4 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Verify routing and termination locations of conduit prior to rough-in.

C. Conduit routing is shown on Drawings in approximate locations unless dimensioned. Route as required to complete wiring system.

PART 2 - PRODUCTS

2.1 CONDUIT REQUIREMENTS

A. Minimum Size: 3/4 inch for above ground and 1 inch minimum for underground installations unless otherwise specified.

B. Conduit Installation Schedule:

1. Underground conduit more than five feet from foundation wall shall be concrete encased non-metallic PVC Schedule 40 heavy wall rigid conduit.
2. Underground conduit under four inch minimum concrete floor slab shall be PVC Schedule 40 heavy wall rigid conduit.
3. All telecommunication conduit in conduit shall use rigid type, no flexible conduit is permitted.
4. Conduit installed in concrete or masonry, exposed outdoor locations, damp locations, hazardous locations, or where subject to mechanical injury shall be galvanized rigid steel or intermediate metal conduit.
5. Conduit installed in concealed dry interior locations such as walls or ceiling of the building shall be electrical metallic tubing, no flexible conduit is permitted.
6. Conduit installed in exposed dry interior locations above eight feet shall be electrical metallic tubing, no flexible conduit is permitted.
7. Conduit installed to supply power to all mechanical equipment and rotating electric equipment shall be waterproof flexible steel conduit. Conduit shall be 12" minimum in length for 2" conduit and smaller; 18" minimum length for conduit larger than 2". Conduit shall be 72" maximum in length.
8. Flexible steel conduit shall be used for lighting fixture connections only. Conduit shall be 72" maximum in length. No flexible conduit is permitted between fixtures.

2.2 METAL CONDUIT

A. Rigid Steel Conduit: Galvanized rigid steel; ANSI C80.1: Standard weight that is not dipped, galvanized, electrogalvanized or sheradized, both inside and out, with threaded connections and couplings is not permitted.

2.3 PVC COATED METAL CONDUIT

A. Description: NEMA RN 1; rigid steel conduit with external PVC coating, 20 mil thick, and internal galvanized surface.

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; threaded type, material to match conduit.

2.4 FLEXIBLE METAL CONDUIT

A. Description: Conduit - Manufactured from single strap standard weight steel, galvanized on all four sides prior to conduit fabrication. Lightweight flexible steel conduit and aluminum flexible conduit are not acceptable. Include ground conductor in all runs.

B. Fittings: ANSI/NEMA FB 1; Die-cast fittings of the type that screw into the inside of the conduit with threaded edges at 90 degrees to the fitting body.

2.5 LIQUIDTIGHT FLEXIBLE METAL CONDUIT

A. Description: Interlocked steel construction with moisture and oil-proof PVC jacket.

B. Fittings: ANSI/NEMA FB 1: liquid tight; integral insulated throat; provisions for ground continuity.

2.6 ELECTRICAL METALLIC TUBING (EMT)

A. Description: ANSI C80.3; galvanized tubing;

B. Fittings and Conduit Bodies: ANSI/NEMA FB 1; steel raintight, compression, steel locking ring type with integral insulated throat.

2.7 NONMETALLIC CONDUIT

A. Description: NEMA TC 2; Federal Spec. WC-1094A; Schedule 40 PVC.

B. Fittings and Conduit Bodies: NEMA TC 3 to match conduit.

2.8 INNERDUCT, MULTI-CHAMBER

A. Drawing and spec reference: Fiberoptic, Innerduct.

B. Construction:

1. Multi-Chamber or Single-Chamber 1" Innerduct shall be installed within Conduit per manufacturer's recommendation, and as described elsewhere herein.
2. Shall provide independent interior chambers each with a capacity equal to a trade size conduit referenced above.

C. Approvals:

1. ASTM D2239 (1985) Polyethylene (PE) Plastic Pipe (SIDR-PR) Based on Controlled Inside Diameter.

D. Acceptable, subject to the above:

1. Aeroquip FODuct System (800) 445-2192: (Design Basis) Provide in combinations to meet scheduled requirement.

a. 3ID1 - Provide on e(1) FoDuct PE5004 3 chamber innerduct in one-half of a 4" diameter conduit.
b. 2ID1.25 - Provide one (1) FODUCT PE5007 2 chamber innerduct in one-half of a 4" diameter conduit.

2. North Supply Multi-Guard Multi-Cell Conduit.
3. Approved equal by Tamaqua.

E. Acceptable - Independent InnerDuct runs in overall GRC conduit - Multiple runs of single chamber inner duct may be provided in lieu of single, multiple chamber innerduct provided above. Contractor bears burden of selected innerduct quantity to provide an exact match of cross-sectional area of each chamber of multi-chamber assembly and to resize overall conduit to accommodate this use.

1. Allied.
2. Approved equal.

2.9 CONDUIT SUPPORTS

A. Conduit clamps, straps, and supports: Steel or malleable iron, two-hole straps.

PART 3 - EXECUTION

3.1 CONDUIT SIZING, ARRANGEMENT AND SUPPORT

A. The size of the conduits for the various circuits shall be as indicated on the drawings and as required by Code for the size and number of conductors to be pulled therein. Where fill is not shown on drawings, size conduit for conductor type installed or for Type THW conductors,

whichever is larger; 1/2 inch minimum size. Open ends shall be capped with approved manufactured conduit seals as soon as installed and kept capped until ready to pull in conductors. Where running thread connections are necessary, only approved manufactured conduit unions shall be used. Do not embed aluminum conduit in concrete or masonry construction, nor electrical metallic tubing in slabs on grade. Do not install any conduit in any concrete slab.

B. Arrange conduit to maintain headroom and present a neat appearance.

C. Route exposed conduit and conduit above accessible ceilings parallel and perpendicular to walls and adjacent piping.

D. Maintain minimum 6 inch clearance between conduit and piping. Maintain 12 inch clearance between conduit and heat sources such as flues, steam pipes, and heating appliances.

E. Arrange conduit supports to prevent distortion of alignment by wire pulling operations. Fasten conduit using galvanized straps, lay-in adjustable hangers, clevis hangers, or bolted split stamped galvanized hangers. Maintain 12" distance minimum between main conduit runners and ceiling system grid.

F. Group conduit in parallel runs where practical and use conduit rack constructed of steel channel with conduit straps or clamps. Provide space for 25 percent additional conduit.

G. Do not fasten conduit with wire or perforated pipe straps. Remove all wire used for temporary conduit support during construction, before conductors are pulled.

H. Support conduits 1 inch and larger with pipe clamps either suspended from structural slabs with a rod with adjustable pipe ring, or mounted on wall from channel supports. Attach to concrete by expansion anchors. Powder actuated fastening devices are not permitted. Where two or more conduits 1-1/2 inch and larger or where 3 or more 3/4 inch conduits are suspended from ceiling, use trapeze type hanger from rods.

I. Firmly support and fasten conduit in place. Support rigid metal conduit and electrical cabinet and fitting. Support flexible metal conduit at maximum intervals of 4 feet and within 12 inch of every outlet box and fitting except for lengths of not over 2 feet at connections where flexibility is required.

J. Secure exposed conduit runs of concrete, plaster or other construction in place with cast conduit clamps affixed with expansion anchors or cadmium plated machine or lag screws.

K. Do not strap or fasten rigid or electrical metallic tubing to mechanical equipment or to equipment subject to vibration or mounted on shock absorbing bases, including sprinkler or pneumatic pipe or tubing.

L. Provide independent support for conduit rising from floor for motor connection if over 18 inches above floor. Do not attach to motors, ductwork or mechanical equipment.

M. Conduits 1 inch and smaller which are installed above suspended ceilings shall not be secured to ceiling support wires. Support electrical, communication conduits and fixtures independent of ceiling suspension systems.

N. Exposed conduits to view shall be installed parallel to and perpendicular to the building structure.

O. Tag empty conduits at each accessible end with a permanent tag identifying the purpose of the conduit and the location of the other end. In wet, corrosive outdoor or underground locations, use brass, bronze, or copper 16 gage tags or lead tags secured to conduit ends with #16 or larger galvanized wire. Inscribe on the tags with steel punch dies clear and complete identifying information.

P. Bends:

1. Raceways for Sound System, Telephone System, LAN, and Video System cables shall be designed for the installation of Fiber Optic cable.
2. All bends or elbows shall have a minimum radius as follows:

Conduit Size (inches)	Min. Radius (inches)
3/4	12
1	12
1-1/4	18
1-1/2	
2	24
2-1/2	24
Conduit Size (inches)	Min. Radius (inches)
3	36
3-1/2	36
4	48
5	48
6	48

3.2 Use factory ells at conduit bends 1-1/4" and larger. Alternative method: Use of precision conduit bending machine equivalent to Greenlee 'One Shot' or 'Smart Bender'.

A. Boxes where the cable changes direction shall be large enough to allow cables in the box to have a 12" minimum radius.

B. Make bends and offsets so the inside diameter is not effectively reduced. Make bends in parallel or banked runs from the same center line so that the bends are parallel.

3.3 CONDUIT INSTALLATION

A. Cut conduit square using a saw or pipe cutter; de-burr cut ends.

B. Bring conduit to the shoulder of fittings and couplings and fasten securely.

C. Use conduit hubs or sealing locknuts for fastening conduit to cast boxes, and for fastening conduit to sheet metal boxes in damp or wet locations.

D. Install no more than the equivalent of three 90-degree bends between boxes. Keep bends and offsets in conduit runs to an absolute minimum. For the serving utilities, make large radius bends to meet their requirements. Replace deformed, flattened or kinked conduit.

E. Use conduit bodies to make sharp changes in direction, as around beams.

F. Use hydraulic one-shot conduit bender or factory elbows for bends in conduit larger than 2 inch size.

G. Avoid moisture traps where possible; where unavoidable, provide junction box with drain fitting at conduit low point.

H. Use suitable conduit caps to protect installed conduit against entrance of dirt and moisture.

I. Provide No. 12 AWG insulated conductor or suitable pull string or rope in empty conduit, except sleeves and nipples.

J. Install expansion-deflection joints where conduit crosses building expansion or seismic joints and between building and walkway covers.

K. Where conduit penetrates fire-rated walls and floors, provide mechanical firestop fittings with UL listed fire rating equal to wall or floor rating.

L. Route conduit through roof openings for piping and ductwork where possible; otherwise, route through roof jack with pitch pocket.

M. Do not install conduit in slabs above grade.

N. PVC conduit shall not be used in any locations above grade.

O. From each panel or cabinet which is flush mounted in wall, stub from top of the panel a minimum of 5-3/4 inch conduits to the nearest accessible ceiling space or other accessible location and cap for future use unless noted otherwise on the drawings.

P. Flexible steel conduit is permitted in concealed dry interior locations at power and lighting fixture connections only.

Q. Seal conduit from exterior outlets at first interior junction to prevent moisture from entering the building through the conduit.

R. Use insulating fittings on conduits where entering pullboxes, junction boxes, outlet boxes, cabinets and similar enclosures, and for signal and telephone conduits terminated in cabinets or backboards.

S. Conduit risers and ell's through concrete shall be PVC Schedule 80 minimum.

END OF SECTION 260111

SECTION 260123 - BUILDING WIRE AND CABLE

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Building wire and cable.

B. Wiring connectors and connections.

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. C.E.C. - California Electrical Code.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of C.E.C.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.5 PROJECT CONDITIONS

A. Verify that field measurements are as shown on Drawings.

B. Wire and cable routing shown on Drawings is approximate unless dimensioned. Route wire and cable as required to meet Project Conditions.

C. Where wire and cable routing is not shown, and destination only is indicated, determine exact routing and lengths required.

1.6 COORDINATION

A. Determine required separation between cable and other work.

B. Determine cable routing to avoid interference with other work.

PART 2 - PRODUCTS

2.1 BUILDING WIRE AND CABLE

A. Description: Single conductor insulated wire, new, manufactured not more than 6 months prior to installation, with size, type of insulation, voltage rating and manufacturer's name permanently marked on outer covering at regular intervals.

B. Conductor: Copper.

C. Insulation Voltage Rating: 600 volts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that interior of building has been protected from weather.

B. Verify that mechanical work likely to damage wire and cable has been completed.

3.2 PREPARATION

A. Completely and thoroughly swab raceway before installing wire.

3.3 WIRING METHOD

A. Type THHN/THWN insulation for dry interior locations, in raceway.

B. Type THWN for exterior or wet locations, in raceway.

C. Type XLP for conductors protected by branch circuit GFI breakers.

3.4 INSTALLATION

A. Provide conductors continuous from outlet to outlet routed through conduit and splice only at outlet or junction boxes.

B. Circuit all feeders and branch circuits as shown on the drawings. Suggested deviation from the plans must be provided by the Architect.

C. Install products in accordance with manufacturer’s instructions.

D. Use solid conductor for feeders and branch circuits 10 AWG and smaller.

E. Use stranded conductors for control circuits.

F. Use conductor not smaller than 12 AWG for power and lighting circuits.

G. Use conductor not smaller than 16 AWG for control circuits.

H. Low voltage control wiring shall be No. 18 AWG minimum, insulated cable for each conductor. Voltage rating of cable shall be suitable for either Class I or Class II, remote control or signal circuit, as determined by the code and the actual installation.

I. Use 10 AWG conductors for 20 ampere, 120 volt branch circuits longer than 75 feet, contractor to adjust to exact field condition and shall be part of base bid.

J. Use 10 AWG conductors for 20 ampere, 277 volt branch circuits longer than 200 feet, contractor to adjust to exact field condition and shall be part of base bid.

K. Install all conductors in a single raceway at one time, insuring that conductors do not cross one another while being pulled into raceway. Leave sufficient cable at all fittings or boxes and prevent conductor kinks. Keep all conductors within the allowable tension and exceeding the minimum bending radius.

L. Use suitable wire pulling lubricant for building wire #4 AWG and larger. Lubricants for wire pulling shall conform to UL requirements for the insulation and raceway material.

M. Provide conductor supports as required by Code and recommended by the cable manufacturer. Where required, provide cable supports in vertical conduits similar to OZ Gedney Type CMT and provide the lower end of conduit with OZ Gedney Type KVF ventilators.

N. No splicing or joints will be permitted in either feeder or branch circuits except at outlet or accessible junction boxes.

O. Neatly train and lace wiring inside boxes, equipment, and panelboards.

P. Clean conductor surfaces before installing lugs and connectors.

Q. Make splices, taps, and terminations to carry full ampacity of conductors with no perceptible temperature rise. Keep splices in underground junction boxes, handholes, and manholes to an absolute minimum. Where splices are necessary, use resin pressure splices and resin splicing kits manufactured by the 3M Company to totally encapsulate the splice. Arrange the splicing kit to minimize the effects of moisture.

R. Use split bolt connectors for copper conductor splices and taps, 6 AWG and larger. Tape uninsulated conductors and connector with electrical tape to 150 percent of insulation rating of conductor.

S. Use solderless pressure connectors with insulating covers for copper conductor splices and taps, 8 AWG and smaller.

T. Use insulated spring wire connectors with plastic caps for copper conductor splices and taps, 10 AWG and smaller.

U. Provide all power and control conductors, that terminate on equipment or terminal strips, with solderless lugs or tork and flanged tongue terminals. Provide T & B "Sta-kon" tongue terminal. This type conductor termination is not required when the equipment is provided with solderless connectors.

3.5 INTERFACE WITH OTHER PRODUCTS

A. Identify wire and cable under provisions of Section 26 01 95 “Electrical Identification”.

B. Identify each conductor with its circuit number or other designation indicated on Drawings.

C. Conductor Identification: All branch circuit conductors (No. 10 AWG and smaller) throughout the project shall be routed through conduit and shall be provided with color coded insulation as follows:

208Y/120V	Phase	480Y/277
Black	A	Brown
Red	B	Orange
Blue	C	Yellow
White	Neutral	Gray
Green	Ground	Green

D. Conductors No. 8 and larger shall be color coded insulation or black with bands of colored nonaging, plastic tape to color code the conductors, utilizing the same scheme as for branch circuits. The bands shall occur within each enclosure routed through or where a tap, splice or termination is made.

E. Color code all control wire insulation and label each termination.

3.6 FIELD QUALITY CONTROL

A. Inspect wire for physical damage and proper connection.

B. Measure tightness of bolted connections and compare torque measurements with manufacturer's recommended values.

C. Verify continuity of each branch circuit conductor.

END OF SECTION 260123

SECTION 260130 - BOXES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Wall and ceiling outlet boxes.

B. Pull and junction boxes.

1.2 REFERENCES

A. ANSI/NEMA FB 1 - Fittings and Supports for Conduit and Cable Assemblies..

B. ANSI/NEMA OS 1 - Sheet-Steel Outlet Boxes, Device Boxes, Covers and Box Supports.

C. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

D. C.E.C.- California Electrical Code.

1.3 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Division 01.

B. Accurately record actual locations and mounting heights of outlet, pull and junction boxes.

1.4 REGULATORY REQUIREMENTS

A. Conform to requirements of C.E.C.

B. Furnish products listed and classified by Underwriters Laboratories, Inc. as suitable for purpose specified and shown.

1.5 PROJECT CONDITIONS

A. Verify field measurements are as shown on drawings.

B. Electrical boxes are shown on drawings in approximate locations unless dimensioned. Install at location required for box to serve intended purpose.

C. Exact location of all outlet boxes shall be as indicated on architectural elevations. Outlets not shown shall be coordinated with the Architect prior to rough-in. Any outlets not coordinated, which are mounted in locations not accepted by the Architect, shall be relocated at no additional cost to the Owner.

PART 2 - PRODUCTS

2.1 OUTLET BOXES

A. Sheet Metal Outlet Boxes: ANSI/NEMA OS 1; galvanized steel, 4" x 4" x 1-1/2" minimum size.

1. Luminaire and Equipment Supporting Boxes: Rated for weight of equipment supported; include 1/2 inch male fixture studs where required.

B. Cast Boxes: NEMA FB 1, Type FD, cast feralloy. Provide gasketed cover by box manufacturer. Provide threaded hubs.

C. Metal Floor Boxes: Cast metal, fully adjustable, rectangular.

2.2 PULL AND JUNCTION BOXES

A. Sheet Metal Boxes: NEMA OS 1; galvanized steel.

B. Surface-Mounted Cast Metal Box: NEMA 250; Type 4, flat-flanged, surface-mounted junction box.

1. Material: Galvanized cast iron.
2. Cover: Furnish with ground flange, neoprene gasket, and stainless steel cover screws.

2.3 PRECAST CONCRETE AND PULLBOXES

A. Manufacturers: Subject to compliance with requirements, provide products by one of the following available manufacturers offering products that may be incorporated into the work include, but are not limited to, the following:

1. Oldcastle Precast Group.
2. Oldcastle Precast inc.; Utility Vault Division.
3. Utility Concrete Products, LLC.
4. Christy Concrete Products.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install electrical boxes as shown on Drawings, and as required for splices, taps, wire pulling, equipment connections, and compliance with regulatory requirements.

B. Install electrical box to maintain headroom and to present a neat appearance.

C. Install pull boxes and junction boxes above accessible ceilings and in unfinished areas only.

D. Inaccessible Ceiling Areas: Install outlet and junction boxes no more than 6 inches from ceiling access panel or from removable recessed luminaire.

E. Install boxes to preserve fire resistance rating of partitions and other elements, as allowed by NFPA.

F. Align adjacent wall-mounted outlet boxes for switches, thermostats and similar devices with each other.

G. Use flush mounting outlet boxes in finished area.

H. Do not install flush mounting boxes back-to-back in walls; provide minimum 6 inch separation. Provide minimum 24 inches separation in acoustic rated walls and fire-rated walls.

I. Secure flush mounting box to interior wall and partition studs. Accurately position to allow for surface finish thickness. Outlet boxes on metal studs shall be attached to metal hangers, tack welded or bolted to studs; on wood studs attachment shall be with wood screws, nails are not acceptable.

J. Use stamped steel bridges to fasten flush mounting outlet box between studs.

K. Install flush mounting box without damaging wall insulation or reducing its effectiveness.

L. Use adjustable steel channel fasteners for hung ceiling outlet box.

M. Do not fasten boxes to ceiling support wires.

N. Support boxes independently of conduit, except cast box that is connected to two rigid metal conduits both supported within 12 inches of box.

O. Use gang box where more than one device is mounted together. Do not use sectional box.

P. Use gang box with plaster ring for single device outlets.

Q. Use cast outlet box in exterior locations exposed to the weather and wet locations.

R. Large Pull Boxes: Boxes larger than 100 cubic inches in volume or 12 inches in any dimension.

1. Interior Dry Locations: Use hinged enclosure under provisions of Section 26 01 60 “Cabinets and Enclosures”.
2. Other Locations: Use surface-mounted cast metal box.

S. Open knockouts in outlet boxes only where required for inserting conduit.

T. All boxes and panels/cabinets shall be covered with cardboard and duct tape to keep plaster and dirt from entering box or panels. All boxes shall be vacuum cleaned prior to pulling wires.

U. All pull and junction boxes shall be clearly and permanently marked indicating the panel and

circuit numbers of conductors within the box.

V. Coordinate with architectural drawings for tackable wall covers and provide special extension rings for flush finish fit to comply with CEC 370-20.

3.2 INTERFACE WITH OTHER PRODUCTS

A. Coordinate mounting heights and locations of outlets mounted above counters, benches and backsplashes. The Contractor shall be responsible for cut-outs in tile or counter splashes where outlet boxes are to be installed.

B. Position outlet boxes to locate luminaires as shown on reflected ceiling plan.

3.3 ADJUSTING

A. Adjust flush-mounting outlets to make front flush with finished wall material.

B. Install knockout closures in unused box openings.

END OF SECTION 260130

SECTION 260141 - WIRING DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Receptacles.

B. Device plates and decorative box covers.

1.2 REFERENCES

A. NEMA WD 1 - General-Purpose Wiring Devices.

B. NEMA WD 6 - Wiring Device Configurations.

1.3 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing products specified in this Section with minimum three years documented experience.

PART 2 - PRODUCTS

2.1 RECEPTACLES

A. GFCI Receptacle:

1. Hubbell
2. Leviton
3. Arrow Hart
4. Bryant.

B. Special Purpose Receptacles

1. Hubbell
2. Leviton
3. Arrow Hart
4. Bryant.

C. Substitutions: Under provisions of Division 01.

D. Description: NEMA WD 1; heavy-duty general-use receptacle. 20 Amp, 125V, 2-pole, 3-wire style line series.

E. Device Body: Plastic.

F. Configuration: NEMA WD 6; type as specified and indicated.

G. Convenience Receptacle: Type 5-20R

H. GFCI Receptacle: Convenience receptacle with integral ground fault circuit interrupter to meet regulatory requirements.

2.2 WALL PLATES

A. Plates shall be brushed stainless steel and supplied for every local switch, receptacle, telephone and data outlet, wall speaker outlet, etc.

B. Weatherproof Cover Plate: Gasketed cast metal with hinged gasketed device cover.

C. Locking Weatherproof Cover Plate: Pass & Seymour #WP26-L or equal at locations Indicated on drawings.

D. Plates shall be engraved and filled, when used for:

1. More than two gangs.
2. Equipment that cannot be seen from the locations.
3. All receptacles other than 120 volts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify outlet boxes are installed at proper height.

B. Verify wall openings are neatly cut and will be completely covered by wall plates.

C. Verify branch circuit wiring installation is completed, tested, and ready for connection to wiring devices.

3.2 PREPARATION

A. Provide extension rings to bring outlet boxes flush with finished surface.

B. Clean debris from outlet boxes.

3.3 INSTALLATION

A. Install products in accordance with manufacturer's instructions.

B. Install devices plumb and level.

C. Install switches with OFF position down.

D. Install receptacles with grounding pole on top

E. Connect wiring device grounding terminal to branch circuit equipment grounding conductor.

F. Install decorative plates on switches, receptacles, etc., and blank outlets in finished areas.

G. Connect wiring devices by wrapping conductor around screw terminal.

H. Use jumbo size plates for outlets installed in masonry walls.

I. Install galvanized steel plates on outlet boxes and junction boxes in unfinished area, above accessible ceilings, and on surface mounted outlets.

3.4 INTERFACE WITH OTHER PRODUCTS

A. Coordinate locations of outlet boxes provided under Section 26 01 30 “Boxes” to obtain mounting heights specified and indicated on drawings.

3.5 FIELD QUALITY CONTROL

A. Inspect each wiring device for defects.

B. Verify that each receptacle device is energized.

C. Test each receptacle device for proper polarity.

D. Test each GFCI receptacle device for proper operation.

3.6 ADJUSTING

A. Adjust devices and wall plates to be flush and level.

END OF SECTION 260141

SECTION 260160 - CABINETS AND ENCLOSURES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Hinged cover enclosures.

B. Cabinets.

C. Terminal blocks and accessories.

1.2 REFERENCES

A. NEMA 250 - Enclosures for Electrical Equipment (1000 Volts Maximum).

B. ANSI/NEMA ICS 1 - Industrial Control and Systems.

C. ANSI/NEMA ICS 4 - Terminal Blocks for Industrial Control Equipment and Systems.

D. ANSI/NEMA ICS 6 - Enclosures for Industrial Control Equipment and Systems.

1.3 SUBMITTALS

A. Submit product data under provisions of Division 01.

B. Shop Drawings for Equipment Panels: Include wiring schematic diagram, wiring diagram, outline drawing and construction diagram as described in ANSI/NEMA ICS 1.

PART 2 - PRODUCTS

2.1 HINGED COVER ENCLOSURES

A. Construction: NEMA 250; Type 1, 3R, steel.

B. Finish: Manufacturer's standard enamel finish.

C. Covers: Continuous hinge, held closed by flush latch operable by key.

D. Panel for Mounting Terminal Blocks or Electrical Components: 14 gage steel, white enamel finish.

2.2 CABINETS

A. Cabinet Boxes: Galvanized steel with removable endwalls. Provide 3/4 inch thick plywood backboard painted matte white, for mounting terminal blocks.

B. Cabinet Fronts: Steel, flush surface type with concealed trim clamps, screw cover front, concealed hinge and flush lock keyed to match branch circuit panelboard; finish as approved by Architect.

2.3 TERMINAL BLOCKS AND ACCESSORIES

A. Terminal Blocks: ANSI/NEMA ICS 4; UL listed.

B. Power Terminals: Unit construction type, closed-back type, with tubular pressure screw connectors, rated 600 volts.

C. Signal and Control Terminals: Modular construction type, channel mounted; tubular pressure screw connectors, rated 300 volts.

2.4 FABRICATION

A. Shop assemble enclosures and cabinets housing terminal blocks or electrical components in accordance with ANSI/NEMA ICS 6.

B. Provide conduit hubs knockouts on enclosures.

C. Provide protective pocket inside front cover with schematic diagram, connection diagram, and layout drawing of control wiring and components within enclosure.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install cabinets and enclosures plumb; anchor securely to wall and structural supports at each corner, minimum.

B. Provide accessory feet for free-standing equipment enclosures.

C. Install trim plumb.

D. Provide nameplate per Section 26 01 95 “Electrical Identification”.

E. Ground and bond per Section 26 01 70 “Grounding and Bonding”.

END OF SECTION 260160

SECTION 260170 - GROUNDING AND BONDING

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Grounding electrodes and conductors.

B. Equipment grounding conductors.

C. Bonding.

1.2 REFERENCES

A. ANSI/NFPA 70 - National Electrical Code.

B. C.E.C. - California Electrical Code.

1.3 PERFORMANCE REQUIREMENTS

A. Grounding System Resistance: 20 ohms maximum.

1.4 PROJECT RECORD DOCUMENTS

A. Submit under provisions of Division 01.

B. Accurately record actual locations of grounding points.

PART 2 - PRODUCTS

2.1 ROD ELECTRODE

A. Material: Copper-clad steel.

B. Diameter: 3/4 inch.

C. Length: 10 feet.

2.2 MECHANICAL CONNECTORS

A. Material: Bronze.

2.3 WIRE

A. Material: Stranded copper.

B. Foundation Electrodes: 4/0 AWG.

C. Grounding Electrode Conductor: Size to meet CEC requirements.

D. Equipment Grounding Conductor: Size conductors based on CEC Table 250-122.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify that final backfill and compaction has been completed before driving electrodes.

3.2 INSTALLATION

A. Install Products in accordance with manufacturer's instructions.

B. Install rod electrodes at locations indicated.

C. Provide grounding electrode conductor and connect to reinforcing steel in foundation footing where indicated. Bond steel together.

D. Provide bonding to meet Regulatory Requirements.

E. Provide isolated grounding conductor for circuits supplying isolated ground receptacles.

F. Equipment Grounding Conductor: Provide separate, insulated conductor within each feeder and branch circuit raceway. Terminate each end on suitable lug, bus, or bushing.

G. Raceway Systems: Install metallic raceways mechanically and electrically secure at all joints and at all boxes, cabinets, fittings and equipment. At the point of electrical service entrance, bond all metallic raceways together with a ground conductor and connect to the system ground bus. Bond all boxes for equipment.

H. Receptacles: Permanently connect the ground terminal on each receptacle to the green ground conductor.

I. Telecom Room: Provide one No. 6 THW copper wire in 3/4" conduit from the main telephone cabinet to the grounding system or as indicated on drawings.

J. Ductwork: Provide a flexible ground strap, No. 6 AWG equivalent, at each flexible duct connection at each air handler, exhaust fan, and supply fan, and install to preclude vibration.

K. Bond together metal siding and other metal objects not attached to grounded structure; bond to ground.

L. Bond together each metallic raceway, pipe and duct at least at one point; bond to ground.

3.3 FIELD QUALITY CONTROL

A. Inspect grounding and bonding system conductors and connections for tightness and proper installation.

B. Use suitable test instrument to measure resistance to ground of system. Perform testing in accordance with test instrument manufacturer's recommendations using the fall-of potential method.

END OF SECTION 260170

SECTION 260190 - SUPPORTING DEVICES

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Conduit and equipment supports.

B. Fastening hardware.

1.2 COORDINATION

A. Coordinate size, shape and location of concrete pads with Division 32.

1.3 QUALITY ASSURANCE

A. Support systems shall be adequate for weight of equipment and conduit, including wiring, which they carry.

PART 2 - PRODUCTS

2.1 MATERIAL

A. Support Channel: Galvanized or painted steel.

B. Hardware: Corrosion resistant.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Use expansion anchors or preset inserts in solid masonry walls; self-drilling anchors or expansion anchor on concrete surfaces; sheet metal screws in sheet metal studs; and wood screws in wood construction.

B. Do not fasten supports to piping, ductwork, mechanical equipment, or conduit.

C. Do not use powder-actuated anchors.

D. Do not drill structural steel members.

E. Fabricate supports from structural steel or steel channel, rigidly welded or bolted to present a neat appearance. Use hexagon head bolts with spring lock washers under all nuts.

F. Provide conduit support systems under provisions of Section 26 01 11 “Conduit”.

END OF SECTION 260190

SECTION 260195 - ELECTRICAL IDENTIFICATION

PART 1 - GENERAL

1.1 WORK INCLUDED

A. Nameplates.

B. Wire and cable markers.

1.2 SUBMITTALS

A. Submit shop drawings under provisions of Division 01.

B. Include schedule for nameplates and tape labels.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Nameplates: Engraved three-layer laminated plastic, black letters on a white contrasting background.

B. Wire and Cable Markers: Cloth markers, split sleeve or tubing type.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Degrease and clean surfaces to receive nameplates.

B. Install nameplates and tape labels parallel to equipment lines.

C. Secure nameplates to equipment fronts using screws, or rivets. Secure nameplate to inside face of recessed panelboard doors in finished locations.

D. Embossed tape will not be permitted for any application.

3.2 WIRE IDENTIFICATION

A. Provide wire markers on each conductor in panelboard gutters, pull boxes, outlet and junction boxes, and at load connection. Identify with panel and branch circuit or feeder number for

power and lighting circuits, and with control wire number as indicated on schematic and interconnection diagrams equipment manufacturer's shop drawings for control wiring.

3.3 NAMEPLATE ENGRAVING

A. Provide nameplates to identify all circuits in the branch circuit panelboards; selector switches; terminal cabinets; telephone cabinets, etc. Clearly identify on the nameplate the equipment such as "Air Handling Unit AH-1" in lieu of abbreviated plan references such as "AH-1". In addition all voice and data racks, patch panels and workstation outlets will be lableled.

B. Provide nameplates of minimum letter height as scheduled below.
   1. 1/8 inch high letters for identifying individual equipment and loads.
   2. ¼ inch high letters for identifying grouped equipment and loads
   3. inch high letters for identifying.

C. Minimum nameplate thickness: 1/8 inch

D. Patch panels and voice/data workstation outlets: Refer to voice/data block riser diagram on drawings for requirements.

E. Panelboards and Switchboards: 1/4 inch; identify equipment designation, voltage rating, and source.

F. Individual Circuit Breakers in Panelboards and Switchboards: 1/8 inch; identify circuit and load served, including location.

G. Individual Circuit Breakers, Enclosed Switches and Motor Starters: 1/8 inch; identify voltage rating, ampere rating and load served including location.

H. HVAC and Plumbing Control Equipment: 1/8 inch; identify equipment designation and equipment served including location.

I. Communication Terminal Cabinets: 1/4 inch; identify cabinet designation and type of system.

3.4 CONDUIT MARKER IDENTIFICATION

A. Raceway painting: Identify conduit using field painting.

   1. Paint colored band on each conduit longer than 6 feet.
   2. Paint colored bands 20 feet on center.
   3. Color:

      a. 480-volt system: Blue.
      b. 208-volt system: Yellow.
      c. Fire Alarm system: Red.
      d. Telephone system: Green.
      e. Data system: Purple.

3.5 LOCKOUT DEVICES

A. Lockout Hasps:

1. Anodized aluminum hasp with erasable label surface; size minimum 7-1/4x3 inches.

END OF SECTION 260195

SECTION 260500 - COMMON WORK RESULTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. Section Includes:
   1. Electrical equipment coordination and installation.
   2. Sleeves for raceways and cables.
   3. Sleeve seals.
   4. Grout.
   5. Common electrical installation requirements.

1.3 DEFINITIONS

A. EPDM: Ethylene-propylene-diene terpolymer rubber.
B. NBR: Acrylonitrile-butadiene rubber.

1.4 SUBMITTALS

A. Product Data: For sleeve seals.

1.5 COORDINATION

A. Coordinate arrangement, mounting, and support of electrical equipment:
   1. To allow maximum possible headroom unless specific mounting heights that reduce headroom are indicated.
   2. To provide for ease of disconnecting the equipment with minimum interference to other installations.
   3. To allow right of way for piping and conduit installed at required slope.
   4. So connecting raceways, cables, wireways, cable trays, and busways will be clear of obstructions and of the working and access space of other equipment.
B. Coordinate installation of required supporting devices and set sleeves in cast-in-place concrete, masonry walls, and other structural components as they are constructed.
C. Coordinate location of access panels and doors for electrical items that are behind finished surfaces or otherwise concealed. Access doors and panels are specified in Division 08 Section "Access Doors and Frames."
D. Coordinate sleeve selection and application with selection and application of firestopping specified in Division 07 Section "Penetration Firestopping."

PART 2 - PRODUCTS

2.1 SLEEVES FOR RACEWAYS AND CABLES

A. Steel Pipe Sleeves: ASTM A 53/A 53M, Type E, Grade B, Schedule 40, galvanized steel, plain ends.
B. Cast-Iron Pipe Sleeves: Cast or fabricated "wall pipe," equivalent to ductile-iron pressure pipe, with plain ends and integral waterstop, unless otherwise indicated.
C. Sleeves for Rectangular Openings: Galvanized sheet steel.
   1. Minimum Metal Thickness:

a. For sleeve cross-section rectangle perimeter less than 50 inches (1270 mm) and no side more than 16 inches (400 mm), thickness shall be 0.052 inch (1.3 mm).
b. For sleeve cross-section rectangle perimeter equal to, or more than, 50 inches (1270 mm) and 1 or more sides equal to, or more than, 16 inches (400 mm), thickness shall be 0.138 inch (3.5 mm).

2.2 SLEEVE SEALS

A. Description: Modular sealing device, designed for field assembly, to fill annular space between sleeve and raceway or cable.
1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
a. Advance Products & Systems, Inc.
b. Calpico, Inc.
c. Metraflex Co.
d. Pipeline Seal and Insulator, Inc.
2. Sealing Elements: EPDM interlocking links shaped to fit surface of cable or conduit. Include type and number required for material and size of raceway or cable.
3. Pressure Plates: Carbon steel. Include two for each sealing element.
4. Connecting Bolts and Nuts: Carbon steel with corrosion-resistant coating of length required to secure pressure plates to sealing elements. Include one for each sealing element.

2.3 GROUT

A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive, nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 COMMON REQUIREMENTS FOR ELECTRICAL INSTALLATION

A. Comply with NECA 1.

B. Measure indicated mounting heights to bottom of unit for suspended items and to center of unit for wall-mounting items.

C. Headroom Maintenance: If mounting heights or other location criteria is not indicated, arrange and install components and equipment to provide maximum possible headroom consistent with these requirements.

D. Equipment: Install to facilitate service, maintenance, and repair or replacement of components of both electrical equipment and other nearby installations. Connect in such a way as to facilitate future disconnecting with minimum interference with other items in the vicinity.

E. Right of Way: Give to piping systems installed at a required slope.

3.2 SLEEVE INSTALLATION FOR ELECTRICAL PENETRATIONS

A. Electrical penetrations occur when raceways, cables, wireways, cable trays, or busways penetrate concrete slabs, concrete or masonry walls, or fire-rated floor and wall assemblies.

B. Concrete Slabs and Walls: Install sleeves for penetrations unless core-drilled holes or formed openings are used. Install sleeves during erection of slabs and walls.

C. Use pipe sleeves unless penetration arrangement requires rectangular sleeved opening.

D. Fire-Rated Assemblies: Install sleeves for penetrations of fire-rated floor and wall assemblies unless openings compatible with firestop system used are fabricated during construction of floor or wall.

E. Cut sleeves to length for mounting flush with both surfaces of walls.

F. Extend sleeves installed in floors 2 inches (50 mm) above finished floor level.

G. Size pipe sleeves to provide 1/4-inch (6.4-mm) annular clear space between sleeve and raceway or cable, unless indicated otherwise.

H. Seal space outside of sleeves with grout for penetrations of concrete and masonry

1. Promptly pack grout solidly between sleeve and wall so no voids remain. Tool exposed surfaces smooth; protect grout while curing.

I. Interior Penetrations of Non-Fire-Rated Walls and Floors: Seal annular space between sleeve and raceway or cable, using joint sealant appropriate for size, depth, and location of joint. Comply with requirements in Division 07 Section "Joint Sealants."

J. Fire-Rated-Assembly Penetrations: Maintain indicated fire rating of walls, partitions, ceilings, and floors at raceway and cable penetrations. Install sleeves and seal raceway and cable penetration sleeves with firestop materials. Comply with requirements in Division 07 Section "Penetration Firestopping."

K. Roof-Penetration Sleeves: Seal penetration of individual raceways and cables with flexible boot-type flashing units applied in coordination with roofing work.

L. Aboveground, Exterior-Wall Penetrations: Seal penetrations using steel pipe sleeves and mechanical sleeve seals. Select sleeve size to allow for 1-inch (25-mm) annular clear space between pipe and sleeve for installing mechanical sleeve seals.

M. Underground, Exterior-Wall Penetrations: Install cast-iron pipe sleeves. Size sleeves to allow for 1-inch (25-mm) annular clear space between raceway or cable and sleeve for installing mechanical sleeve seals.

3.3 SLEEVE-SEAL INSTALLATION

A. Install to seal exterior wall penetrations.

B. Use type and number of sealing elements recommended by manufacturer for raceway or cable material and size. Position raceway or cable in center of sleeve. Assemble mechanical sleeve seals and install in annular space between raceway or cable and sleeve. Tighten bolts against pressure plates that cause sealing elements to expand and make watertight seal.

3.4 FIRESTOPPING

A. Apply firestopping to penetrations of fire-rated floor and wall assemblies for electrical installations to restore original fire-resistance rating of assembly. Firestopping materials and installation requirements are specified in Division 07 Section "Penetration Firestopping."

END OF SECTION 260500

SECTION 260529 - HANGERS AND SUPPORTS FOR ELECTRICAL SYSTEMS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

A. This Section includes the following:

1. Hangers and supports for electrical equipment and systems.
2. Construction requirements for concrete bases.

1.3 DEFINITIONS

A. EMT: Electrical metallic tubing.

B. IMC: Intermediate metal conduit.

C. RMC: Rigid metal conduit.

1.4 PERFORMANCE REQUIREMENTS

A. Delegated Design: Design supports for multiple raceways, including comprehensive engineering analysis by a qualified professional engineer, using performance requirements and design criteria indicated.

B. Design supports for multiple raceways capable of supporting combined weight of supported systems and its contents.

C. Design equipment supports capable of supporting combined operating weight of supported equipment and connected systems and components.

D. Rated Strength: Adequate in tension, shear, and pullout force to resist maximum loads calculated or imposed for this Project, with a minimum structural safety factor of five times the applied force.

1.5 SUBMITTALS

A. Product Data: For the following:

1. Steel slotted support systems.
2. Nonmetallic slotted support systems.

B. Shop Drawings: Show fabrication and installation details and include calculations for the following:

1. Trapeze hangers. Include Product Data for components.
2. Steel slotted channel systems. Include Product Data for components.
3. Nonmetallic slotted channel systems. Include Product Data for components.
4. Equipment supports.

C. Welding certificates.

1.6 QUALITY ASSURANCE

A. Welding: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

B. Comply with NFPA 70.

1.7 COORDINATION

A. Coordinate size and location of concrete bases. Cast anchor-bolt inserts into bases. Concrete, reinforcement, and formwork requirements are specified in Division 03.

PART 2 - PRODUCTS

2.1 SUPPORT, ANCHORAGE, AND ATTACHMENT COMPONENTS

A. Steel Slotted Support Systems: Comply with MFMA-4, factory-fabricated components for field assembly.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

a. Allied Tube & Conduit.
b. Cooper B-Line, Inc.; a division of Cooper Industries.
c. ERICO International Corporation.
d. GS Metals Corp.
e. Thomas & Betts Corporation.
f. Unistrut; Tyco International, Ltd.
g. Wesanco, Inc.

3. Metallic Coatings: Hot-dip galvanized after fabrication and applied according to MFMA-4.
4. Nonmetallic Coatings: Manufacturer's standard PVC, polyurethane, or polyester coating applied according to MFMA-4.
5. Painted Coatings: Manufacturer's standard painted coating applied according to MFMA-4.
6. Channel Dimensions: Selected for applicable load criteria.

B. Nonmetallic Slotted Support Systems: Structural-grade, factory-formed, glass-fiber-resin channels and angles with 9/16-inch- (14-mm-) diameter holes at a maximum of 8 inches (200 mm) o.c., in at least 1 surface.

1. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
2. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

    a. Allied Tube & Conduit.
    b. Cooper B-Line, Inc.; a division of Cooper Industries.
    c. Fabco Plastics Wholesale Limited.
    d. Seasafe, Inc.
3. Fittings and Accessories: Products of channel and angle manufacturer and designed for use with those items.
4. Fitting and Accessory Materials: Same as channels and angles, except metal items may be stainless steel.
5. Rated Strength: Selected to suit applicable load criteria.

C. Raceway and Cable Supports: As described in NECA 1 and NECA 101.

D. Conduit and Cable Support Devices: Steel and malleable-iron hangers, clamps, and associated fittings, designed for types and sizes of raceway or cable to be supported.

E. Support for Conductors in Vertical Conduit: Factory-fabricated assembly consisting of threaded body and insulating wedging plug or plugs for non-armored electrical conductors or cables in riser conduits. Plugs shall have number, size, and shape of conductor gripping pieces as required to suit individual conductors or cables supported. Body shall be malleable iron.

F. Structural Steel for Fabricated Supports and Restraints: ASTM A 36/A 36M, steel plates, shapes, and bars; black and galvanized.

G. Mounting, Anchoring, and Attachment Components: Items for fastening electrical items or their supports to building surfaces include the following:

1. Powder-Actuated Fasteners: Threaded-steel stud, for use in hardened portland cement concrete, steel, or wood, with tension, shear, and pullout capacities appropriate for supported loads and building materials where used.

a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Hilti Inc.
2) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
3) MKT Fastening, LLC.
4) Simpson Strong-Tie Co., Inc.; Masterset Fastening Systems Unit.

2. Mechanical-Expansion Anchors: Insert-wedge-type, zinc-coated or stainless steel, for use in hardened portland cement concrete with tension, shear, and pullout capacities appropriate for supported loads and building materials in which used.

a. Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:
b. Manufacturers: Subject to compliance with requirements, provide products by one of the following:

1) Cooper B-Line, Inc.; a division of Cooper Industries.
2) Empire Tool and Manufacturing Co., Inc.
3) Hilti Inc.
4) ITW Ramset/Red Head; a division of Illinois Tool Works, Inc.
5) MKT Fastening, LLC.

3. Concrete Inserts: Steel or malleable-iron, slotted support system units similar to MSS Type 18; complying with MFMA-4 or MSS SP-58.
4. Clamps for Attachment to Steel Structural Elements: MSS SP-58, type suitable for attached structural element.
5. Through Bolts: Structural type, hex head, and high strength. Comply with ASTM A 325.
6. Toggle Bolts: All-steel springhead type.
7. Hanger Rods: Threaded steel.

2.2 FABRICATED METAL EQUIPMENT SUPPORT ASSEMBLIES

A. Description: Welded or bolted, structural-steel shapes, shop or field fabricated to fit dimensions of supported equipment.

B. Materials: Comply with requirements in Division 05 Section "Metal Fabrications" for steel shapes and plates.

PART 3 - EXECUTION

3.1 APPLICATION

A. Comply with NECA 1 and NECA 101 for application of hangers and supports for electrical equipment and systems except if requirements in this Section are stricter.

B. Maximum Support Spacing and Minimum Hanger Rod Size for Raceway: Space supports for EMT, IMC, and RMC as required by NFPA 70. Minimum rod size shall be 1/4 inch (6 mm) in diameter.

C. Multiple Raceways or Cables: Install trapeze-type supports fabricated with steel slotted support system, sized so capacity can be increased by at least 25 percent in future without exceeding specified design load limits.

1. Secure raceways and cables to these supports with two-bolt conduit clamps.

D. Spring-steel clamps designed for supporting single conduits without bolts may be used for 1-1/2-inch (38-mm) and smaller raceways serving branch circuits and communication systems above suspended ceilings and for fastening raceways to trapeze supports.

3.2 SUPPORT INSTALLATION

A. Comply with NECA 1 and NECA 101 for installation requirements except as specified in this Article.

B. Raceway Support Methods: In addition to methods described in NECA 1, EMT, IMC, and RMC may be supported by openings through structure members, as permitted in NFPA 70.

C. Strength of Support Assemblies: Where not indicated, select sizes of components so strength will be adequate to carry present and future static loads within specified loading limits. Minimum static design load used for strength determination shall be weight of supported components plus 200 lb (90 kg).

D. Mounting and Anchorage of Surface-Mounted Equipment and Components: Anchor and fasten electrical items and their supports to building structural elements by the following methods unless otherwise indicated by code:

1. To Wood: Fasten with lag screws or through bolts.
2. To New Concrete: Bolt to concrete inserts.
3. To Masonry: Approved toggle-type bolts on hollow masonry units and expansion anchor fasteners on solid masonry units.
4. To Existing Concrete: Expansion anchor fasteners.
5. Instead of expansion anchors, powder-actuated driven threaded studs provided with lock washers and nuts may be used in existing standard-weight concrete 4 inches (100 mm) thick or greater. Do not use for anchorage to lightweight-aggregate concrete or for slabs less than 4 inches (100 mm) thick.

6. To Steel: Welded threaded studs complying with AWS D1.1/D1.1M, with lock washers and nuts or Beam clamps (MSS Type 19, 21, 23, 25, or 27) complying with MSS SP-69.
7. To Light Steel: Sheet metal screws.
8. Items Mounted on Hollow Walls and Nonstructural Building Surfaces: Mount cabinets, panelboards, disconnect switches, control enclosures, pull and junction boxes, transformers, and other devices on slotted-channel racks attached to substrate by means that meet seismic-restraint strength and anchorage requirements.

E. Drill holes for expansion anchors in concrete at locations and to depths that avoid reinforcing bars.

3.3 INSTALLATION OF FABRICATED METAL SUPPORTS

A. Comply with installation requirements in Division 05 Section "Metal Fabrications" for site-fabricated metal supports.

B. Cut, fit, and place miscellaneous metal supports accurately in location, alignment, and elevation to support and anchor electrical materials and equipment.

C. Field Welding: Comply with AWS D1.1/D1.1M.

3.4 CONCRETE BASES

A. Construct concrete bases of dimensions indicated but not less than 4 inches (100 mm) larger in both directions than supported unit, and so anchors will be a minimum of 10 bolt diameters from edge of the base.

B. Use 3000-psi (20.7-MPa), 28-day compressive-strength concrete. Concrete materials, reinforcement, and placement requirements are specified in Division 03 Section "Cast-in-Place Concrete or Cast-in-Place Concrete (Limited Applications)" as applicable.

C. Anchor equipment to concrete base.

1. Place and secure anchorage devices. Use supported equipment manufacturer's setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.
2. Install anchor bolts to elevations required for proper attachment to supported equipment.
3. Install anchor bolts according to anchor-bolt manufacturers written instructions.

3.5 PAINTING

A. Touchup: Clean field welds and abraded areas of shop paint. Paint exposed areas immediately after erecting hangers and supports. Use same materials as used for shop painting. Comply with SSPC-PA 1 requirements for touching up field-painted surfaces.

1. Apply paint by brush or spray to provide minimum dry film thickness of 2.0 mils (0.05 mm).

B. Touchup: Comply with requirements in Division 09 for cleaning and touchup painting of field welds, bolted connections, and abraded areas of shop paint on miscellaneous metal.

C. Galvanized Surfaces: Clean welds, bolted connections, and abraded areas and apply galvanizing-repair paint to comply with ASTM A 780.

END OF SECTION 260529

SECTION 260800 - ACCEPTANCE TESTING

PART 1- GENERAL

1.1 It is the intent of these acceptance tests to assure that all Contractor supplied equipment is operational and within industry and manufacturer's tolerances and is installed in accordance with designed specifications.

A. The acceptance tests and inspections shall determine suitability for energization of switchgear and cables.

B. Items that shall be checked, inspected, and tested include, but are not limited to, the following:

1. Lighting Systems.
2. 600V rated cable

1.2 APPLICABLE CODES

A. All inspections and tests shall be in accordance with the following applicable codes and standards except as provided otherwise herein.

1. California Electrical Code - CEC 2013 Edition.
2. National Electrical Manufacturer's Association - NEMA.
3. American Society for Testing and Materials - ASTM.
4. Institute of Electrical and Electronic Engineers - IEEE.
5. National Electrical Testing Association - NETA.
6. American National Standards Institute - ANSI:
    a. C2, National Electrical Safety Code
    b. Z244-1, American National Standard for Personnel Protection
7. State Codes and Ordinances.
8. Insulated Cable Engineers Association - ICEA.
9. Association of Edison Illuminating Companies - AEIC.
10. Occupational Safety and Health Administration:
    a. Part 1910, Subpart S, 1910.308
    b. Part 1926, Subpart V, 1926.950 through 1926.960
11. National Fire Protection Association - NFPA:
    a. ANSI/NFPA 70B, Electrical Equipment Maintenance
    b. NFPA 70E, Electrical Safety Requirements for Employee Workplaces
    c. ANSI/NFPA 70, National Electrical Code 2011 Edition
    d. ANSI/NFPA 78, Lightning Protection Code
    e. ANSI/NFPA 101, Life Safety Code

12. All inspections and tests shall utilize the following references:

    a. Project Design Specification.
    b. Project Design Drawings.
    c. Manufacturer's instruction manuals applicable to each particular apparatus.

1.3 QUALIFICATIONS OF TESTING AGENCY

A. The testing firm shall be an independent testing organization, which can function as an unbiased testing authority, professionally independent of the manufacturers, suppliers, and installers of equipment or systems evaluated by the testing firm.

B. The testing firm shall be regularly engaged in the testing of electrical equipment devices, installations, and systems.

C. The testing firm and all the testing personnel shall have been engaged in such practices for a minimum of ten years.

D. The testing firm shall meet federal OSHA criteria for accreditation of testing laboratories, Title 29, Parts 1907, 1910, and 1936. Full membership in the National Electrical Testing Association constitutes proof of such criteria.

E. The lead, on site, technical person shall be currently certified by the National Electrical Testing Associate (NETA) in Electrical Power Distribution System Testing.

F. Testing firm shall utilize only full-time technicians who are regularly employed by the firm for testing services. Electrically unskilled employees are not permitted to perform testing or assistance of any kind. Electricians may assist, but may not perform testing and/or inspection services.

G. The testing firm shall submit proof of the above qualifications.

H. The testing firm shall be an independent organization as defined by OSHA Title 29, Part 1936 and the National Electrical Testing Association.

I. All instruments used by the testing firm to evaluate electrical performance shall meet NETA's Specifications for Test Instruments. (See Section 1.7 of this specification).

J. The terms used herewith such as Test Agency, Testing Laboratory, or Contractor Test Company, shall be construed to mean testing firm.

1.4 RESPONSIBILITIES

A. The Contractor shall notify the Owners Representative prior to commencement of any testing.

B. Any system, material or workmanship, which is found defective on the basis of acceptance tests, shall be reported.

C. The testing firm shall maintain a written record of all tests and upon completion of project, assemble

and certify a final test report.

D. A stable source of 60 hertz power shall be provided for testing purposes by the Contractor. Owners Representative shall witness all tests and a minimum of 14 days notice shall be provided.

1.5 TEST EQUIPMENT

A. Test Instrument Calibration

1. The testing firm shall have a calibration program that assures that all applicable test instrumentation is maintained within rated accuracy.
2. The accuracy shall be directly traceable to the National Bureau of Standards.
3. Instruments shall be calibrated in accordance with the following frequency schedule:

    a. Field instruments: Analog - 6 months maximum
    Digital - 12 months maximum
    b. Laboratory Instruments – 2 months
    c. Leased specialty equipment - 12 months (where accuracy is guaranteed by lessor)

4. Dated calibration labels shall be visible on all test equipment.
5. Records must be kept up-to-date which show date and results of instruments calibrated or tested.
6. An up-to-date instrument calibration instruction and procedure will be maintained for each test instrument.
7. Calibrating standard shall be of higher accuracy than that of the instrument tested.

1.6 TEST REPORTS

A. The test report shall include the following:

1. Summary of project.
2. Description of equipment/device tested.
3. Description of test, including date, time, and duration of test.
4. Test results.
5. Conclusions and recommendations.
6. Appendix, including appropriate test forms.
7. Identification of test equipment used.
8. Signature of responsible test organization authority.
9. Signature of the person witnessing the tests.
10. Furnish five copies of the complete report to the Owners Representative no later than thirty (30) days after completion of project unless otherwise directed.

1.7 SAFETY AND PRECAUTIONS

A. Safety practices shall include, but are not limited to, the following requirements:

1. Occupational Safety and Health Act of 1970 - OSHA.

2. Accident Prevention Manual for Industrial Operations, National Safety Council, Chapter 4.
3. Applicable State safety operating procedures.
4. NETA Safety/Accident Prevention Program.
5. District's safety practices.
6. National Fire Protection Association - NFPA 70E.
7. ANSI Z244.1 American National Standards for Personnel Protection.

B. All tests shall be performed with apparatus de-energized except where otherwise specifically required.

C. The testing firm shall have a designated safety representative on the project to supervise operations with respect to safety.

PART 2- PROTECTIVE DEVICE COORDINATION STUDY

2.1

A. A protective coordination study shall be performed using SKM's Dapper or equal software to select or check the selection of power fuse ratings, protective relay characteristics and settings, ratios, and characteristics of associated voltage breaker trip characteristics and settings.

B. The coordination study shall include all voltage classes of equipment indicated on the single line diagram drawings. The entire electrical system shall be included in the coordination study. Verify characteristics and settings of existing devices in the field and from the manufacturer.

C. The time-current characteristics of the specified protective devices shall be plotted on the appropriate log-log paper. The plots shall include complete titles, representative one-line diagrams of both buildings and legends, associated relays or fuse characteristics, significant motor starting characteristics, complete parameters of transformers, complete operating bands of low voltage circuit breaker trip curves, and fuse curves. The coordination plots shall indicate the types of protective devices selected, proposed relay taps, time dial and instantaneous trip settings, cable damage curves, symmetrical and asymmetrical fault currents. All requirements of the current California Electrical Code shall be adhered to. Reasonable coordination intervals and separation of characteristic curves shall be maintained. Separate coordination plots for phase and ground protective devices shall be provided on a system basis. Separate curves shall be used to clearly indicate the coordination achieved for feeder breakers with downstream fuses and circuit breakers in switchgear and substations. There shall be a maximum of six protective devices per plot.

D. The selection and setting of the protective devices shall be provided separately in a tabulated form listing circuit identification, IEEE device number, current transformer ratios, manufacturer, type, range of adjustment, and recommended settings. Discrepancies, problem areas, or inadequacies shall be promptly brought to the project Owners Representative's attention.

E. Five copies of coordination curves and tabulated data indicating selection and settings of protective devices shall be submitted to the Owners Representative for approval.

PART 3- EQUIPMENT VERIFICATIONS, TESTS AND CALIBRATIONS

3.1 GENERAL

A. As part of the contract, the Contractor shall perform tests of installed work as herein specified and specified in other Sections of these Specifications.

B. The Contractor shall provide all materials, equipment, labor and technical supervision to perform such tests and inspections.

C. All tests shall be performed in compliance with the recommendations and requirements of the National Electrical Testing Association, Inc. (NETA), and applicable codes and standards.

D. Upon completion of the tests and inspections noted in these Specifications, a label shall be attached to all serviced devices. These labels shall indicate date serviced and the service company responsible.

C. The test and inspections shall determine suitability for continued reliable operation.

D. All tests shall be conducted in the presence of the Owners Representative. Provide a minimum of two weeks notice to the Owners Representative.

E. Furnish the necessary equipment and personnel to perform all required tests of all wiring and connections for continuity, short circuit, and improper grounds. Included, but not limited to, the following systems: substations, air interrupting switches, low voltage main and feeder circuit breakers, interlocking controls, panelboards, distribution transformers, branch circuits.

3.2 LOW VOLTAGE CIRCUIT BREAKERS

A. Visual and mechanical inspection:

1. Inspect for physical condition.
2. Inspect alignment and grounding.
3. Perform mechanical operator and contact alignment tests on the breaker and its operating mechanism in accordance with manufacturer’s instructions.
4. Perform insulation resistance test on control wiring.
5. Clean mechanism, insulating surfaces and contacts.

B. Electrical tests:

1. Measure contact resistance.
2. Trip overcurrent protective device by operation of each protective device.
3. Perform an insulation resistance test phase-to-ground, phase-to-phase and across open contacts.
4. Perform insulation resistance test in accordance with Doble procedure.
5. Perform timing test with Travel Analyzer to insure proper contact overtravel and pressure.

3.3 CABLES, LOW VOLTAGE (600 VOLTS AND LESS)

A. Visual and mechanical inspections:

1. Inspect cables for physical damage and proper connection.
2. Torque test cable connection. Tighten connections in accordance with industry standards.
3. Perform infrared scan of all connections under loaded conditions.

B. Electrical tests:

1. Perform insulation resistance test of each cable with respect to ground and adjacent cables.

3.4 GROUNDING SYSTEMS

A. Visual and mechanical inspection:

1. Inspect ground system connections for completeness and adequacy.

B. Electrical tests:

1. Perform fall-of-the-potential test per IEEE No. 81, Section 9.03 to determine the ground resistance between the main grounding system and all major electrical equipment frames, system neutral and/or derived neutral points.

C. Infrared Inspection

1. All doors and cover shall be removed and upon completion of test be reinstalled by testing agency technicians.
2. A load bank shall be furnished to circulate low voltage currents of 400A magnitude through each bus, main breaker and feeder breaker. After two hours infrared scans shall be made of all bus joints. Problem area shall be photographed before and after corrections. After corrections, another current test of two hours duration shall be made. Again an infrared scan shall be made to confirm correct operation.
3. Upon completion, the switchgear shall be energized at 12kV. After 4 hours, infrared scans shall be made to determine areas of excessive corona. Problem area shall be treated the same as under B., above.
4. Upon completion of infrared scans, all covers and doors shall be reinstalled.

END OF SECTION 260800

SECTION 265100 - INTERIOR LIGHTING

PART 1: GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, Standard General and Supplementary General Conditions, Division 1 Specification Sections, and other applicable Specification Sections, in particular the Related Sections listed below, apply to this Section.

B. Related Sections:

1. Section 260123 – Building Wire and Cable
2. Section 260170 - Grounding and Bonding
3. Section 260130 – Boxes
4. Section 260111 - Conduit
4. Section 260800 - Acceptance Testing

PART 2 - PRODUCTS

2.1 LIGHTING FIXTURES

A. Lighting fixtures shall be of specification grade and listed or labeled by Underwriters Laboratories (UL) or other approved Nationally Recognized Testing Laboratory. Provide lighting fixtures in accordance with the Fixture Schedule.

B. Recessed lighting fixtures shall be thermally protected.

C. LED fixtures shall comply with UL Standard 8750, with IES Standards LM-79 and LM-80, and shall have a parts and labor warranty of 5 years minimum on the fixtures and components.

1. User serviceable LED lamps and drivers shall be replaceable from the room side.
2. Dimmable LED fixtures shall have either a 0-10 volt, 3-wire dimming driver, or a two-step (50%-100%) line voltage, two switch controlled dimming driver.

2.2 DRIVERS

A. LED drivers shall be electronic, labeled as compliant with radio frequency interference (RFI) requirements of FCC Title 47 Part 15, comply with NEMA SSL 1, have a sound rating of “A” and be rated for a THD of less than 20 percent at all input voltages.

B. Dimmable LED drivers shall be capable of dimming without LED strobing or flicker across their full dimming range.

C. Drivers shall be rated for the ambient temperatures in which they are located. Outdoor fixtures shall be equipped with ballasts or drivers rated for reliable starting to -20 degrees F. Indoor fixtures located in areas with direct sunlight or above normal ambient temperatures shall have ballasts or drivers rated at 65 degrees C minimum.

D. Individually fused drivers shall have their fuses accessible from outside of the fixture chassis.

2.3 EMERGENCY LIGHTING

A. Emergency lighting shall consist of normal lighting fixtures with generator or battery-inverter system backup, emergency lighting fixtures with individual battery backup, or sealed beam emergency lighting units in accordance with the Fixture Schedule.

1. Battery-backed LED emergency lighting fixtures shall consist of a normal LED fixture with some or all of the LEDs connected to a battery and charger. The battery shall be nickel cadmium and sized for a minimum of 90 minutes of fixture operation. The charger shall be solid state and provide overload, short circuit, brownout and low battery voltage protection. The battery and charger shall include self-diagnostic and self-exercising circuitry to exercise and test itself for 5 minutes every month and for 30 minutes every 6 months. The fixture shall include a test/monitor module with LED status indicating lights mounted so as to be visible to the public. The fixture shall not contain an audible alarm.
2. Sealed beam emergency lighting units shall consist of sealed beam LED lamps connected to an internally mounted battery and charger. The battery shall be nickel cadmium and sized for a minimum of 90 minutes of battery operation. The charger shall solid state and provide overload, short circuit, brownout and low battery voltage protection. The unit shall be suitable for wall or ceiling mounting as required. It shall include self-diagnostic and self-exercising circuitry to exercise and test itself for 5 minutes every month and for 30 minutes every 6 months. The unit shall include a test/monitor module with LED status indicating lights mounted so as to be visible to the public. The unit shall not contain an audible alarm.

2.4 EXIT SIGNS

A. Exit signs shall be of the LED type.

1. LED’s shall be wired in parallel to prevent multi-lamp failure, and shall be concealed within the sign by a clear panel and red optical diffuser. Power consumption shall not exceed 5 watts per face.
2. Exit signs shall have white die cast aluminum or polycarbonate housings with universal mounting brackets; brushed aluminum stencil faces with red letters and multidirectional knockout arrows.
3. Exit signs shall be provided with emergency battery packs and battery chargers when required. Batteries shall be maintenance free nickel cadmium, and shall be mounted within the signs.

PART 3 - EXECUTION

3.1 INSTALLATION REQUIREMENTS

A. Support recessed troffers independently of the ceiling grid system by using two safety wires minimum on diagonally opposite corners of the fixtures. Support recessed downlights by using safety wires or by rigidly attaching the fixtures to the building structure or ceiling grid system. Removable T-bar clips shall not be used to attach fixtures to the ceiling grid system.

B. Install fixtures level, with no gaps between adjacent fixtures or between fixtures and surrounding surfaces. Lenses, reflectors and trims of fixtures shall be properly and uniformly aligned.

C. Where fixtures are shown with dual switches, control all inner lamps with one switch and all outer lamps with the other switch. Where dimming or occupancy sensor-controlled fixtures are shown, control the fixtures in accordance with the appropriate wiring diagram or manufacturer's instructions.

D. Connect night light fixtures and emergency lighting fixtures to the hot (unswitched) side of lighting circuits.

E. Provide an individual feed with ground conductor from a junction box to each lighting fixture. Lighting fixtures shall not be daisy-chained.

F. Drops to recessed fixtures may be flexible metallic conduit, or manufactured wiring systems may be used where accessible. Fixtures shall be provided with sufficient length to permit removal and lowering of the fixtures 12” below the ceiling.

G. Provide green grounding conductors back to the panel ground for lighting circuits. Raceways shall not be used as grounding conductors.

H. Fixtures shall have their exterior labels removed and shall be thoroughly cleaned. Burned out lamps shall be replaced.

I. Locate emergency lighting remote battery packs and remote test/monitor modules identically so their status indicating lights are visible to the public and they form a straight line when viewed from the end of the corridor or room. Where a suspended ceiling exists, center the status indicating lights in adjacent ceiling tiles.

J. Mount sealed beam emergency lighting units where shown and aim their lamps to light the egress path as uniformly as possible.

K. When emergency lighting fixtures contain audible alarms, disable the alarms in accordance with manufacturer's instructions.

3.2 FIELD QUALITY CONTROL

A. A visual inspection shall be performed to verify cleanliness and alignment of the fixtures. Misalignment and light leaks shall be corrected, and rattles due to ventilation system vibration shall be eliminated.

B. An operational test shall be performed to verify that all fixtures light properly, and are switched according to the drawings.

3.3 COMMISSIONING

A. Perform Commissioning activities per Related Sections above.

END OF SECTION 265100

SECTION 28 31 00 - ANALOG ADDRESSABLE FIRE ALARM SYSTEM WITH INTEGRAL EMERGENCY VOICE/ALARM COMMUNICATION SYSTEM

PART 1 - GENERAL

1.1 SCOPE

The contractor shall furnish and install a Silent Knight Farenhyt Series IFP-2000ECS 24VDC analog addressable fire alarm system with integral Emergency Voice/Alarm Communication System, IDP protocol addressable initiation devices and System Sensor two-wire synchronized notification devices. This system is the Board of Education approved District Standard for Fire Alarm Systems. The Fire Alarm System shall be UL 864, 9th edition compliant and California State Fire Marshal listed.

A. By submission of a Prime Bid for this project, the Prime Bidder assumes complete and total responsibility for himself and his subcontractors' compliance with this specification in its entirety. If found to be not in compliance with any part of this specification, the Prime Bidder shall bear any burden, financial or otherwise, required to complete the work of this specification to the total satisfaction of Torrance Unified School District.

1. The Fire Alarm System shall be furnished and installed by a Silent Knight Select Farenhyt Engineered Systems Distributor in good standing at the time of the bid. Upon demand by the owner or his representative, the Prime Contractor shall provide proof that he or his listed subcontractor was a Silent Knight Select Farenhyt Engineered Systems Distributor at the time of the bid. Failure to produce said proof shall render the Prime Contractor's bid non-responsive and shall be considered grounds for immediate disqualification of his prime bid.

a) For the purposes of this bid, Prime Bidders shall include the Fire Alarm Contractor on their List of Subcontractors that is submitted with their bid, regardless of subcontractor tier. Failure to list the Fire Alarm Contractor shall render the Prime Bidder in non-compliance with this specification and shall render his bid non-responsive and shall be considered grounds for immediate disqualification of his prime bid.

b) The Silent Knight Select Farenhyt Engineered Systems Distributor shall furnish all labor, materials, appliances, cabling, tools, equipment, facilities, transportation and services necessary for and incidental to the performance of all operations in connection with furnishing, delivery and installation of all equipment, cabling, programming, configuration, testing and training required by this Section, complete as indicated in the applicable Contract Drawings and/or specified herein.

1) Systems furnished and/or installed by contractors who are not Silent Knight Select Farenhyt Engineered Systems Distributor shall be considered in non-compliance with this specification and subject to replacement at the expense of the Prime Contractor.

B. This specification provides the requirements for the installation, programming, configuration, testing and maintenance of a complete analog addressable fire alarm system. This system shall include, but shall not be limited to:

1. Main Fire Alarm Control Panel (FACP)

    a) Network Nodes (on network systems only)

        1) Network Interface Module
        2) Fiber optic or copper network connection circuits

    b) System cabinet
    c) Power supply

2. Digital Signaling Line Circuits (SLC)
3. Notification Appliance Circuits (NAC)
4. RS-485 Serial Communication Bus (S-bus)
5. Voice Communication Bus (V-bus, on systems with voice evacuation only)
6. Annunciators both integral and remote
7. Batteries
8. Wiring
9. Conduit
10. Associated peripheral devices and modules
11. Other relevant components and accessories required to furnish and install a complete and operational fully automatic, addressable reporting Life Safety System.

C. The fire alarm system shall be capable of providing, at a minimum, the following:

1. Fire Alarm Control Panel (FACP)

    a) Integral Digital Alarm Communications Transmitter (DACT).
    b) Network Interface capability via copper and/or fiber optic network.

2. Analog addressable initiation devices
3. Analog addressable monitor and/or control modules
4. Notification appliances

    a) Compatible with combination horn/strobe two-wire synchronized circuit.

5. Notification Appliance Circuit (NAC) remote power supply

    a) RPS-1000 Remote Power Supply shall provide the capability of housing the 5815XL SLC Expander for remote SLC generation.
    b) Combination horn/strobe two-wire circuit.
    c) Built-in synchronization capabilities

6. Integral Voice Evacuation capability
7. Firefighter Telephone capability

D. Any material and/or equipment necessary for the proper operation of the system, which is not specified or described herein, shall be deemed part of this Specification.

E. The Analog Addressable Fire Alarm System specified herein shall be connected to a UL Listed Central Station Monitoring Company via UL and California State Fire Marshal listed radio transmitter.

1. Radio Transmitter for Central Station Monitoring shall be AES Intellinet provided by Allen Alarms.

F. Contractor shall offer code required fire alarm system inspection and maintenance contract.

1.2 QUALIFICATIONS

A. Equipment

1. This specification is based on the equipment of manufacturer(s) who have been approved by the Owner and the Manufacturer(s) herein named shall be considered as meeting the requirements of this specification.
2. The equipment manufacturer shall be a United States manufacturer, who has been regularly engaged in the manufacture of fire alarm systems for at least twenty-five (25) years.
3. The Board of Education approved District Standard for Fire Alarm Systems is Silent Knight Farenhyt IFP-2000 (IFP-2000ECS for voice evacuation systems).

    a) Equipment provided for this project shall be the product of Silent Knight Farenhyt by Honeywell. No substitutions shall be approved.

        1) Contact Silent Knight West Coast Regional Sales Manager Charlie Gallardo (763) 493-6400 for a list of Silent Knight Select Farenhyt Engineered Systems Distributors for the Southern California Area.

4. It is the Contractor's responsibility to meet the entire intent of these specifications. Deviations from the specified items shall be at the risk of the Contractor until the date of final acceptance by the Architect of Record, Engineer of Record and the Owner's representative. All costs for removal, relocation or replacement of a substituted item shall be at the risk of the Prime Contractor.
5. All equipment shall conform to currently adopted applicable codes and ordinances.
6. All equipment shall be California State Fire Marshal (CSFM) listed.
7. All equipment shall bear the label of a Nationally Recognized Testing Laboratory (NRTL) such as Intertek Testing Services NA, Inc. (ITSNA - formerly ETL) or Underwriters Laboratories Inc. (UL) and be listed by their re-examination service.

B. System Supplier/Installer

1. The system shall be furnished and installed by a Silent Knight Select Farenhyt Engineered Systems Distributor who is trained and certified by the Manufacturer in the proper installation, programming, configuration, testing, service and maintenance of the systems specified herein.
2. Subsequent to a successful bid and upon request of the Owner the System Supplier/Installer shall submit a qualification documentation package which shall include the following:

    a) Evidence of current status as a Silent Knight Select Farenhyt Engineered Systems Distributor.
    b) Certificate indicating that the contractor employs a minimum of four (4) Farenhyt PHD Certified Technicians.

c) Certificates indicating that a minimum of four (4) technicians have attended and completed all requirements of the IFP-2000 training course.
d) A list of twenty (20) completed projects of equal scope, with associated Owners Representative contact names and telephone numbers.
e) Evidence of current State of California Contractor's License, C-10.
f) Evidence of current State of California Alarm Company Operator License, ACO.
g) Per California law all individuals involved in the installation of the fire alarm system shall hold a valid State of California, Division of Apprenticeship Standards (DAS), Fire/Life Safety Technician Certification.

    1) Evidence of DAS certification shall be provided immediately upon request at the project site.

h) The System Supplier/Installer shall show satisfactory evidence, upon request, that he maintains a fully equipped service organization capable of furnishing adequate inspection, service and maintenance of the system.
i) The System Supplier/Installer shall maintain at his facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.
j) The System Supplier/Installer shall be prepared to offer a service contract for the maintenance of the system beyond the warranty period.
k) The System Supplier/Installer shall provide proof that they maintain a complete service and maintenance center within 50 miles of the project address. A complete service center shall include replacement parts in stock in the quantities deemed sufficient by the owner or its representatives.

1.3 RELATED SPECIFICATIONS

A. The conditions of the General Contract (General, Supplementary, and other Conditions) and the Division 1 - General Requirements specifications are hereby made a part of this Section.

1.4 RELATED WORK BY OTHERS

A. Reference Part 3, sub-section 3.01 of this specification.

1.5 RELATED DOCUMENTS

A. In the event of a conflict between this specification and the construction drawings this specification shall take precedence.

1.6 APPLICABLE CODES & STANDARDS

A. The Fire Alarm System shall comply with the currently adopted versions of the following:

1. Building Standards Administrative Code, Part 1, Title 24, California Code of Regulations
2. California Building Code (CBC) Part 2, Title 24, California Code of Regulations (International Building Code, with California Amendments)

3. California Electrical Code (CEC) Part 3, Title 24, California Code of Regulations (National Electrical Code with California Amendments)
4. California Mechanical Code (CFC) Part 4, Title 24, California Code of Regulations (Uniform Mechanical Code with California Amendments)
5. California Fire Code (CFC) Part 9, Title 24, California Code of Regulations (International Fire Code with California Amendments)

B. NFPA Standards

1. The fire alarm system shall comply with the applicable provisions of the following current National Fire Protection Association (NFPA) standards:

a) NFPA 12 Carbon Dioxide Extinguishing Systems
b) NFPA 12A Halon 1301 Fire Extinguishing Systems
c) NFPA 13 Installation of Sprinkler Systems
d) NFPA 15 Water Spray Fixed Systems
e) NFPA 16 Foam-Water Sprinkler Systems
f) NFPA 17 Dry Chemical Extinguishing Systems
g) NFPA 17A Wet Chemical Extinguishing Systems
h) NFPA 72, National Fire Alarm and Signaling Code:

1) Central Station Fire Alarm Systems
2) Local Fire Alarm Systems
3) Auxiliary Fire Alarm Systems
4) Remote Station Fire Alarm Systems
5) Proprietary Fire Alarm Systems

i) NFPA 90A, Installation of Air Conditioning and Ventilating Systems
j) NFPA 101, Life Safety Code - Safety to Life from Fire in Buildings and Structures
k) NFPA 750 Water Mist Fire Protection Systems

C. ADA - Americans with Disabilities Act

D. CAC – California Administrative Code, Title 24

E. U.L. Standards

1. The system shall comply with the applicable provisions of the following U.L. Standards and Classifications:

a) UL 38, Manual Signaling Boxes for Fire Alarm Systems
b) UL 268, Smoke Detectors for Fire Alarm Systems
c) UL 268A, Smoke Detectors for Duct Applications
d) UL 346, Waterflow Indicators for Fire Protective Signaling Systems
e) UL 464, Audible Signal Appliances
f) UL 521, Heat Detectors for Fire Protective Signaling Systems
g) UL 864, Control Units and Accessories for Fire Alarm Systems
h) UL 1480, Speakers for Fire Alarm Use
i) UL 1481, Power Supplies for Fire Protective Signaling Systems
j) UL 1635, Digital Alarm Communicator System Units
k) UL 1638, Visual Signaling Appliances

l) UL 1971, Signaling Devices for the Hearing Impaired
m) UOJZ, Control Units, System
n) SYZV, Control Units, Releasing Device
o) UOXX, Control Unit Accessories, System
p) SYSW, Accessories, Releasing Device Service

1.7 SUBSTITUTIONS

A. Silent Knight is the Board of Education Approved District Standard for Fire Alarm Systems. No substitutions shall be approved.

1.8 SUBMITTALS

A. Within thirty-five (35) calendar days after the date of the award of the contract, the Contractor shall submit to the Architect for review, eight (8) copies of a complete Submittal Package. The Submittal Package shall consist of the following sections, with each section separated with index tabs.

1. Title Page

a) Project Title
b) Owner's name
c) Architect's name
d) Electrical Engineer's name
e) Contractor's name

2. Index of Submittal Contents

a) Each Section of the Submittal Package shall be numbered chronologically and shall be summarized in the Index.

3. Certifications

a) Index of Certification Section Contents
b) Valid State of California Contractors License
c) Manufacturer's Certifications

1) Silent Knight Select Farenhyt Engineered Systems Distributor
2) Silent Knight Farenhyt PHD Certified Technician
3) Factory Trained Technician (IFP-2000)

d) California DAS, Fire/Life Safety Technician Certifications

4. Project List

a) A substantial list (minimum of 20) of completed projects equal in scope to that specified herein.

1) Contact information shall be made available upon request.

5. Product Data

    a) Index of Equipment Data Sheets
    b) Manufacturer's Data Sheets including cable types
    c) Applicable Listings and Approvals

PART 2 - PRODUCTS

2.1 SYSTEM REQUIREMENTS

A. Basic Performance and Capabilities

1. System shall be fully programmable and configurable on site to accommodate system expansions and facilitate changes in operation.
2. All software programs shall be stored in non-volatile programmable memory within the FACP.

    a) Loss of primary and secondary power shall not erase the instructions stored in the memory.
    b) System programming shall be password protected.

3. Alarm, supervisory and trouble signals from analog addressable devices shall be encoded onto NFPA Class B signaling line circuits (SLC).
4. Initiation device circuits (IDC) shall be wired NFPA Class B.
5. Notification appliance circuits shall be wired NFPA Class B.
6. A single ground or open on any system SLC, IDC or NAC shall not cause a system malfunction, loss of operating power or the ability to report an alarm.
7. Alarm signals arriving at the main FACP shall not be lost due to a power failure.
8. Per NFPA 72, the system shall be provided with sufficient battery capacity to operate the entire system upon loss of 120 VAC power in a normal supervisory mode for a period of twenty four (24) hours with fifteen (15) minutes of alarm indication at the end of this period.
9. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operations shall be automatic. Batteries, once discharged, shall recharge at a rate that complies with NFPA 72 section 10.6.10.3.

B. System Functional Operation

1. The actuation of any approved alarm initiating device shall automatically initiate the following functions:

    a) Alarm LED on the FACP shall flash.
    b) Local audible piezo electronic signal in the FACP shall sound.
    c) The alarm condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and any remote annunciator(s).
    d) System shall transmit the condition to a UL Listed Central Station Monitoring Facility. Supervising station shall be approved per CFC section 907.6.5.3 (2016).

e) Printing and history storage equipment shall log the information associated with the condition, including the time and date of the alarm occurrence.
f) System output programs configured via control-by-event (CBE) programming to be activated by the particular point in alarm shall be executed, and the associated system output (alarm notification appliances and relays) shall be activated on either local outputs or points located on other network nodes.

2. The actuation of any approved supervisory alarm initiating device shall automatically initiate the following functions:

a) Supervisory LED on the FACP shall flash.
b) Local audible piezo electronic signal in the FACP shall sound.
c) The supervisory condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and any remote annunciator(s).
d) System shall transmit the condition to a UL Listed Central Station Monitoring Facility. Supervising station shall be approved per CFC section 907.6.5.3 (2016).
e) Printing and history storage equipment shall log the information associated with the condition, including the time and date of the supervisory alarm occurrence.
f) System output programs configured via control-by-event (CBE) programming to be activated by the particular point in supervisory alarm shall be executed, and the associated system outputs (relays) shall be activated on either local outputs or points located on other network nodes.

3. Whenever a trouble condition is detected and reported the FACP shall automatically initiate the following functions:

a) Trouble LED on the FACP shall flash.
b) Local audible piezo electronic signal in the FACP shall sound.
c) The trouble condition description, including the type of point and the location within the protected premises, shall be displayed on the LCD display at the FACP and any remote annunciator(s).
d) System shall transmit the condition to a UL Listed Central Station Monitoring Facility. Supervising station shall be approved per CFC section 907.6.5.3 (2016).
e) Printing and history storage equipment shall log the information associated with the condition, including the time and date of the trouble condition occurrence.
f) System output programs configured via control-by-event (CBE) programming to be activated by the particular point in trouble condition shall be executed, and the associated system outputs (relays) shall be activated on either local outputs or points located on other network nodes.

C. Test Functions

1. A “Lamp Test” or “Indicator Test mode shall be a standard feature of the FACP and shall test all LED’s and the LCD display on the main FACP and remote annunciators.
2. A “Walk Test” mode shall be a standard feature of the FACP.

a) The Walk Test feature shall function so that each alarm input tested shall operate the associated notification appliance for two seconds. The FACP will then automatically reset and confirm normal device operation.

b) The event memory shall contain the information on the point tested, the zone tripped, the zone restore and the individual point's return to normal.

3. A "Fire Drill mode shall allow the manual testing of the Fire Alarm System notification circuits. The Fire Drill shall be capable of being initiated at the main annunciator, remote annunciators and via a remote contact input.
4. "Bypass Mode" shall allow for any point or NAC circuit to be bypassed without affecting the operation of the total Fire Alarm System.

D. Remote Monitoring Connection

1. The fire alarm system shall be connected via Digital Alarm Communicator Transmitter (DACT) and an NFPA 72, Chapter 26 compliant transmission channel(s) to a UL Listed Central Station Monitoring Company.

a) The fire alarm control panel shall provide an integral Digital Alarm Communicator Transmitter (DACT) for signaling to a UL Listed Central Station Monitoring Company.

1) The fire alarm system shall transmit alarm, supervisory alarm and trouble signals with the alarms having priority over the trouble signal.

2.2 SYSTEM COMPONENTS

A. Fire Alarm Control Panel (FACP)

1. The FACP shall be a Silent Knight Farenhyt IFP-2000 or IFP-2000ECS

a) The basic control panel shall provide:

1) 9 amp power supply expandable to 45 amps via bus connected expander modules
2) Network Interface Module (only required if this system is to be a part of a network)

(a) The network interface module shall be a Silent Knight Farenhyt IFP-RPT-FO-KIT Network Repeater KIT for fiber optic or unshielded twisted pair cable connections.

(1) 16AWG unshielded twisted pair FPL (SLC) cable shall be used for copper wiring network connections up to a maximum distance of 3000 feet.
(2) 6-strand, 62.5/125 micron multimode fiber optic cable with ST connectors shall be used for fiber optic cable connections.

(i) Installers of fiber optic cable shall be certified by the manufacturer of the cable and connectivity used.
(ii) Fiber optic cable shall be tested utilizing and industry standardized method.

(iii) Provide fiber optic patch cables as required for a complete and operable system.

3) One (1) Signaling Line Circuit (SLC) capable of supporting 159 addressable detectors and 159 addressable modules

   (a) Additional SLC's may be added via expander modules to a maximum of 636 addressable points per panel, 10,176 addressable points per network

4) Eight (8) programmable "Flexputs"

   (a) Programmable Flexput Circuits shall be capable of being programmed as supervised reverse polarity notification appliance circuits, supervised auxiliary power circuits (continuous or resettable), door holder power or as input circuits in Class A or Class B configuration to support dry contact devices or compatible two-wire smoke detectors

5) 160 character LCD annunciator

   (a) Capability of supervising 8 additional remote annunciators

6) Integral UL listed Digital Alarm Communicator Transmitter (DACT)
7) Ability to automatically test smoke detectors in compliance with NFPA Standards to ensure that they are within listed sensitivity parameters
8) Compensation for accumulation of contaminants that affect detector sensitivity
9) Day/night sensitivity adjustments
10) Maintenance alert feature (differentiated from trouble condition)
11) Detector sensitivity selection
12) Over-current Protection

   (a) All low-voltage circuits shall be protected by microprocessor controlled power limiting or have a self-restoring polyswitch.

13) Ground Fault Detection

   (a) The ground fault detector shall operate the general trouble devices as specified but shall not cause an alarm to be sounded.
   (b) Ground fault shall not interfere with the normal operation of the system, such as alarm or trouble conditions.

14) Auto-programming mode (Jumpstart)

   (a) Jumpstart feature shall automatically enroll all properly connected devices into a functional system within 60 seconds of power up of the panel

15) Ability to upgrade the core operating software on site or over the telephone

16) RS-485 Serial Communication Bus (S-bus). Systems that do not communicate with Intelligent Modules via RS-485 Serial Communication Bus shall not be deemed equal and shall not be acceptable for this project.

(a) S-bus shall be of Class A or Class B configuration with a total bus length of 6000 feet.

2. The FACP shall be capable of operating and supervising notification appliance devices as well as addressable initiating detection devices and an integrated supervised dual line digital communicator.

B. Fire Alarm Control Panel with integral Emergency Voice/Alarm Communication System.

1. The Voice Evacuation Control Panel shall be Silent Knight Farenhyt IFP-2000ECS.

a) The IFP-2000ECS shall be the FACP on all systems where Networking is not required (Small elementary schools and middle schools) for compliance with CFC required Emergency Voice/Alarm Communication in K -12 schools.
b) Remote Voice Evacuation Amplifiers shall be:

1) Silent Knight Farenhyt ECS-50W
2) Silent Knight Farenhyt ECS-DUAL50W
3) Silent Knight Farenhyt ECS-125W.

C. Network Nodes

1. Network Nodes, if required, shall be Silent Knight Farenhyt IFP-2000 or IFP-2000ECS.

a) All Network systems shall have at least one (1) IFP-2000ECS node for compliance with CFC required Emergency Voice/Alarm Communication in K -12 schools.
b) All Network Nodes shall have the capability of being connected with either copper cable or fiber optic cable.

D. Remote Annunciator

1. The remote annunciator shall be Silent Knight Farenhyt RA-2000

a) The remote annunciator shall have 160 character LCD display and 5 LED’s for general alarm, supervisory, systems trouble, system silence and system power.
b) The remote annunciator shall have the same control and display layout as the integrated annunciator at the FACP.
c) The remote annunciator shall have the same functionality and operation as the integrated annunciator at the FACP.
d) The remote annunciator shall have twenty (20) levels of user codes to limit access to the system to authorized individuals.
e) The remote annunciators shall be capable of operating at a maximum wiring distance of 6,000 feet from the control unit on unshielded, non-twisted cable.
f) The system shall support a maximum of eight (8) remote annunciators.

E. The Serial/Parallel Interface Gateway Module shall be Silent Knight Farenhyt 5824

1. The 5824 shall be connected to the S-bus and provide serial and parallel ports for connection to peripheral devices.

F. Remote Power Supply

1. The Intelligent Remote Power Supply shall be Silent Knight Farenhyt RPS-1000 or Silent Knight 5496.

a) The Intelligent Remote Power Supply shall be connected to the FACP via S-bus.

1) The RPS-1000 shall have the capability of accommodating all IFP-2000 add-on modules including the 5815XL SLC Expander.
2) The RPS-1000 shall have 6 amps of output power, six flexput circuits rated at 3 amps each and two form C relay circuits rated at 2.5 amps at 24VDC.
3) The 5496 shall have 6 amps of output power, 4 output circuits that may be programmed as NAC or Auxiliary Power.

b) The Intelligent Remote Power Supply shall act as a bus repeater allowing connection of additional S-bus devices to a maximum wiring distance of 6,000 feet from the power supply.
c) The Intelligent Remote Power Supply shall have on-board synchronization for System Sensor NAC devices.

1) Horns and strobes shall be synchronized on the same two-wire NAC circuit.

G. Signaling Line Circuit (SLC) Devices

1. Each SLC shall be capable to accommodating 159 addressable detectors and 159 addressable modules.
2. Provide SLC devices as indicated on the construction drawings. All devices shall be listed for compatibility with the IFP-2000 FACP.

a) SLC Isolation Module shall be Silent Knight IDP-ISO.
b) Ceiling mounted smoke detector shall be Silent Knight IDP-Photo.
c) Ceiling mounted fixed temperature heat detector shall be Silent Knight IDP-Heat-HT.
d) Attic mounted heat detector shall be Silent Knight IDP-Heat-HT or System Sensor 5602 with IDP-Minimon Monitor Module.
e) Outdoor elevator lobby device shall be Weatherproof Conventional Heat Detector Thermotech #302-AW-135 with IDP-Minimon Monitor Module.
f) Addressable Relay Module shall be Silent Knight IDP-Relay.
g) Addressable Input Module shall be Silent Knight IDP-Monitor.
h) Addressable Mini Input Module shall be Silent Knight IDP-Minimon.
i) Addressable Beam Detector shall be Silent Knight IDP-Beam-T
j) Addressable Manual Pull Station shall be Silent Knight IDP-Pull-DA.
k) Addressable Duct Mounted Smoke Detector shall be Silent Knight IDP-PhotoR with DNR Housing and Sampling Tubes.

1) Where allowed by code, addressable relay modules shall be utilized for code required HVAC unit shut down in lieu of duct mounted smoke detectors.

2) Where allowed by code, addressable relay modules in conjunction with line-voltage isolation relays shall be utilized to control Fire/Smoke Damper power circuits, in lieu of duct mounted smoke detectors.

H. Notification Appliance Circuit (NAC) Devices

1. NAC devices shall be the product of System Sensor. All devices shall be listed for compatibility with the IFP-2000 FACP.

a) Wall mount multi-candela horn/strobe shall be System Sensor P2R, two-wire, red in color.
b) Ceiling mount multi-candela horn/strobe shall be System Sensor PC2W, two-wire, white in color.
c) Wall mounted multi-candela strobe shall be System Sensor SR, red in color.
d) Ceiling mount multi-candela strobe shall be System Sensor SCW, white in color.
e) Exterior weatherproof horn shall be System Sensor HRK, red in color.
f) Wall mount multi-candela speaker/strobe shall be System Sensor SPSR, four-wire, red in color. (For use in voice evacuation applications only)
g) Ceiling mount multi-candela speaker/strobe shall be System Sensor SPSCW, four-wire, white in color. (For use in voice evacuation applications only)
h) Exterior weatherproof speaker shall be System Sensor SPRK-R, red in color. (For use in voice evacuation applications only)

I. Line-Voltage Isolation Relay

1. Line-Voltage Isolation Relay shall be System Sensor PR-1, Air Products PAM-1, MR101C or RIC-1.

a) All relays shall be California State Fire Marshal (CSFM) listed.

J. System Wire/Cable

1. All Fire Alarm System Wire and Cable shall be installed in conduit, unless noted otherwise.

a) Interior

1) SLC cable shall be #16AWG, 2-conductor, unshielded, FPL, red jacket by Falcon Fine Wire #450216R, or equal.

(a) SLC cable shall be California State Fire Marshal (CSFM) listed.

2) NAC Wire shall be #12 AWG THHN/THWN, stranded color red and black.
3) S-bus cable shall be #16AWG, 4-conductor, unshielded, FPL, red or black jacket by Falcon Fine Wire #450416R, or equal.

(a) S-Bus cable shall be California State Fire Marshal (CSFM) listed.

4) Speaker cable shall be #18AWG, 2-conductor, shielded, FPL, red jacket by Falcon Fine Wire #460218R, or equal.

(a) Speaker cable shall be California State Fire Marshal (CSFM) listed.

5) Network Fiber Optic Cable shall be 6-strand 62.5/125 micron multimode Indoor/Outdoor OCC DX006DWLS9KR, or equal, with ST connectors.

b) Exterior

1) SLC cable shall be #16AWG, 2-conductor, unshielded, FPL, water-blocked, black jacket by Falcon Fine Wire #400216H2O, or equal.

(a) SLC cable shall be California State Fire Marshal (CSFM) listed.

2) NAC Wire shall be #12 AWG THHN/THWN, stranded color red and black.
3) S-bus cable shall be #16AWG, 4-conductor, unshielded, FPL, water-blocked, black jacket by Falcon Fine Wire #400416H2O, or equal.

(a) S-Bus cable shall be California State Fire Marshal (CSFM) listed.

4) Speaker cable shall be #18AWG, 2-conductor, shielded, FPL, water-blocked, black jacket by Falcon Fine Wire #410218H2O, or equal.

(a) Speaker cable shall be California State Fire Marshal (CSFM) listed.

5) V-Bus cable shall be #18AWG, 2-conductor, shielded, FPL, water-blocked, black jacket by Falcon Fine Wire #410218H2O, or equal.

(a) Speaker cable shall be California State Fire Marshal (CSFM) listed.

6) Network Fiber Optic Cable shall be 6-strand 62.5/125 micron multimode Indoor/Outdoor OCC #DX006DWLS9KR, or equal, with ST connectors.

PART 3 - EXECUTION

3.1 DIVISION OF WORK

A. While all work included under this specification is the complete responsibility of the Electrical Contractor, the division of actual work listed following shall occur.

1. All conduits with pull cords, all electrical pull boxes, grounding rods, all outlet boxes, terminal cabinets, backboards, etc., which form part of the rough-in work shall be provided and installed completely by the Electrical Contractor. Coordinate as necessary for proper installation.

a) Equipment specific boxes provided by the system manufacturer shall be provided by System Supplier/Installer and installed by the Electrical Contractor.

2. The balance of the system, including installation of initiating devices, notification appliances and equipment, making all connections, etc., shall be performed by the System Supplier/Installer.

3. All 120VAC power conductors and conduits associated with power circuits to all fire alarm system equipment locations shall be provided and installed by the Electrical Contractor.
4. An insulated stranded copper ground wire shall be provided from each control unit to the building grounding system, in compliance with CEC Article 250, by the Electrical Contractor.
5. Labeling of pullboxes and terminal cabinets shall be provided and installed by the Electrical Contractor.
6. HVAC Unit Shut-down

    a) Conduit for code required HVAC unit shut-down shall be provided and installed by the Electrical Contractor.
    b) Conductors for code required HVAC unit shut-down shall be provided, installed and terminated by the Mechanical Contractor.
    c) Addressable Relay Modules for code required HVAC unit shut-down shall be provided and installed by the Fire Alarm System Supplier/Installer.

3.2 INSTALLATION

A. All work shall be completed in strict accordance with all applicable codes and ordinances, by a Silent Knight Select Farenhyt Engineered Systems Distributor.

B. Cable/Wire

1. All cable/wire for the system specified herein shall be new, unless otherwise noted on plans.
2. System cable/wire and equipment installation shall be in accordance with good engineering practices as established by the California Electrical Code (CEC). Wiring shall meet all applicable electrical codes. All cable/wire shall test free from all grounds and shorts.

    a) All cable/wire shall be continuous between terminals with no splices.

3. All cable/wire shall be labeled at all points of termination. All labeling shall be based on the room numbers as provided by the District/Owner or his representative.
4. Underground cables

    a) Any cable/wire pulled through manholes or pullboxes located below grade, shall be continuous between terminals with no splices underground. The cable/wire shall be intact with no cuts in the protective outer jacket.
    b) All cable/wire in underground vaults/boxes shall be neatly dressed with service loops attached to the sides of the vault/box. Cable/wire shall not come in contact with the ground.

3.3 SYSTEM START-UP

A. All start-up programming and system commissioning shall be performed by a manufacturer’s trained and certified technician currently employed by the System Supplier/Installer.

3.4 SYSTEM VERIFICATION

A. Subsequent to system start-up the system installer shall perform a 100% system pre-test to verify that the following features are functioning properly.

1. All notification appliances
2. All initiation devices
3. All control modules
4. All monitor modules
5. Communication link to monitoring service

3.5 ACCEPTANCE TESTING

A. The system installer shall, in the presence of the Inspector of Record (IOR), perform 100% testing as noted in System Verification above.

3.6 IN SERVICE TRAINING

A. The Contractor shall instruct personnel designated by the District/Owner in the proper use, basic care and maintenance of the system beyond the warranty period. Contractor shall provide up to eight hours of in-service training with this system.

3.7 FACTORY TRAINING & CERTIFICATION

A. When requested by Owner, provide Factory Training for a maximum of two District Technicians.

3.8 RECORD DRAWINGS AND CLOSE-OUT DOCUMENTATION

A. System supplier/installer shall periodically update the General Contractor’s master set of record drawings kept on site.

B. Contractor shall provide the following at close-out.

1. Three (3) hard copies of manufacturer’s maintenance and operation manuals.
2. Three (3) wet signed copies of system warranty.

3.9 WARRANTY

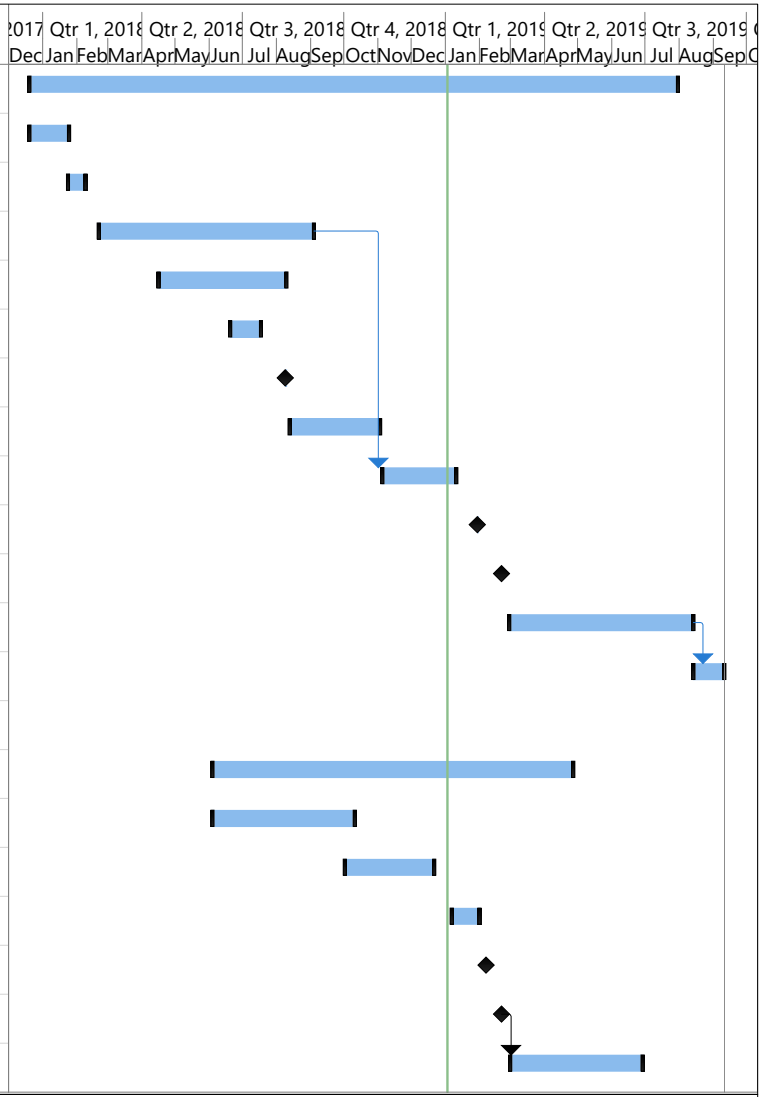
A. The Contractor shall warrant the equipment and/or materials to be new and free from defects in material and workmanship, and will, within three (3) years from the date of final acceptance, repair or replace any equipment and/or materials found to be defective. This warranty shall not apply to any equipment or materials that have been subject to misuse, abuse, negligence or modification by owner or contractors other than the original installer that provided this warranty.

END OF SECTION 283100

EXHIBIT G

PROJECT SCHEDULE

ID	Task Name	Duration	Start	Finish
1	BROADCAST	84.6 wks	Wed 12/20/17	Tue 7/30/19
2	Pre-Design/ Programming	5.2 wks	Wed 12/20/17	Wed 1/24/18
3	Board Submission/ Approval	2.4 wks	Wed 1/24/18	Thu 2/8/18
4	Broadcast Design and Documentation	7 mons	Wed 2/21/18	Mon 9/3/18
5	Pre-Qualification	4.25 mons	Mon 4/16/18	Thu 8/9/18
6	Core Technology Equipment Bid	4 wks	Wed 6/20/18	Tue 7/17/18
7	Equipment Bid Board Approval	1 day	Thu 8/9/18	Thu 8/9/18
8	Finalize Broadcast Bid Documents	12 wks	Mon 8/13/18	Fri 11/2/18
9	Broadcast Integration Bid	2.5 mons	Mon 11/5/18	Thu 1/10/19
10	Submit Documents to Board	1 day	Wed 1/30/19	Wed 1/30/19
11	Board Approval	1 day	Thu 2/21/19	Thu 2/21/19
12	Radio and Broadcast Integration	6 mons	Thu 2/28/19	Tue 8/13/19
13	Broadcast Systems Commissioning and Close Out	1 mon	Wed 8/14/19	Tue 9/10/19
14				
15	BUILDING REPURPOSE	47.2 wks	Mon 6/4/18	Fri 4/26/19
16	Design and Documentation	4.65 mons	Mon 6/4/18	Wed 10/10/18
17	DSA Submission and Approval	3 mons	Tue 10/2/18	Fri 12/21/18
18	Bid	3.8 wks	Mon 1/7/19	Thu 1/31/19
19	Submit Documents to Board	1 day	Thu 2/7/19	Thu 2/7/19
20	Board Approval	1 day	Thu 2/21/19	Thu 2/21/19
21	Construction	4.35 mons	Fri 3/1/19	Fri 6/28/19



Project: KVCR Project Schedule
Date: Thu 1/3/19

Task	Inactive Summary	External Tasks
Split	Manual Task	External Milestone
Milestone	Duration-only	Deadline
Summary	Manual Summary Rollup	Progress
Project Summary	Manual Summary	Manual Progress
Inactive Task	Start-only	
Inactive Milestone	Finish-only	

EXHIBIT I

ACADEMIC CALENDAR

San Bernardino Community College District 2018-2019

June 2018

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

In Service Days
Instruction Begins
Holidays
Semester Grades Due
Flex Days
Semester Ends
CHC/SBVC Commencements
Final Exams
Classes Not In Session- All Offices Open

This side is for quick reference only.

July 2018

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

August 2018

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

September 2018

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

October 2018

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31			

November 2018

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

December 2018

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31					

January 2019

S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

February 2019

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28		

March 2019

S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

April 2019

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

May 2019

S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

June 2019

S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30						

(see reverse for the Official SBCCD Academic Calendar)

11-9-17

San Bernardino Community College District

2018-2019 Academic Year

Fall Semester 2018:

Flex Day (no classes in session) ..... August 9
Faculty In-Service Day ..... August 10
Instruction Begins ..... August 13
Labor Day ..... September 3
Fall Census Day ..... September 4
Flex Day (no classes in session) ..... October 2
Veterans Day ..... November 12
Thanksgiving Recess ..... November 22-24
Final Exams/Saturday Classes ..... December 8
Final Exams ..... December 10-14
Fall Semester Ends ..... December 14
Fall Semester Grades Due ..... December 21
Campus Closed ..... December 25-January 1

Spring Semester 2019:

Flex Day (no classes in session) ..... January 10
Faculty In-Service Day ..... January 11
Instruction Begins ..... January 14
Martin Luther King Day ..... January 21
Spring Census Day ..... February 4
Lincoln's Birthday ..... February 15
Washington's Birthday ..... February 18
Spring Recess ..... March 11-16
Flex Day (no classes in session) ..... April 9
Final Exams ..... May 17-23
Final Exams/Saturday Classes ..... May 18
Spring Semester Ends ..... May 23
CHC & SBVC Campus Graduation ..... May 24
Faculty In-Service Day ..... May 24
Memorial Day ..... May 27
Spring Semester Grades Due ..... May 30

Short Term Courses ..... Grades due 7 calendar days after last day of class
Flex Days ..... 4 days of Required Flex to be completed by contract faculty

2018-2019 Census Days

Fall Census Day - September 4
Spring Census Day - February 4

San Bernardino Community College District

2019 – 2020

Jul 2019						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	28	30	31			

Aug 2019						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Sep 2019						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30					

Oct 2019						
S	M	T	W	T	F	S
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		

Nov 2019						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

Dec 2019						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Jan 2020						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	

Feb 2020						
S	M	T	W	T	F	S
						1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29

Mar 2020						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Apr 2020						
S	M	T	W	T	F	S
			1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30		

May 2020						
S	M	T	W	T	F	S
					1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

Jun 2020						
S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30				

LEGEND

Flex Days		Aug 15, Sep 27, Jan 9, Apr 8		
In-Service Days		Aug 16, Jan 10, May 22 (Commencement)		
Term Start Days		Aug 19 (Fall) and Jan 13 (Spring)		
Final Exam Weeks		Dec 14 – 20 (Fall) and May 15 – 21 (Spring)		
Spring Break		March 16 – 21		
Holidays		Jul 4 (Independence Day)	Sep 2 (Labor Day)	Nov 11 (Veteran's Day)
		Nov 28 – 30 (Thanksgiving)	Dec 25 – Jan 1 (Winter Break)	Jan 20 (MLK Day)
		Feb 7 (Lincoln's Bday)	Feb 17 (Washington's Bday)	May 25 (Labor Day)

This side is for quick reference only (see reverse for the Official SBCCD Academic Calendar)

5-10-18

San Bernardino Community College District

2019-2020 Academic Year

Fall Semester 2019:

Flex Day (no classes in session)	August 15
Faculty In-Service Day	August 16
Instruction Begins	August 19
Labor Day	September 2
Fall Census Day	September 9
Flex Day (no classes in session)	September 27
Veterans Day	November 11
Thanksgiving Recess	November 28-30
Final Exams/Saturday Classes	December 14
Final Exams	December 16-20
Fall Semester Ends	December 20
Fall Semester Grades Due	December 27
Campus Closed	December 25-January 1

Spring Semester 2020:

Flex Day (no classes in session)	January 9
Faculty In-Service Day	January 10
Instruction Begins	January 13
Martin Luther King Day	January 20
Spring Census Day	February 3
Lincoln's Birthday	February 7
Washington's Birthday	February 17
Spring Recess	March 16-21
Flex Day (no classes in session)	April 8
Final Exams	May 15-21
Final Exams/Saturday Classes	May 16
Spring Semester Ends	May 21
CHC & SBVC Campus Graduation	May 22
Faculty In-Service Day	May 22
Memorial Day	May 25
Spring Semester Grades Due	May 28

Short Term Courses ..... Grades due 7 calendar days after last day of class

Flex Days ..... 4 days of Required Flex to be completed by contract faculty

2019-20 Census Days

Fall Census Day - September 9
Spring Census Day - February 3

5-10-18