

PROJECT MANUAL

Murrieta Valley High School
Automotive Lift

Murrieta Valley Unified School District
Murrieta, CA

BNds Project Number 13013-00

May 2, 2017

PROJECT MANUAL

for the construction of

Murrieta Valley High School Automotive Lift

for

Murrieta Valley Unified School District

Prepared by

BakerNowicki Design Studio

731 Ninth Avenue, Suite A

San Diego, CA 92101

SIGNATURES

Murrieta Valley High School Auto Lift
~~Murrieta Mesa High School Theater Enhancements~~
BNds Project No. 13013-00

PROJECT

Murrieta Valley Unified School District
Murrieta, California

OWNER

BakerNowicki Design Studio
731 Ninth Avenue, Suite A
San Diego, CA 92101
(619) 795-2450



ARCHITECT

STRUCTURAL ENGINEER:
KNA CONSULTING ENGINEERS
9931 MUIRLANDS BLVD.
IRVINE, CA 92618
(949) 462-3200



CONSULTANTS

MECHANICAL ENGINEER:
DUFOE CONSULTING ENGINEERS
9665 CHESAPEAKE DRIVE, SUITE 420
SAN DIEGO, CA 92123
(858) 368-8630



ELECTRICAL ENGINEER:
JOHNSON CONSULTING ENGINEERS
12875 BROOKPRINTER PLACE, SUITE 300
POWAY, CA 92064
(858) 679-4030



DSA APPROVAL

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Murrieta Valley High School Auto Lift
Murrieta Valley Unified School District
BNds #13013-00

SIGNATURES
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GENERAL CONDITIONS

Murrieta Valley High School Auto Lift

MURRIETA VALLEY UNIFIED SCHOOL DISTRICT
41870 McAlby Court
Murrieta, CA 92562

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ARTICLE 1

GENERAL CONDITIONS

1.1 BASIC DEFINITIONS

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

1.1.2 Approval means written authorization through action of the governing board unless specific delegation of approval authority is delegated to a District representative.

1.1.4 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.

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

1.1.6 Contract or Agreement When the terms are used in these General Conditions shall be references to the Contract Documents as defined herein.

1.1.7 The Contract Documents The Contract Documents consist of the Agreement between District and Trade Contractor (hereinafter the Agreement), Conditions of the Contract (General, Supplementary and other Conditions), Drawings, Specifications, addenda issued prior to bid, instructions to bidders, notice to bidders, and the requirements contained in the Bid Documents, other documents listed in the Agreement, and Modifications issued after execution of the Contract. A Modification is a written amendment to the Contract signed by both parties, a Change Order, a Construction Change Directive, or a written order for a minor change in the Work issued by the Architect. The Contract Documents collectively form the Contract. The Contract represents the entire and integrated agreement between the parties hereto and supersedes prior negotiations, representations, or agreements, either written or oral. The Contract may be amended or modified only by a written Modification. The Contract Documents shall not be construed to create a contractual relationship of any kind between the Architect and Trade Contractor, between the District and any Subcontractor or Sub-subcontractor, or between any persons or entities other than the District and the Trade Contractor. The Architect shall, however, be entitled to performance and enforcement of obligations under the Contract intended to facilitate performance of the Architect's duties.

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

1.1.9 Days means calendar days.

1.1.10 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.

1.1.11 The Drawings are graphic and pictorial portions of the Contract 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.

1.1.12 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.

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

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

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

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

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

1.1.18 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.

1.1.19 The Specifications 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.

1.1.20 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.

1.1.21 Subcontractor, as used herein, includes those having direct or indirect contracts with Trade Contractor and ones who furnished labor, material or services for a special design according to plans, drawings, and specifications of this Work, but does not include ones who merely furnish material not so worked.

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

1.1.23 Work of the Trade Contractor or Subcontractor shall include all labor, materials and equipment necessary for the Trade Contractor to fulfill all of its obligations pursuant to the Contract Documents. It shall include the initial obligation of any Trade 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 Trade Contractor or

Subcontractor shall also thoroughly examine and become familiar with the Drawings, Specifications, and associated bid documents before preparing and submitting any bid.

1.1.24 Workers includes laborers, workers, and mechanics.

1.1.25 DSA means The Division of the State Architect.

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 Trade 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 Trade 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 Trade 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 therefrom as being necessary to complete the Work), shall be provided by the Trade Contractor to provide a complete Project. It is intended that the Work be of sound, quality construction, and the Trade 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.

1.2.1.4 *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, Trade 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 Trade Contractor observes any violation of any law, ordinance, code, rule or regulation, or inconsistency with the Contract Documents, Trade Contractor shall, within five (5) days, notify Architect 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 Trade Contractor shall bear all expenses of correcting Work done contrary to said laws, ordinances, rules, and regulations if the Trade Contractor performed same (1) without first consulting the Architect for further instructions regarding said Work or (2) disregarded the Architect's instructions regarding said work.

1.2.1.5 *Ambiguity and Inconsistency.* Before commencing any portion of the Work, Trade Contractor shall carefully examine all Drawings and Specifications and other information given to Trade Contractor as to materials and methods of construction and other Project requirements. Trade Contractor shall, within five (5) days, notify Architect 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 Trade 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, Trade Contractor shall bear any and all costs arising therefrom including, without limitation, the cost of correction thereof without increase or adjustment to the Contract Price or the time for performance. If Trade Contractor performs, permits, or causes the performance of any Work under the Contract Documents prepared by or on behalf of Trade Contractor which is in error, inconsistent or ambiguous, or not sufficiently detailed or explained, Trade 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 authorized in writing by the District or Architect and DSA, 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. Trade Contractor is responsible for all deferred approval requirements set forth in the Contract Documents. Trade 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 Marshall. Trade 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). Trade Contractor shall schedule all deferred approval items in its progress schedule pursuant to Article 3. If Trade Contractor fails to include deferred-approval items in its schedule which results in a critical path delay, then Trade 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 supplementary general conditions 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 "Trade 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 Trade Contractor's proposal unless directed otherwise. If applicable specifications are revised prior to completion of any part of the Work, the Trade Contractor may, if acceptable to Architect, 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 In the event of conflict within the drawings, the following rules shall apply:

- (a) General Notes, when identified as such, shall be incorporated into other portions of Drawings.
- (b) Schedules, when identified as such, are complementary with other notes and other portions of Drawings including those identified as General Notes.
- (c) Larger scale drawings shall take precedence over smaller scale drawings.
- (d) At no time shall the Trade Contractor base construction on scaled drawings.

1.2.4.2 Specifications shall govern as to materials, workmanship, and installation procedures.

1.2.4.3 If Trade Contractor observes that drawings and specifications are in conflict, Trade Contractor shall, within five (5) days, notify the Architect in writing for the purposes of obtaining an interpretation of the Contact Documents.

1.2.4.4 In the case of conflict or inconsistencies, the order of precedence shall be as follows:

- (a) General Conditions take precedence over Drawings and Specifications.
- (b) Special Conditions take precedence over General Conditions.
- (c) The Agreement shall take precedent over the Special Conditions.
- (d) In the case of disagreement or conflict between or within standards, specifications, and drawings, the more stringent, higher quality, and greater quantity of Work shall apply.

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

The Drawings, Specifications, and other contract documents for the Project are the property of the District and/or Architect pursuant to Education Code section 17316. The Trade Contractor may retain one contract record set. Neither the Trade 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 Trade 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 Trade Contractor are not to be used by the Trade 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 Trade 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.

1.4 USE OF PREMISES

1.4.1 *General.* Contractor shall have limited use of premises for construction operations as indicated on Drawings by the Contract limits.

1.4.2 *Use of Site.* Limit use of premises to work in areas indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

- (a) *Driveways and Entrances:* Keep driveways and entrances serving premises clear and available to Owner, Owner's employee's, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
- (b) *Deliveries:* Schedule deliveries to minimize use of driveways and entrances. Minimize space and time requirements for storage of materials and equipment on- site.

1.4.3 *Use of Existing Buildings.* Maintain existing buildings in a weathertight condition throughout construction period. Repair damage caused by construction operations. Protect building and its occupants during construction period.

1.4.4 *Existing Furniture.* Relocate Owner's existing furniture and equipment as necessary to allow construction activities. Replace furniture and equipment to its original position and condition when construction is complete.

1.5 OWNER'S OCCUPANCY REQUIREMENTS

1.5.1 *Full Owner Occupancy.* Owner will occupy site and buildings during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the work so as not to interfere with Owner's day-to-day operations. Maintain existing exits, unless otherwise indicate.

- (a) Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

1.6 HOURS OF WORK - WORK RESTRICTIONS

1.6.1 *On-Site Work Hours.* When school is not in session, work shall be generally performed during normal business working hours of 7:00 a.m. to 5:30 p.m., Monday through Friday. When school is in session, work shall be generally performed after school hours from 3:30 p.m. to 6:00 a.m., Monday through Friday. The District's school calendar is posted on the District's website at www.murrieta.k12.ca.us, and is updated periodically.

1.6.2 *Work Outside Regular Hours.* Work outside regular working hours requires Owner approval and is subject to the following restrictions:

- (a) Work hours on week-ends and evenings shall comply with applicable City of Murrieta ordinances.
- (b) For work after dark, obtain approval from Owner's Representative for location of any lights that are used outside the buildings.

1.6.3 *Utility Interruptions.* Do not interrupt utilities serving facilities occupied by Owner or others unless notification is given to Owner's Representative not less than two days in advance of proposed utility interruptions

End of Article 1

ARTICLE 2

DISTRICT

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. The Owner's Surveyor shall provide the field engineering and any staking work as noted in Specification Section 01 12 00, Exhibit A. Contractor is responsible for any additional layout, field engineering, & staking as may be required to complete work for own trade.

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 are complementary to the Plans and Specifications. In case of conflict between the Plans, Specifications, and the Soils Reports the more stringent applies as interpreted by the Architect- Engineer.

2.1.3 Site Conditions

Trade contractor is fully responsible to ascertain site conditions for the purposes of determining construction means and methods prior to commencing construction.

2.1.4 Utilities.

2.1.4.1 Regional Notification Center. Trade 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 Trade Contractor unless such an inquiry identification number has been assigned to the Trade Contractor or any subcontractor of the Trade Contractor and the District has been given the identification number by the Trade Contractor. Any damages arising from failure to make appropriate regional notification shall be at the sole risk of Trade Contractor. Any delays caused by failure to make appropriate regional notification shall be at the sole risk of Trade Contractor and shall not be considered for extension of time pursuant to paragraph 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 Trade Contractor to determine the exact location of all service connections. The Trade 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 Trade Contractor shall immediately notify the District's representative as to any utility discovered by Trade Contractor in a different position than shown in the Contract Documents or which is not shown on the Contract Documents.

Trade 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.

2.1.4.3 Other Utilities.

In case it should be necessary to remove, relocate, or temporarily maintain a utility because of interference with the Work, the work on the utility shall be performed and paid for as follows:

When it is necessary to remove, relocate or temporarily maintain a service connection, the cost of which is not required to be borne by the owner thereof, the Trade Contractor shall bear all expenses incidental to the work on the service connection. The work on the service connection shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the service connection has the option of doing such work with his own forces or permitting the work to be done by the Trade Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is in the position shown on the plans, the cost of which is not required to be borne by the owner thereof, the Trade Contractor shall bear all expenses incidental to the work on the utility. The work on the utility shall be done in a manner satisfactory to the owner thereof; it being understood that the owner of the utility has the option of doing such work with his own forces or permitting the work to be done by the Trade Contractor.

When it is necessary to remove, relocate, or temporarily maintain a utility which is not shown on the plans or is in a position different from that shown on the plans and were it in the position shown on the plans would not need to be removed, relocated, or temporarily maintained, and the cost of which is not required to be borne by the owner thereof, the District will make arrangements with the owner of the utility for such work to be done at no cost to the Trade Contractor, or will require the Trade Contractor to do such work in accordance with Article 7 or will make changes in the alignment and grade of the Work to obviate the necessity to remove, relocate, or temporarily maintain the utility. Changes in alignment and grade will be ordered in accordance with Article 7 herein.

No representations are made that the obligations to move or temporarily maintain any utility and to pay the cost thereof is or is not required to be borne by the owner of such utility, and it shall be the responsibility of the Trade Contractor to investigate to find out whether said cost is required to be borne by the owner of the utility.

The right is reserved to governmental agencies and to owners of utilities to enter at any time upon any street, alley, right-of-way, or easement for the purpose of making changes in their property made necessary by the Work and for the purpose of maintaining and making repairs to their property.

2.1.5 Existing Utility Lines; Removal, Relocation.

2.1.5.1 Main or Trunkline Facilities

If the Trade Contractor while performing the contract discovers utility facilities not identified by the District in the Contract Documents, Trade Contractor shall, within five (5) days, notify the District and utility in writing.

The District has the responsibility to identify, with reasonable accuracy, main or trunkline facilities on the plans and specifications. In the event that main or trunkline utility facilities are not identified with reasonable accuracy in the plans and specifications and made a part of the invitation for bids, District shall assume the responsibility for their timely removal, relocation, or protection.

The owner of the public utility shall have the sole discretion to perform repairs or relocation work or permit the Trade Contractor to do such repairs or relocation work at a reasonable price.

The Trade Contractor shall exercise reasonable care and shall be compensated by the District for the actual verified field costs of locating, and removing, relocating, protecting or temporarily maintaining such main or trunkline utility facilities not indicated with reasonable accuracy in the plans and specifications, and for equipment in use on the Project necessarily idled during such work. This work shall be performed in accordance with Article 7 of these General Conditions.

Alternatively, District may make changes in the alignment and grade of the work to obviate the need to remove, relocate, or temporarily maintain the utility, in accordance with Article 7 or District may make arrangements with the owner of the utility for such work to be done at no cost to the Trade Contractor.

The Trade Contractor shall not be assessed a forfeiture for delay in completion of the Project when such delay is caused by the failure of the District or the owner of the utility to provide for the removal, relocation, protection or temporary maintenance of all such main or trunkline facilities not indicated with reasonable accuracy.

Nothing herein shall preclude the District from pursuing any appropriate remedy against the utility for delays which are the responsibility of the utility.

Nothing herein shall be construed to relieve the utility from any obligation as required either by law or by contract to pay the cost of removal or relocation of existing utility facilities.

2.1.5.2 Assessment. These subparagraphs shall not be construed to preclude assessment against the Trade Contractor for any other delays in completion of the Work. Nothing in these subparagraphs shall be deemed to require the District to indicate the presence of existing service laterals or appurtenances whenever the presence of such utilities on the Site can be inferred from the presence of other visible facilities, such as buildings, or meter junction boxes on or adjacent to the Site.

2.1.5.3 Notification. If the Trade Contractor, while performing Work under this Contract, discovers utility facilities not identified by the District in the Contract Documents. Trade Contractor shall, within five (5) days, notify the District and the utility in writing. If Trade Contractor fails to notify the District within forty eight hours after discovery of any utility facilities not identified by District in the Contract Documents, Trade Contractor waives all rights to be compensated for any extra Work or damages resulting from such discovered utilities.

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 Trade Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, including, but not limited to:

1. Failure to supply adequate workers on the entire Project or any part thereof;
2. Failure to supply a sufficient quantity of materials;
3. Failure to perform any provision of this Contract;
4. Failure to comply with safety requirements, or due to Trade Contractor is creation of an unsafe condition;
5. In the case of bona fide emergency;
6. Failure to order materials in a timely manner;
7. Failure to prepare deferred-approval items or shop drawings in a timely manner;
8. Failure to comply with Trade Contractor's schedule which would result in a delay to the critical path;
9. Failure to comply with the Subletting and Subcontracting Fair Practices, Public Contract Code section 4100, et seq.
10. Failure to diligently carry out work as directed by the District or District's representatives.

If the Trade Contractor defaults or neglects to carry out the Work in accordance with the Contract Documents, and fails (within a five-day 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 five-day written notice to Trade Contractor and Surety. If during this five (5) 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 such case, the Trade 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 Trade Contractor. If payments then or thereafter due the Trade Contractor are not sufficient to cover such amounts, the Trade Contractor shall pay the difference to the District.

End of Article 2

ARTICLE 3

THE TRADE CONTRACTOR

3.1 SUPERVISION AND CONSTRUCTION PROCEDURES

3.1.1 Trade Contractor.

The Trade Contractor shall continually supervise and direct the Work using the Trade Contractor's best skill and attention. The Trade 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 Trade 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, Trade 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 Trade 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:

- (a) Responsibilities. It is the duty of the Trade Contractor to complete the Work covered by his or her contract in accordance with the approved plans and specifications. The Trade Contractor in no way is relieved of any responsibility by the activities of the Architect, Engineer, Inspector or DSA in the performance of their duties.
- (b) Performance of the work. The Trade Contractor shall carefully study the approved plans and specifications 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 plans and specifications, the Trade Contractor shall correct the work immediately.

All inconsistencies or times which appear to be in error in the plans and specifications shall promptly be called to the attention of the Architect or, Engineer, for interpretation or correction. Local conditions which may affect the structure 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 plans, specifications, change orders, and as required by law.

The Trade Contractor shall not carry on Work except with the knowledge of the Inspector of Record.

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

Trade Contractor shall fully comply with any and all reporting requirements of Education Code sections 17315, et seq., in the manner prescribed by Title 24, as applicable.

3.1.2 Trade Contractor Responsibility.

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

3.1.3 Obligations not Changed by Architect's Actions.

The Trade 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 in the Architect's administration of the Contract or by tests, inspections, or approvals required or performed by persons other than the Trade Contractor.

3.1.4 Acceptance/Approval of Work.

The Trade Contractor shall be responsible to determine when any completed portions of the Work already performed under this Contract or provided pursuant to Article 6 are suitable to receive subsequent Work thereon.

3.1.5 Performance of Work With Own Force.

Trade Contractor shall perform at least 15% of the Work, exclusive of supervisory and clerical work, without the services of any subcontractor. Trade Contractor 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 SUPERINTENDENT

3.2.1 Full Time Superintendent.

The Trade Contractor shall provide a competent superintendent, approved by the District, who is capable of communicating with District staff and any necessary assistants. The Superintendent shall continually be in attendance at the Project site during performance of the Work. Work shall not be performed without the presence of a Superintendent. The Superintendent shall have authority to bind Trade Contractor through the Superintendent's acts. The Superintendent shall represent the Trade Contractor, and communications given to the Superintendent shall be binding on the Trade Contractor. Before commencing the Work, Trade Contractor shall give written notice to District and Architect of the name and a Statement of Qualifications of such superintendent. Superintendent shall not be changed except with written consent of District, unless a superintendent proves to be unsatisfactory to Trade Contractor and ceases to be in its employ, in which case, Trade Contractor shall notify District and Architect in writing. Trade 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 Trade 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.

District shall have the right, but not the obligation, to require the removal from the Project of any superintendent, staff member, agent, or employee of any Trade Contractor, Subcontractor, material or equipment supplier.

3.3 LABOR AND MATERIALS

3.3.1 Trade Contractor to Provide.

Unless otherwise provided in the Contract Documents, the Trade Contractor shall provide and pay for labor, material, equipment, tools, construction equipment and machinery, water, heat, air conditioning, utilities, transportation, and other facilities, services and permits 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 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 Trade Contractor shall, if requested, furnish satisfactory evidence as to kind and quality of all materials and equipment within ten (10) days of a written request by the District, including furnishing the District with bona fide copies of invoices for materials or services provided on the Project. 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 school construction.

3.3.3 Replacement.

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

3.3.4 Discipline.

The Trade Contractor shall enforce strict discipline and good order among the Trade Contractor's and Subcontractor's employees, and other persons carrying out the Contract. The Trade 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 who the District concludes is improperly skilled for the task assigned to that person, who fails to comply with the requirements of this article, or who creates safety hazards which jeopardize other persons and/or property.

3.3.5 Fingerprinting.

If applicable, Trade Contractor shall comply with all provisions of Education Code section 45125.1. Pursuant to Education Code 45125.1. Trade Contractor shall conduct criminal background checks of all employees of Trade Contractor assigned to the Project site, and shall certify that no employees who have been convicted of serious or violent felonies, as specified in Education Code section 45125.1, will have contact with pupils. As part of such certification, Trade Contractor must provide the District with a list of all employees providing services pursuant to this Agreement, and designate which

sites such employees will be assigned. In performing the services set forth in this Agreement, Trade Contractor shall not utilize any employees who are not included on the above-referenced list. At District's sole discretion, District may make a finding, as authorized under Education Code section 45125.1, that Trade Contractor's employees will have only "limited contact" with pupils. Trade Contractor's failure to comply with this law shall be considered a material breach of this Agreement upon where this Agreement may be terminated, at District's sole discretion, without any further compensation to Trade Contractor.

3.3.6 Noise, Drugs, Tobacco, and Alcohol.

Trade Contractor shall take all steps necessary to insure that employees of Trade 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. Trade 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, Trade Contractor shall prevent its employees or subcontractor's employees from bringing any animal onto the Project. Contractors shall not violate any written school policies.

3.3.7 Delivery of Material.

Trade Contractor shall place orders for materials or 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. Trade Contractor shall, upon demand from the Architect, furnish to the Architect 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.

3.3.8 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. Trade 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. Trade 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 any right to place a lien upon the premises or any improvement or appurtenance thereof, except that Trade 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, Trade Contractor shall advise District as to its owner within five (5) days of such installation in writing, prior to making the installation.

3.3.9 Title to Materials

The title to new materials or equipment for the Work of this Contract, and attendant liability for its protection and safety, shall remain with Trade Contractor until incorporated in the Work of this Contract and accepted by the District and Architect; no part of said materials shall be removed from its place of storage, and Trade Contractor shall keep an accurate inventory of all said materials and equipment in a manner satisfactory to the District or its authorized representative.

3.3.10 Assemblies.

For all material and equipment specified or indicated in the Drawings, the Trade Contractor shall provide all labor, materials, 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, material and equipment shall be installed in strict accordance with each manufacturer's most recent published recommendations and specifications.

3.4 WARRANTY

The Trade Contractor warrants to the District and Architect that material 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. Trade Contractor's warranty to District includes, but is not limited to the following representations:

- (a) In addition to any other warranties provided elsewhere, Trade Contractor shall, and hereby does, warrant all Work after the date of Notice of Completion, Notice of Beneficial Occupancy or date of Substantial Completion of Work by District and shall repair or replace any or all such work, together with any other work, which may be displaced in so doing that may prove defective in workmanship or materials within a two (2) year period from date of completion as defined in Public Contract Code section 7107(c) without expense whatsoever to District, ordinary wear and tear, unusual abuse or neglect excepted. District will give notice of observed defects with reasonable promptness. Trade Contractor shall notify District upon completion of repairs.
- (b) In the event of failure of Trade 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 Trade Contractor who hereby agrees to pay costs and charges therefore immediately on demand.
- (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 Trade 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 Trade Contractor. Such action by the District will not relieve the Trade 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. Trade Contractor shall furnish District all appropriate guarantee or warranty certificates upon completion of the Project.

3.5 TAXES

Trade 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 Trade Contractor shall secure and pay for 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). District shall be responsible for all testing and inspection as required by the DSA on-site or within the distance limitations set forth in paragraph 13.5.2, unless a different mileage range is specified in the Special Conditions.

3.6.2 Compliance.

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

3.7 [RESERVED]

3.8 TRADE CONTRACTOR'S CONSTRUCTION SCHEDULES

3.8.1 Requirements.

(a) The construction schedule for the project is provided by the Construction Manager, and is included in the bidding documents.

(b) Trade Contractor shall not be granted an extension of time for failure to obtain necessary approvals for deferral approvals due to failure to comply with laws, building codes, and other regulations (including Title 24 of the California Code of Regulations).

(c) District may direct the sequence in which the various portions of work shall be performed and may adjust the project schedule if, at any time, the District or Architect consider the completion date to be in jeopardy because of "activities behind schedule." An activity that cannot be completed by its original latest completion date shall be deemed to be behind schedule.

(d) Failure by trade contractor to complete critical path activities in accordance with the Construction Schedule may result in the District withholding from the trade contractors' progress payment an amount equal to the sum of daily liquidated damages stipulated multiplied by the number of calendar days of said delay.

3.9 DOCUMENTS AND SAMPLES AT THE SITE

The Trade 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 Trade 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 shall be delivered to the Architect for delivery to the District upon completion of the Work.

3.10 SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES

3.10.1 Submittals defined

3.10.1.1 *Shop Drawings*. The term "shop drawings" as used herein means drawings, diagrams, schedules, and other data, which are prepared by Trade 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, equipment, or systems and their position conform to the requirements of the Contract Documents. The Trade 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 Trade 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.

3.10.1.2 *Samples*. The term "samples" as used herein are physical examples furnished by Trade 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 Trade Contractor conform to the required characteristics of the various parts of the Work. All Work shall be in accordance with the approved samples.

3.10.1.3 *Trade Contractor's Responsibilities*. Trade Contractor shall obtain and shall submit all required shop drawings, samples, etc., in accordance with Trade Contractor's "Schedule for Submission of Shop Drawings and Samples" as required in the scheduling portion of the General Conditions at Articles 3.8 or the Specifications with such promptness as to cause no delay in its own Work or in that of any other trade contractor or subcontractor but in no event later than ninety (90) days after the execution of the Contract. No extensions of time will be granted to Trade Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule. Each Subcontractor shall submit all shop drawings, samples, and manufacturer's descriptive data for the review

of the District, the Trade Contractor, and the Architect through the Trade Contractor. By submitting shop drawings, product data, samples, etc., the Trade 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 of the Contract Documents, including the construction schedule. 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 pursuant to paragraph 3.10.4. All deviations from the Contract Documents shall be narratively described in a transmittal accompanying the shop drawings. However, shop drawings shall not be used as a means of requesting a substitution, the procedure for which is defined in paragraph 3.10.4, "Substitutions." Review by District and Architect shall not relieve the Trade Contractor or any Subcontractor from its responsibility in preparing and submitting proper shop drawings in accordance with the Contract Documents. Any submission, which in Architect's opinion is incomplete, contains errors, or has been checked superficially will be returned unreviewed by the Architect for resubmission by the Trade Contractor. Trade 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 Trade Contractor's review through execution of the following stamp to be placed on each shop drawings:

"The Trade 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 Trade Contractor and this duty of coordination has not been delegated to subcontractors, material suppliers, the Architect, or the engineers on this Project.

Signature of Trade Contractor and date

3.10.1.4 *Extent of Review.* In reviewing shop drawings, the Architect 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 review shall neither be construed as a complete check which relieves the Trade 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 Trade Contractor has, in writing, called the Architect's attention to the deviations at the time of submission. The Architect's review shall not relieve the Trade 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. Trade Contractor and Subcontractors shall be solely responsible for any quantities which may be shown on the submittals or Contract Documents.

3.10.2 Drawing Submission Procedure.

3.10.2.1 *Transmittal Letter and Other Requirements.* All shop drawings must be properly identified with the name of the Project and 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 and the numbering system shall be retained throughout all revisions. All Subcontractor submissions shall be made through the Trade Contractor. Each drawing shall have a clear space for the stamps of Architect and Trade Contractor.

3.10.2.2 *Copies Required.* Each shop drawing greater than 11"x17" in size shall include one (1) legible, reproducible sepia and five (5) 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. Trade Contractor is responsible to make and pay for additional copies from the reproducibles as needed by the Owner, Owner's representatives and other Prime Contractors. Subcontractor shall submit copies, in an amount as requested by the Trade 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. Trade Contractor is to provide eleven (11) copies for review and approval of submittals smaller than or equal to 11"x17" of product data, literature and the like. Submittal packages shall be bound, tabbed and indexed.

3.10.2.3 *Corrections.* The Trade Contractor shall make all corrections required by Architect and shall resubmit, as required by Architect, corrected copies of shop drawings or new samples until approved. Trade Contractor shall direct specific attention in writing or on resubmitted shop drawings to revisions other than the corrections required by the Architect 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 Trade Contractor pursuant to paragraph 4.4.

3.10.2.4 *Approval Prior to 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 Trade Contractor and Architect and approved by 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.

3.10.3 Sample Submissions Procedure.

3.10.3.1 *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 Trade 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 duplicate. 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 Specification section number. Each tag or sticker shall have clear space for the review stamps of Trade Contractor and Architect.

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

3.10.3.3 *Architect's Review.* The Architect will review and, if appropriate, approve submissions and will return them to the Trade 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.

3.10.3.4 *Record Drawings and Annotated Specifications.* The Trade Contractor will prepare and maintain on a current basis an accurate and complete set of Record Drawings clearly showing all changes, revisions to specifications and substitutions during construction, including, without limitation, field changes and the final location of all electrical and mechanical equipment, utility lines, ducts, outlets, structural members, walls, partitions, and other significant features, and Annotated Specifications showing clearly all changes, revisions, and substitutions during construction. A copy of such Record Drawings and Annotated Specifications will be delivered to District in accordance with the Trade Contractor's approved construction schedule. In case a specification allows Trade Contractor to elect one of several brands, makes, or types of material or equipment, the annotations shall show which of the allowable items the Trade Contractor has furnished. The Trade Contractor will update the Record Drawings and Annotated Specifications as often as necessary to keep them current, but no less often than weekly. The Record Drawings and Annotated Specifications shall be kept at the Site and available for review and inspection by the District and the Architect. On completion of the Work and prior to Application for Final Payment, the Trade Contractor will provide one complete set of Record Drawings and Annotated Specifications to the District, certifying them to be a complete and accurate reflection of the actual construction conditions of the Work.

3.10.3.5 *Equipment Manuals.* Trade Contractor shall obtain and furnish three (3) 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 Trade Contractor shall certify, by endorsement thereon, that each of the manuals is complete, accurate, and covers all of its Work. Prior to submittal of Trade 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 Trade Contractor, who shall assemble these manuals for all divisions of the Work, review them for completeness, and submit them to the District through the Architect.

3.10.3.6 *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 or Architect.

3.10.4 Substitutions.

3.10.4.1 *One Product Specified.* Unless the Specifications state that no substitution is permitted, 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." Pursuant to paragraph 3.10.4.3, the Trade 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 and the submittal requirements specified in the Contract Documents.

3.10.4.2 *Products Specified Which are Commercially Unavailable.* If the Trade Contractor fails to make a request for substitutions for products, prior to the submission of its bid, and such products subsequently become commercially unavailable, the Trade 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 Trade Contractor and will be deducted from Trade Contractor's pay request.

3.10.4.3 *Substitution Request Form.* Requests for substitutions of products, materials, or processes in place of a Specified Item must in writing on the District's Substitution Request Form ("Request Form") at the time of submitting bids to the District, except as provided for in paragraph 3.10.4.2 at the time stipulated in the Notice Inviting Bids and the Instruction to Bidders.

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

Is equal in quality/service/ability to the Specified Item;

Will entail no changes in detail, construction, and scheduling of related work;

Will be acceptable in consideration of the required design and artistic effect;

Will provide no cost disadvantage to the District;

Will require no excessive or more expensive maintenance, including adequacy and availability of replacement parts; and

Will required no change of the construction schedule.

In completing the Request Form, the bidder must state, with respect to each requested substitution, whether the bidder will agree to provide the Specified Item in the event that the District denies the bidder's request for such requested substitution. In the event that the bidder has agreed in the Request Form to provide the Specified Item and the District denies the bidder's requested substitution for a Specified Item, the bidder shall provide the Specified Item without any additional cost or charge to the District.

After the District's receipt of such evidence by the bidder, the District will make its final decision as to whether the bidder's request for substitution for any Specified Items will be granted. The decision as to whether a proposed request for substitution is equal to a Specified Item shall be at the sole discretion of the District. Any request for substitution that is granted by the District shall be documented and processed though a Change Order. The District may condition its approval of any substitution upon delivery to the District of an extended warranty or other assurances of adequate performance of the substitution. Any and all risks of delay due to approval by the DSA or any other governmental agency having jurisdiction shall be on the bidder.

3.10.4.4 *List of Manufacturers and Products Required.* The Trade Contractor shall require all Subcontractors to prepare and submit to the Trade 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 Trade 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 Trade Contractor and the Architect.

3.10.5 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 Trade Contractor or Trade Contractor's agent early enough so as to not delay the Project. Trade 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 Trade Contractor's.

3.11 INTEGRATION OF WORK

3.11.1 Scope.

The Trade Contractor shall be responsible for cutting, fitting, or patching to complete the Work and to make all parts fit together properly. Trade Contractor shall be responsible for ensuring that all trades 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, Trade 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 Trade Contractor. Trade 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.

3.11.2 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. Work done contrary to such authority is at the Trade 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 Trade Contractor's responsibility.

3.11.3 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 or the District, the patching does not satisfactorily restore quality and appearance of the Work or does not otherwise conform to the Contract Documents.

3.12 CLEANING UP

3.12.1 Trade Contractor's Responsibility.

Trade 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. Trade Contractor shall not leave debris under, in, or about the premises, but shall promptly remove same from the premises and dispose of it in a lawful manner. Disposal receipts or dump tickets shall be furnished to the Construction Manager within five (5) days of request. Upon completion of Work, Trade 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; Trade Contractor shall clean and polish all glass, plumbing fixtures, equipment, finish hardware and similar finish surfaces. Upon completion of the Work, Trade Contractor shall also

remove temporary utilities, fencing, barricades, planking, sanitary facilities and similar temporary facilities from Site.

Trade Contractor shall remove rubbish and debris resulting from the Work on a daily basis. Trade Contractor shall maintain the structures and Site in a clean and orderly condition at all times until acceptance of the Project by the District. Trade 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.

3.12.1.1 In addition to the general cleaning, the following special cleaning applies to all Trade Contractors and 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.

3.12.2 Failure to Cleanup.

If the Trade Contractor fails to clean up as provided in the Contract Documents, the District may do so, and the cost thereof shall be the responsibility of the Trade Contractor and deducted from the next progress payment.

3.13 ACCESS TO WORK

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

3.14 ROYALTIES AND PATENTS

3.14.1 Payment and indemnity for Infringement.

Trade Contractor shall hold and save the District and its officers, agents, and employees, the Architect, and the Architect's consultants 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.

3.14.2 Review.

The review by the Architect 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 Trade Contractor in violation of any patent or other rights of any person or entity.

3.15 INDEMNIFICATION

3.15.1 Trade Contractor.

Trade Contractor shall defend, indemnify and hold harmless District, Architect, 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, Trade Contractor shall protect and defend, at its own expense, District, 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, Trade Contractor agrees to and does hereby defend, indemnify and hold harmless District, 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 Trade Contractor or any person, firm or corporation employed by Trade 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 Trade Contractor and Trade Contractor's subcontractors/supplies/sureties, including, but not limited to, any stop notice actions.

Trade 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.

Trade 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, Inspector, the State of California to a minimum level as set forth in this Article and consistent with the language of 3.15.1.

The Trade Contractor's and Subcontractors' obligation to defend, indemnify and hold harmless the District, Architect, Inspector, the State of California 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 Trade 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.

3.16 SUBMISSION OF DAILY REPORTS

3.16.1 General.

At the close of each working day when authorized extra work items are performed, the Trade Contractor shall submit a daily report to the Architect and the Inspector, on forms approved by the District, together with applicable delivery tickets, listing all labor, materials, and equipment involved for that day. An attempt shall be made to reconcile the report daily, and it shall be signed by the Architect and the Trade Contractor. In the event of disagreement, pertinent notes shall be entered by each party to explain points which cannot be resolved that day. Each party shall retain a signed copy of the report. Reports by subcontractors or others shall be submitted through the Trade Contractor.

3.16.2 Labor.

The report required by paragraph 3.16.1 shall show names of workers, classifications, hours worked and hourly rate. Project superintendent expenses are not allowed.

3.16.3 Materials.

The report required by paragraph 3.16.1 shall describe and list quantities of materials used and unit costs.

3.16.4 Equipment.

The report required by paragraph 3.16.1 shall show type of equipment, size, identification number, and hours of operation, including loading and transportation, if applicable, and hourly/daily cost. Move-on and move-off fees shall be noted.

3.16.5 Other Services and Expenditures.

Other services and expenditures shall be described in detail as the District requires.

End of Article 3

ARTICLE 4

ADMINISTRATION OF THE CONTRACT

4.1 ARCHITECT

4.1.1 Replacement of Architect.

In the case of the termination of the Architect, the District may appoint an 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 17280 *et. seq.* the Architect will provide administration of the Contract Documents and the Work, and will be the District's representative 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.

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.

4.2.3 Limitations of Construction Responsibility.

The Architect shall not have control over, charge of, or be responsible for construction means, methods, techniques, fabrication, procurement, shipment, delivery, receipt, installation, or for safety precautions and programs in connection with the Work, since these are solely the Trade Contractor's responsibility under the Contract Documents. The Architect shall not be responsible for the Trade 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 Construction Manager and Architect shall not have control over or charge of acts or omissions of the Trade Contractor, Subcontractors, their agents or employees, or any other persons or entities performing or supplying portions of the Work. The Trade Contractor shall not be relieved of obligations to perform the Work in accordance with the Contract Documents either by activities or duties of the District or Architect in the District's or Architect's administration of the Contract Documents, or by tests, inspections, or approvals required or performed by persons other than the Trade 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 Trade Contractor shall communicate through the Architect. Where direct communication is necessary between the District and the Trade Contractor, the

District's communication shall be through the District's authorized designee. The District shall be promptly informed, and shall receive copies of all written communications. Trade Contractor shall not rely upon any communications from the District that is not from the District's authorized designee. Communications by and with the Architect's consultants shall be through the District. Communications by and with Subcontractors and material or equipment suppliers shall be through the Trade Contractor.

4.2.5 Payment Applications.

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

4.2.6 Rejection of Work.

In addition to the rights, duties, and obligations of the Inspector under this Article, the Architect may recommend to the District that the District reject Work which does not conform to the Contract Documents. Whenever the Architect considers it necessary or advisable to achieve the intent of the Contract Documents, the Architect may recommend to the District that the District require additional inspection or testing of the Work in accordance with paragraph 13.5, whether or not such Work is fabricated, installed, or completed. However, neither this authority of the Architect 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 to the Trade 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, 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 Trade Contractor, and will issue a final Certificate for Payment when the Architect believes the Work has been completed in compliance with the requirements of the Contract Documents. The handling by the Architect of such warranties, maintenance manuals, or similar documents shall not diminish or transfer to the Architect any responsibilities or liabilities required by the Contract Documents of the Trade Contractor or other entities, parties, or persons performing or supplying the Work.

The Architect will conduct a field review of the Trade Contractor's comprehensive list of items to be completed or corrected (final punch list) and one (1) follow-up field review if required. The cost incurred by the District for further field reviews or the preparation of further punch lists by the Architect shall be invoiced to the Trade Contractor and deducted from the final payment.

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 Architect'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 Trade 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 Trade Contractor from responsibility for full compliance with all terms and conditions of the Contract, or be construed to lessen to any degree the Trade 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 Trade 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 that does not comply with the provisions of the Contract Documents. In addition, the Inspector may stop any Work which poses a probable risk of harm to persons or property. The Trade Contractor shall instruct its employees, Subcontractors, material and equipment suppliers, etc., accordingly. The absence of any Stop Work order or rejection of any portion of the Work shall not relieve the Trade Contractor from any of its obligations pursuant to the Contract Documents.

4.3.4 Inspector's Facilities.

The Contractor shall provide the Project Inspector with the temporary facilities as required under Division 1 of the Specifications.

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 Trade Contractor outside of the normal eight (8) hour day shall constitute an authorization from the Trade Contractor to the District to provide inspection and testing as required outside of the normal eight (8) hour day. Trade 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 Trade Contractor.

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

If at any time prior to the completion of the requirements under the Contract Documents, the District is required to provide or secure additional professional services for any reason by any act of the Trade Contractor, the Trade Contractor shall be invoiced by the District for any costs incurred for any such additional services, which costs shall be deducted from the next progress payment. Such invoicing shall be independent from any other District remedies and shall not be considered a waiver of any District rights or remedies. If payments then or thereafter due to the Trade Contractor are not sufficient to cover such amounts, the Trade Contractor shall pay the difference to the District. Additional services shall include, but shall not be limited to, the following:

- (a) Services made necessary by the default of the Trade Contractor.
- (b) Services made necessary due to the defects or deficiencies in the Work of the Trade Contractor.
- (c) Services required by failure of the Trade 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 Trade 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 Trade Contractor in connection with the Work outside the established Change Order process.
- (f) Services required by the failure of the Trade 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

4.5.1 Decision of Architect.

Disputes between District and Trade Contractor involving money or time, including those alleging an error or omission by the Architect, shall be referred initially to the Architect, for action as provided in paragraph 4.5.2. A decision by the Architect, as provided in paragraph 4.5.5, shall be required as a condition precedent to proceeding with remedies set forth in paragraph 4.5.6 as to all such matters arising prior to the date final payment is due, regardless of whether such matters relate to execution and progress of the Work, or the extent to which the Work has been completed. The decision by the Architect in response to a Claim shall not be a condition precedent to the remedies under paragraph 4.5.2 through 4.5.5 in the event: (1) the position of Architect is vacant; (2) the Architect has not received

evidence or has failed to render a decision within agreed time limit; (3) the Architect has failed to take action required under paragraph 4.6.4 within thirty (30) days after the Claim is made, forty-five (45) days have passed after the Claim has been referred to the Architect; or (4) the Claim relates to a Stop Notice Claim not arising from any extra change or change order for which approval has not been provided.

4.5.2 Architect's Review.

The Architect will review claims and take one or more of the following preliminary actions within ten (10) days of receipt of a claim: (1) request additional supporting data from the claimant; (2) submit a schedule to the parties indicating when the Architect expects to take action; (3) reject the claim in whole or in part, stating reasons for rejection; (4) recommend approval of the claim; or (5) suggest a compromise. The Architect may also, but is not obligated to, notify the surety, if any, of the nature and amount of the claim.

4.5.3 Documentation if Resolved.

If a claim has been resolved, the Architect will prepare or obtain appropriate documentation.

4.5.4 Actions if Not Resolved.

If a claim has not been resolved and all documentation requested pursuant to paragraph 4.5.2 has been provided, the party making the claim shall, within ten (10) days after the Architect's preliminary response, take one or more of the following actions: (1) modify the initial claim; (2) notify the Construction Manager that the initial claim stands; or (3) supplement with additional supporting data.

4.5.5 Architect's Written Decision.

If a claim has not been resolved after consideration of the foregoing and of other evidence presented by the parties or requested by the Architect, the Architect will notify the parties in writing that the Architect's decision will be made within twenty (20) days. Upon expiration of such time period, the Architect will render to the parties its written decision relative to the claim, including any change in the Contract Sum or Contract Time or both. The Architect may, but is not obligated to, notify the surety and request the surety's assistance in resolving the controversy.

4.5.6 Continuing Contract Performance.

Pending final resolution of a Claim, including, negotiation, mediation, arbitration, or litigation, the Trade 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, Trade Contractor agrees it will neither rescind the contract nor stop the progress of the work, but Trade Contractor's sole remedy shall be to submit such controversy to determination by a court of competent jurisdiction in the county where the Project is located, after the Project has been completed, and not before. At the District's sole option, the District may submit individual disputes for binding arbitration and Trade Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized for individual disputes, such resolution is full and final as to that particular claim.

4.5.7. Claims for Concealed Trenches or Excavations Greater Than Four Feet Below the Surface.

When any excavation or trenching extends greater than four feet below the surface or if any condition involving hazardous substances are encountered:

(a) Immediately upon discovery, The Trade Contractor shall promptly, and before the following conditions are disturbed, notify the public entity, by telephone and in writing, of the condition except:

1. If such condition is a hazardous waste condition, Trade Contractor's bid includes removal or disposal of hazardous substances. Material that the Trade Contractor believes may be a material that is hazardous waste, as defined in section 25117 of the Health and Safety Code, that is required to be removed to a Class I, Class II, or Class III disposal site in accordance with the provisions of existing law. In such case, the notice change order procedures of Article 7 apply.

2. Subsurface or latent physical conditions at the Site differing from those indicated.

3. Unknown physical conditions at the Site of any unusual nature, different materially from those ordinarily encountered and generally recognized as inherent in Work of the character provided for in the Contract.

(b) The public entity shall investigate the conditions, and if District finds that the conditions do materially so differ, do involve hazardous waste, and cause a decrease or increase in the Trade Contractor's cost of, or the time required for, performance of any part of the Work shall issue a change order under the procedures described in the Contract.

(c) In the event that a dispute arises between the public entity or District and the Trade Contractor whether the conditions materially differ, involve hazardous waste, or cause a decrease or increase in the Trade Contractor's cost of, or time required for, performance of any part of the work, the Trade Contractor shall not be excused from any scheduled completion date provided for by the Contract, but shall proceed with all Work to be performed under the Contract. The Trade Contractor shall retain any and all rights provided either by Contract or by law, which pertain to the resolution of disputes and protests between the contracting parties.

4.5.8 Claims for Extension of Time.

If Trade Contractor and District cannot agree upon an extension of time, whether compensable or not, then Trade Contractor must have first completed the procedures set forth in paragraph 8.4. Upon completion of the procedures set forth under paragraph 8.4, Trade Contractor must then comply with the requirements in this Article including those set forth under paragraph 4.5.9.

4.5.9 Claims Procedures.

4.5.9.1 Procedure applicable to all Claims:

(a) Definition of Claim: A "Claim" means a separate demand by the Trade Contractor for (1) time extension, (2) payment of money or damages arising from Work done by or on behalf of the Trade Contractor pursuant to the CONTRACT and payment of which is not otherwise expressly provided for or the claimant is not otherwise entitled to, or (3) and amount the payment of which is disputed by the District.

(b) Filing Claim is Not Basis To Discontinue Work: The Trade Contractor shall promptly comply with Work under the Contract or Work requested by the District even though a written claim has been filed. The Trade Contractor and the District shall make good faith efforts to resolve any and all claims that may arise during the performance of the Work covered by this contract.

(c) Claim Notification: The Trade Contractor shall within seven (7) calendar days after the claim arises, submit a notification, in writing, with the District stating clearly the basis for the claim. If the notification is not submitted within seven (7) days after the claim arises, the Trade Contractor shall be deemed to have waived all right to assert the claim, and the claim shall be denied. Claims submitted after the final payment date shall also be considered null and void by the District. All claims shall be reviewed pursuant to paragraph 4.5.1, 4.5.2, and 4.5.5.

(d) Formal Claim Submission: If the Trade Contractor does not concur with the District's decision regarding the Claim Notification, the Trade Contractor will issue a formal Claim Appeal within fourteen (14) days of receipt of the District's decision and all detailed information in support of the Claim Appeal within thirty (30) days. All appeals shall be submitted before final payment. If the Claim Appeal is not submitted within fourteen (14) calendar days and detailed information within thirty (30) days, the Trade Contractor shall be deemed to have waived its right to assert the Claim and the Claim shall be denied. Trade Contractor's failure to submit any detailed information which is in the possession of Trade Contractor shall render such information inadmissible by Trade Contractor at trial or arbitration.

(e) Appeal Claim Format: The Trade Contractor shall provide all written detailed documentation which supports the claim, including but not limited to: arguments, justifications, cost, estimates, schedule analysis and detailed documentation. The format of the Claim Appeal shall be as follows:

- (1) Cover letter.
- (2) Summary of factual basis of claim and amount of claim.
- (3) Summary of the basis of the claim, including the specific clause and section under the Contract under which the claim is made.
- (4) Documents relating to the claim, including:
 - a. Specifications
 - b. Drawings
 - c. Clarifications (RFI's)
 - d. Other relevant information
 - e. Analysis of claim merit.
 - f. Analysis of claim cost.
 - g. For claims relating to time extensions, an analysis and supporting documentation evidencing any effect upon the critical path.
 - h. Certification.
 - i. Chronology of events and related correspondence.
 - j. Daily reports and logs.

(f) Certification: The Trade Contractor (and subcontractors, if applicable) shall submit with the claim a certification under penalty of perjury:

- (1) That the Trade Contractor has reviewed the claim and that such claim is made in good faith;
- (2) Supporting data are accurate and complete to the best of the Trade Contractor's knowledge and belief;
- (3) The amount requested accurately reflects the amount of compensation for which the Trade Contractor believes the District is liable.
- (4) That the Trade Contractor is familiar with Government Code sections 12650 et seq. and Penal Code section 72 and that false claims can lead to substantial fines and/or imprisonment.

(g) Signature of Certification: If the Trade Contractor is not an individual, the certification shall be executed by an officer or general partner of the Trade Contractor having overall responsibility for the conduct of the Trade Contractor's affairs.

(h) Mandatory Claim Appeal Procedure: The Trade Contractor's Claim Appeal shall be denied if it fails to provide the written basis of the claim and certification as set forth herein.

(i) District May Request Additional Information: Within thirty (30) days of receipt of the Claim Appeal and the information under this Article, the District may request in writing any additional documentation supporting the claim or documentation relating to defenses to the claim which the District may assert.

4.5.9.2 *Binding Arbitration of Individual Claim Issues.* At the District's sole option, the District may submit individual disputes, or claims, to binding arbitration and Trade Contractor agrees to the resolution determined for each individual dispute by Arbitrator, including resolution of time and delays. If binding arbitration is utilized, such resolution is a full and final resolution of the particular claim or dispute. Under no circumstances may the Trade Contractor stop work, rescind its contract or otherwise slow the progress of Work during resolution of individual claims in binding Arbitration.

4.5.9.3 *Resolution of Disputes in Court of Competent Jurisdiction.* If claims are not resolved under the procedure set forth and pursuant to Article 4.5.9.2, such claim or controversy shall be submitted to a court in the county of competent jurisdiction after the Project has been completed, and not before.

4.5.9.4 *Warranties, Guarantees and Obligations.* The duties and obligations imposed by these General Conditions and the rights and remedies available hereunder to the parties hereto, and, in particular but without limitation, the warranties, guarantees and obligations imposed upon Trade Contractor by the General Conditions and amendments thereto; and all of the rights and remedies available to District and Architect thereunder, are in addition to, and are not to be construed in any way as a limitation of, any rights and remedies available to any or all of them which are otherwise imposed or available by laws or regulations by special warranty or guarantee or by other provisions of the Contract Documents, and the provisions of this paragraph will be as effective as if repeated specifically in the Contract Documents in connection with each particular duty, obligation, right and remedy to which they apply.

End of Article 4

ARTICLE 5

SUBCONTRACTORS

5.1 DEFINITIONS

5.1.1 Subcontractual Relations

By appropriate agreement, written where legally required for validity, the Trade Contractor shall require each Subcontractor, to the extent of the Work to be performed by the Subcontractor, to be bound to the Trade Contractor by terms of the Contract Documents, and to assume toward the Trade Contractor all the same obligations and responsibilities, assumed by Trade 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 Trade Contractor shall require each Subcontractor to enter into similar agreements with Sub-subcontractors. The Trade 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. Upon written request of the Subcontractor, the Trade Contractor shall identify to the 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.

End of Article 5

ARTICLE 6

CONSTRUCTION BY DISTRICT OR BY SEPARATE CONTRACTORS

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. Trade 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. Trade Contractor shall properly connect and coordinate its work with that of other Contractors.

(b) If any part of Trade Contractor's Work depends on proper execution or results of any other Trade Contractor, the Trade Contractor shall inspect and within seven (7) days or less, report to Architect, in writing, any defects in such work that render it unsuitable for proper execution of Trade Contractor's work. Trade Contractor will be held accountable for damages to District for that work which it failed to inspect or should have inspected. Trade 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 Trade Contractor's work.

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

(d) Trade 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 Trade Contractor's schedule.

(e) Nothing herein contained shall be interpreted as granting to Trade Contractor the exclusive occupancy at the site of Project. Trade Contractor shall not cause any unnecessary hindrance or delay to any other trade contractor working on the Project Site. If execution of any contract by the District is likely to cause interference with Trade Contractor's performance of its contract, District shall decide which trade 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 Trade 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.

6.1.2 District's Right to Carry Out the Work.

See paragraph 2.2.

6.1.3 Designation as Trade Contractor.

When separate contracts are awarded to contractors on the Project Site, the term "Trade Contractor" in the Contract Documents in each case shall mean the Trade Contractor who executes each separate District/Trade Contractor Agreement.

6.1.4 Trade Contractor Duties.

The Trade Contractor shall have overall responsibility to reasonably coordinate and schedule Trade Contractor's activities with the activities of the District's own forces and of each separate trade contractor with the Work of the Trade Contractor, who shall cooperate with them. The Trade Contractor shall participate with other separate contractors and the District in reviewing their construction schedules when directed to do so. The District shall make any revisions to the construction schedule and Contract Sum deemed necessary after a joint review and mutual agreement. The construction schedules shall then constitute the schedules to be used by the Trade Contractor, separate contractors, and the District until subsequently revised. Additionally, Trade Contractor shall coordinate with the Architect and District inspector to ensure timely and proper progress of work.

6.2 CONSTRUCTIVE OWNERSHIP OF PROJECT SITE AND MATERIAL

Upon commencement of Work, the Trade Contractor becomes the constructive owner of the entire site, improvements, material and equipment on Project site. Trade Contractor must ensure proper safety and storage of all materials and assumes responsibility as if Trade Contractor was the owner of the Project site. All risk of loss or damage shall be borne by Trade Contractor during the Work until the date of Completion. As construction owner, Trade 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.

6.3 DISTRICT'S RIGHT TO CLEAN UP

If a dispute arises among the Trade Contractor, separate contractors, and the District as to the responsibility under their respective contracts for maintaining the premises and surrounding area free from waste materials and rubbish as described in paragraph 3.12, the District may clean up and allocate the cost among those it deems responsible.

End of Article 6

ARTICLE 7

CHANGES IN THE WORK

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, Construction Change Directive, 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's Governing Board has authorized the same and the cost thereof approved in writing by Change Order or executed Construction Change Directive. 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 the Change Order. 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 shall be prepared and issued by the Architect and shall become effective when executed by the District's Governing Board, the Architect, the Trade Contractor, and approved in writing by the DSA.

Should any Change Order or Construction Change Directive result in an increase in the Contract price, the cost of such Change Order or Construction Change Directive shall be agreed to, in writing, in advance by Trade Contractor and District and be subject to the monetary limitations set forth in Public Contract Code section 20118.4. In the event that Trade Contractor proceeds with any change in Work without first notifying District and obtaining the Architect's and District's consent to a change order or a construction change directive, Trade Contractor waives any claim of additional compensation for such additional work.

TRADE 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 ORDER OR CONSTRUCTION CHANGE DIRECTIVE, OR ALTER THE PROJECT SO THAT SUCH CHANGE IN WORK BECOMES UNNECESSARY.

7.1.2 Architect Authority.

The Architect will have authority to order minor changes in the Work not involving any adjustment in the Contract Sum, or an extension of the Contract Time, or a change which is inconsistent with the intent of the Contract Documents. Such changes shall be effected by written Change Order and shall be binding on the District and the Trade Contractor. The Trade Contractor shall carry out such written orders promptly.

7.2 CHANGE ORDERS ("CO")

A CO is a written instrument prepared by the Architect and signed by the District(as authorized by the District's Governing Board), the Trade Contractor, the Architect, and the DSA (if necessary), stating their agreement upon all of the following:

General Conditions - 000700
Murrieta Valley High School Auto Lift
Murrieta Valley Unified School District

- (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 BULLETINS

7.3.1 Definition.

A Bulletin is a written order prepared by the Architect and signed by the District and 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, by Bulletin, without invalidating the Contract, order 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.

7.3.2 Use to Direct Change

A Bulletin shall be used in the absence of agreement on the terms of a CO.

7.4 REQUEST FOR INFORMATION ("RFI")

7.4.1 Definition.

An RFI is a written request prepared by the Trade Contractor requesting the Architect to provide additional information necessary to clarify or amplify an item that the Trade Contractor believes is not clearly shown or called for in the drawings or specifications, or to address problems which 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 Trade Contractor shall make suggestions 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 Architect must respond to a RFI within a reasonable time after receiving such request. If the Architect's response results in a change in the Work, then such change shall be effected by a written CO or CCD, if appropriate. If the Architect cannot respond to the RFI within a reasonable time, the Architect shall notify the Trade Contractor, with a copy to the Inspector and the District, of the amount of time that will be required to respond.

7.4.4 Costs Incurred.

The Trade 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 Trade Contractor for all such professional services arising from this Article.

7.5 REQUEST FOR PROPOSAL ("RFP")

7.5.1 Definition.

An RFP is a written request prepared by the Architect requesting the Trade Contractor to submit to the District and the Architect an estimate of the effect of a proposed change on the Contract Price and the Contract Time.

7.5.2 Scope.

An RFP shall contain adequate information, including any necessary drawings and specifications, to enable Trade Contractor to provide the cost breakdowns required by paragraph 7.7. The Trade 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 Trade Contractor requesting that the District and the Architect issue a CO based upon a proposed change called for in an RFP or a claim pursuant to paragraph 4.5.

7.6.2 Changes in Price.

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

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 paragraph 3.8 of the General Contract. If Trade Contractor fails to request a time extension in a COR, then the Trade Contractor is thereafter precluded from requesting or claiming a delay.

7.7 COST OF CHANGE ORDERS

7.7.1 Scope.

Within ten (10) days after a request is made for a change that impacts the Contract Sum as defined in paragraph 9.1, the critical path, or the Contract Time as defined in paragraph 8.4.2, the Trade Contractor shall provide the District and the Architect, with a written estimate of the effect of the proposed CO 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 CO. Changes may be made

by District by an appropriate written CO, or, at the District's option, such changes shall be implemented immediately upon the Trade Contractor's receipt of an appropriate written CCD.

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 change orders from time to time during the progress of the Project, contract sum 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 Trade Contractor has justified through documentation the impact on the 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, if any, shall be determined in one or more of the following ways as applicable to a specific situation:

- (a) Mutual acceptance of a lump sum properly itemized and supported by sufficient substantiating data to permit evaluation. If an agreement cannot be reached within fifteen (15) days after submission and negotiation of Trade Contractor's proposal, Trade Contractor may submit pursuant to paragraph 7.7.3. Submission of sums which have no basis in fact are at the sole risk of Trade Contractor and may be a violation of the False Claims Act set forth under Government Code section 12650 et. seq.);
- (b) By unit prices contained in Trade Contractor's original bid and incorporated in the Project documents or fixed by subsequent agreement between District and Trade Contractor;
- (c) Cost to be determined in a manner agreed upon by the parties and a mutually acceptable fixed or percentage fee. However, in the case of disagreement, Trade Contractor must utilize the procedure under section 7.7.3; or
- (d) By cost of material and labor and percentage of overhead and profit. If the value is determined by this method the following requirements shall apply:

1. Basis for Establishing Costs.

a. Labor will be the actual cost for wages prevailing locally for each craft or type of workers at the time the extra Work is done, plus employer payments of payroll taxes and insurance, health and welfare, pension, vacation, apprenticeship funds, and other direct costs resulting from Federal, State, or local laws, as well as assessments or benefits required by lawful collective bargaining agreements. The use of a labor classification which would increase the extra Work cost will not be permitted unless the Trade Contractor establishes the necessity for such additional costs. Labor costs for equipment operators and helpers shall be reported only when such costs are not included in the invoice for equipment rental.

b. Materials shall be at invoice or lowest current price at which such materials are locally available and delivered to the Site in the quantities involved, plus sales tax, freight, and delivery.

The District reserves the right to approve materials and sources of supply or to supply materials to the Trade Contractor if necessary for the progress of the Work. No markup shall be applied to any material provided by the District.

c. Tool and Equipment Rental. No payment will be made for the use of tools which have a replacement value of \$500 or less.

Regardless of ownership, the rates to be used in determining equipment rental costs shall not exceed listed rates prevailing locally at equipment rental agencies or distributors at the time the Work is performed. Discounts for extended rental use are to be passed on to the District. Equipment currently on site which is used for extra work will be charged at the pro-rated rental rate reflecting the actual cost of its use.

The rental rates paid shall include the cost of fuel, oil, lubrication, supplies, small tools, necessary attachments, repairs and maintenance of any kind, depreciation, storage, insurance, and all incidentals.

Necessary loading and transportation costs for equipment used on the extra Work shall be included. If equipment is used intermittently and, when not in use, could be returned to its rental source at less expense to the District than holding it at the Work Site, it shall be returned unless the Trade Contractor elects to keep it at the Work Site at no expense to the District.

All equipment shall be acceptable to the Inspector, in good working condition, and suitable for the purpose for which it is to be used. Manufacturer's ratings and modifications shall be used to classify equipment, and equipment shall be powered by a unit of at least the minimum rating recommended by the manufacturer.

d. Other Items. The District may authorize other items which may be required on the extra work. Such items include labor, services, material, and equipment which are different in their nature from those required by the Work, and which are of a type not ordinarily available from the Trade Contractor or any of the Subcontractors. Invoices covering all such items in detail shall be submitted with the request for payment.

e. Invoices. Vendors' invoices for material, equipment rental, and other expenditures shall be submitted with the COR. If the request for payment is not substantiated by invoices or other documentation, the District may establish the cost of the item involved at the lowest price which was current at the time of the Daily Report.

f. Overhead. Overhead, including direct and indirect costs, shall be submitted with the COR and include: home office overhead, off-site supervision, CO preparation/negotiation/research, time delays, Project interference and disruption, additional guaranty and warranty durations, on-site supervision, additional temporary protection, additional temporary utilities, additional material handling costs, small tools, storage, onsite construction trailer and trailer office equipment, personal electronic devices and associated costs, additional safety equipment costs and any other costs not directly associated with the cost to perform the extra work.

7.7.3 Format for Proposed Cost Change.

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

	<u>EXTRA</u>	<u>CREDIT</u>
(a) Material (attach itemized quantity and unit cost plus sales tax)	_____	_____
(b) Labor (attach itemized hours and rates)	_____	_____
(c) Equipment (attach invoices)	_____	_____
(d) Subtotal	_____	_____
(e) If Subcontractor performed Work, add Subcontractor's overhead and profit to portions performed by Subcontractor, not to exceed fifteen percent (15%) of item (d).	_____	_____
(f) Subtotal	_____	_____
(g) Trade Contractor's Overhead and Profit, not to exceed fifteen percent (15%) of Item (g). No more than five percent (5%) of Item (g) if work was performed by Subcontractor.	_____	_____
(h) Subtotal	_____	_____
(i) Bond not to exceed two percent (1%) of Item (g)	_____	_____
(j) TOTAL	_____	_____
(l) Time (added to scheduled activity duration)	_____	_____

The undersigned Trade Contractor approves the foregoing change order 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, 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 shall be effective when approved by the Governing Board of the District.

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 Trade Contractor's costs and expenses,

both direct and indirect, resulting from additional time required on the Project or resulting from delay to the Project. Any costs, expenses, damages or time extensions not included are deemed waived.

7.7.4 Deductive Change Orders

All deductive Change Order(s) must be prepared pursuant to paragraph 7.7.3. Trade 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 and equipment shall accrue and be credited to the Trade Contractor, and the Trade 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 Trade 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 COs and CCDs on a time-and-materials, unit-cost, or similar basis, the Trade 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 Trade Contractor is required to maintain under the Contract Documents.

7.7.7 Notice Required.

If the Trade 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 paragraph 4.5 and this Article. No claim shall be considered unless made in accordance with this Subparagraph. Trade Contractor shall proceed to execute the Work even though the adjustment may not have been agreed upon. Any change in the Contract Price or extension of the Contract Time resulting from such claim shall be authorized by a CO.

7.7.8 Applicability to Subcontractors.

Any requirements under this Article 7 shall be equally applicable to COs or CCDs issued to Subcontractors by the Trade Contractor to the same extent required by the Trade Contractor.

7.7.9 Alteration to Change Order Language.

Trade Contractor shall not alter Change Orders or reserve time in change orders. Trade Contractor shall execute finalized Change Orders and proceed under paragraph 7.7.7. and paragraph 4.5 with proper notice. If Trade Contractor intends to reserve time, without an approved CPM schedule prepared pursuant to paragraph 3.8 then Trade Contractor may be prosecuted pursuant to the False Claim Act.

End of Article 7

ARTICLE 8

TIME

8.1 DEFINITIONS

8.1.1 Contract Time.

Unless otherwise provided, Contract Time is the period of time, in calendar days, including authorized adjustments, allotted in the Contract Documents for Completion of the Work.

8.1.2 Notice to Proceed.

District may give a notice to proceed within fifteen (15) days of the award of the bid by District. Once Trade Contractor has received the notice to proceed, Trade 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 one-month period, it is expressly understood that with reasonable notice to the Trade Contractor, the giving of the date to proceed may be postponed by District. It is further expressly understood by Trade Contractor, that Trade 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 Trade Contractor believes that a postponement will cause a hardship to Trade Contractor, Trade Contractor may terminate the contract with written notice to District within 10 days after receipt by Trade Contractor of District's notice of postponement. It is further understood by Trade Contractor that in the event that Trade Contractor terminates the Contract as a result of postponement by the District, the District shall only be obligated to pay Trade Contractor for the Work that Trade Contractor had performed at the time of notification of postponement. Should Trade 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 Trade 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. The Trade Contractor will not be allowed a day-for-day weather delay when the contract is bid for construction during a period that normally includes inclement weather. A day-for day weather extension will only be allowed for rain delays in excess of two (2) days per week over the total duration of the affected activity. The master project schedule and its associated activity durations reflect a five (5) day work week, allowing two (2) days per week to mitigate inclement weather delays. A day-for-day extension will only be allowed for those days in excess of the norm. The Trade Contractor is expected to work seven (7) days per week (if necessary, irrespective of inclement weather), to maintain scheduled progress, access, and to protect the Work under construction from the effects of inclement weather. If the inclement weather impact to a scheduled activity is greater than two (2) days per week over the duration of the activity, the impacted activity will be allowed a day for day time extension for the difference.

If the weather is unusually severe in excess of the NOAA data norm and prevents the Trade Contractor from beginning work at the usual daily starting time, or prevents the Trade Contractor from proceeding with seventy-five (75%) of the normal labor and equipment force towards completion of the day's current controlling item on the accepted schedule for a period of at least five hours, and the crew is dismissed as a result thereof, the Architect will designate such time as unavoidable delay and grant one (1) calendar-day extension to the duration of the activity affected.

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 require work to be done outside the Inspector's regular working hours, the costs of any after hour inspections, shall be borne by the Trade Contractor.

If the District allows the Trade Contractor to do Work outside regular working hours for the Trade Contractor's convenience, the costs of any inspections required outside regular working hours shall be invoiced to the Trade Contractor by the District and deducted from the next Progress Payment.

If the Trade 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 Trade Contractor by the District and deducted from the next Progress Payment.

8.3 PROGRESS AND COMPLETION

8.3.1 Completion Date.

Project is to be completed by August 1, 2017.

8.3.2 Time of the Essence.

Time limits stated in the Contract Documents are of the essence to the Contract. By executing the Agreement, the Trade Contractor confirms that the Contract Time is a reasonable period for performing the Work.

8.3.3 No Commencement without Insurance.

The Trade Contractor shall not commence operations on the Project or elsewhere prior to 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 Trade Contractor commences Work without insurance and bonds, all Work is performed at Trade Contractor's peril and shall not be compensable until and unless Trade Contractor secures bonds and insurance pursuant to the terms of the Contract Documents and subject to District claim for damages.

8.3.4 Progress Schedule.

The construction schedule for the project is provided by the Construction Manager, and is included in the bidding documents.

8.3.5 Expeditious Completion.

The Trade Contractor shall proceed expeditiously with adequate forces and shall achieve Completion within activity durations provided in the Contract Schedule.

8.4 EXTENSIONS OF TIME - LIQUIDATED DAMAGES

8.4.1 Liquidated Damages.

Trade Contractor and District hereby agree that the exact amount of damages for failure to complete the Work within the time specified is extremely difficult or impossible to determine. If the Work is not completed within the time specified in the Contract Documents, it is understood that the District will suffer damage. It being impractical and unfeasible to determine the amount of actual damage, it is agreed the Trade Contractor shall pay to District as fixed and liquidated damages, and not as a penalty, **One Thousand Dollars (\$1,000) for each calendar day of delay in completion.** Trade Contractor and his surety shall be liable for the amount thereof pursuant to Government Code section 53069.85.

8.4.2 Excusable Delay.

Trade Contractor shall not be charged for liquidated damages because of any delays in completion of Work which are not the fault or negligence of Trade Contractor or its subcontractors, including acts of God, as defined in Public Contract Code section 7107, acts of enemy, epidemics and quarantine restrictions. Trade Contractor shall within five (5) 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 paragraph 3.8 requiring preparation and submission of a properly prepared CPM schedule.

The Trade Contractor shall notify the Architect in writing of any anticipated delay and its cause, in order that the Architect may take immediate steps 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 Trade 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 orders, they must be submitted with the proposed change order with full justification and documentation. If the Trade 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 official Contract 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.)

8.4.3 Notice by Trade Contractor Required.

The Trade Contractor shall within five (5) 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 Trade Contractor for extensions of time under paragraph 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.

8.4.4 No Additional Compensation for Delays within Trade Contractor's Control

TRADE 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 TRADE CONTRACTOR PREPARED DRAWINGS OR APPROVE A PROPOSED INSTALLATION. TRADE CONTRACTOR HAS INCLUDED DELAYS AND DAMAGES WHICH MAY BE CAUSED BY SUCH AGENCIES IN TRADE CONTRACTOR'S BID. THUS, TRADE CONTRACTOR IS NOT ENTITLED TO MAKE CLAIM UPON THE DISTRICT FOR DAMAGES OR DELAYS ARISING FROM THE DELAYS CAUSED BY SUCH AGENCIES. FURTHERMORE, THE TRADE CONTRACTOR HAS SCHEDULED FOR SUCH DELAYS AND IS NOT ENTITLED TO AN EXTENSION OF TIME FOR DELAYS CAUSED BY GOVERNMENTAL AGENCIES WHICH TRADE CONTRACTOR MUST OBTAIN APPROVALS FROM AND, THUS, TRADE CONTRACTOR IS NOT ENTITLED TO AN EXTENSION OF TIME.

TRADE 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 TRADE CONTRACTOR.

End of Article 8

ARTICLE 9

PAYMENTS AND COMPLETION

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 Trade Contractor for performance of the Work under the Contract Documents.

9.2 COST BREAKDOWN

9.2.1 Required Information.

On forms or software programs (e.g., Microsoft Project or Primavera) approved by the District, the Trade Contractor shall furnish the following:

- (a) Within ten (10) days of the award of the Contract, a detailed breakdown of the Contract Price (hereinafter "Schedule of Values") for each Project or Site;
- (b) Within ten (10) days of the award of the Contract, a schedule of estimated monthly payment requests due the Trade 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, 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 Architect shall review all submissions received pursuant to paragraph 9.2.1 in a timely manner. The Architect must approve all submissions before becoming the basis of any payment.

9.3 PROGRESS PAYMENTS

9.3.1 Payments to Trade Contractor.

Within thirty (30) days after approval of the Request for Payment, Trade Contractor shall be paid a sum equal to ninety percent (90%) of the value of the Work performed (as certified by Architect and Inspector and verified by Trade Contractor) up to the last day of the previous month, less the aggregate of previous payments. The value of the Work completed shall be Trade Contractor's best estimate. No inaccuracy or error in said estimate shall operate to release the Trade 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.

The Trade Contractor shall not be entitled to have any payment requests processed, or be entitled to have any payment made for work performed, so long as any lawful or proper direction given by the District concerning the Work, or any portion thereof, remains incomplete.

9.3.2 Purchase of Materials and Equipment.

The Trade 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.

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 shall, within seven (7) days after receipt of the Trade Contractor's Application for Payment, either approve such payment or notify the Trade Contractor in writing of the Architect's reasons for withholding approval in whole or in part as provided in Section 9.6. The review of the Trade Contractor's Application for Payment by the Architect is based on the Architect's 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 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. The issuance of a Certificate for Payment will further constitute a representation that the Trade Contractor is entitled to payment in the amount certified.

9.4 APPLICATIONS FOR PROGRESS PAYMENTS

9.4.1 Procedure.

9.4.1.1 *Application for Progress.* On or before the fifth (5th) day of each calendar month during the progress of the Work, the Architect in conjunction with Trade Contractor, shall submit to the District an itemized Application for Progress Payment for operations completed in accordance with the Schedule of Values. Such application shall be notarized, if required, and supported by the following or such portion thereof as Architect requires:

- (a) The amount paid to the date of the Application to the Trade Contractor, to all its Subcontractors, and all others furnishing labor, material, or equipment for its Contract;
- (b) The amount being requested under the Application for Payment by the Trade Contractor on its own behalf and separately stating the amount requested on behalf of each of the Subcontractors and all others furnishing labor, material, and equipment under the Contract;
- (c) The balance that will be due to each of such entities after said payment is made;

- (d) A certification that the Record Drawings and Annotated Specifications are current;
- (e) Itemized breakdown of work done for the purpose of requesting partial payment;
- (g) The additions to and subtractions from the Contract Price and Contract Time;
- (h) A summary of the retentions held;
- (i) Material invoices, evidence of equipment purchases, rentals, and other support and details of cost as the District may require from time to time;
- (j) The percentage of completion of the Trade Contractor's Work by line item; and
- (k) An updated Schedule of Values from the preceding Application for Payment.

9.4.2 Prerequisites for Progress Payments.

9.4.2.1 *First Payment Request.* The following items, if applicable, must be completed before the first payment request will be accepted for processing:

- (a) Installation of the Project sign;
- (b) Receipt by Architect of submittals;
- (c) Installation of field office;
- (d) Installation of temporary facilities and fencing;
- (e) Submission of documents listed in the paragraph 9.2 relating to Cost Breakdown;
- (f) Schedule of unit prices, if applicable;
- (g) Submittal Schedule;
- (h) Copies of necessary permits;
- (i) Copies of authorizations and licenses from governing authorities;
- (j) Initial progress report;
- (k) Surveyor qualifications;
- (l) Written acceptance of District's survey of rough grading, if applicable;
- (m) List of all subcontractors, with names, license numbers, telephone numbers, and scope of work;
- (m) All bonds and insurance endorsements; and

- (n) Resumes of General Trade Contractor's Project Manager, and if applicable, job site Secretary, Record Documents Recorder, and job site Superintendent.

9.4.2.2 *Second Payment Request.* The second payment request will not be processed until all submittals and shop drawings have been accepted for review by the Architect.

9.4.2.3 Any payments made to Trade Contractor where criteria set forth in paragraph 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 Trade Contractor may pay its Subcontractors and suppliers and that Trade Contractor agrees that failure to submit such items may constitute a breach of contract by Trade Contractor and may subject Trade Contractor to termination.

9.5 WARRANTY OF TITLE

The Trade Contractor warrants title to all work. The Trade Contractor further warrants that all work is free and clear of liens, claims, security interests, or encumbrances in favor of the Trade 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 Trade 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 Trade Contractor, Trade Contractor and Trade Contractor's surety shall promptly, on demand by District and at Trade 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 Trade 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 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 Trade Contractor under the Contract.

9.6 DECISIONS TO WITHHOLD PAYMENT

9.6.1 Reasons to Withhold Payment.

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, the representations to the District required by paragraph 9.4 cannot be made. 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 damages assessed against the Trade 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 trade contractor;
- (f) Unsatisfactory prosecution of the Work by the Trade Contractor;
- (g) Failure to store and properly secure materials;
- (h) Failure of the Trade 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, and verified reports;
- (i) Failure of the Trade Contractor to maintain record drawings;
- (j) Erroneous estimates by the Trade 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 Trade 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 paragraph 3.8; or
- (r) Failure to pay Subcontractor or suppliers as required by paragraph 9.8.1.
- (s) Failure to provide and/or maintain specified insurance.

9.6.2 Reallocation of Withheld Amounts.

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

If Trade 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 Trade 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 which 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 Trade Contractor to perform in accordance with the terms and conditions of the Contract Documents.

9.7 NONCONFORMING WORK

Trade Contractor shall promptly remove from premises all Work identified by District as failing to conform to the Contract whether incorporated or not. Trade 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 Trade 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 Trade Contractor's expense. If Trade 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 Trade 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 Trade Contractor shall pay to each Subcontractor, out of the amount paid to the Trade Contractor on account of such Subcontractor's portion of the Work, the amount to which said Subcontractor is entitled. The Trade 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 Request 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 Trade 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.* When the Trade Contractor considers the Work complete, the Trade Contractor shall prepare and submit to the District a comprehensive list of minor items to be completed or corrected (hereinafter "Punch List"). The Trade Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the list. Failure to include an item on such list does not alter the responsibility of the Trade Contractor to complete all Work in accordance with the Contract Documents.

Upon receipt of the Trade Contractor's Punch List, and not before, the Architect and Inspector will make an inspection to determine whether the Work, or designated portion thereof, is complete. If the inspection discloses any item, whether or not included on the Trade Contractor's list, is not completed in accordance with the requirements of the Contract Documents, the Trade Contractor shall, before District's issuance of the Notice of Completion, complete or correct such item. The Trade Contractor shall then submit a request for an additional inspection by the District to determine Completion. When the Work, or designated portion thereof, is complete, the District will file a Notice of Completion. Warranties required by the Contract Documents shall commence on the date of Completion of the Work, or designated portion thereof, unless otherwise provided in the Notice of Completion. The Notice of Completion shall be submitted to the District and the Trade Contractor for their written acceptance of responsibilities assigned to them in such Notice.

9.9.1.2 *Close-Out Requirements.*

(a) 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.

(b) 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. Trade 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, Trade Contractor shall obtain the Inspector's approval of the corrected prints and employ a competent draftsman to transfer the "as-built" information to the most current version of Autocad or as presently being utilized for Plan Check Submission by either the District, OPSC or DSA and print a complete set of transparent sepias. When completed, Trade Contractor shall deliver corrected sepias and Diskette with Autocad file to the District.

(c) 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.

(d) Inspection Requirements.

1. Before calling for final inspection, Trade Contractor shall determine 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 Trade 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, as in paragraph 3.12.

2. Furnish a letter to District stating that a responsible representative of District [give name and position] has been instructed in working characteristics of mechanical and electrical equipment.

9.9.2 Costs of Multiple Inspections.

More than two (2) requests of the District to make inspections required under paragraph 9.8.1 shall be considered an additional service of Architect, and all subsequent costs will be invoiced to Trade 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 Trade 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 Trade Contractor cannot agree as to responsibilities such disagreement shall be resolved pursuant to paragraph 4.5.1. When the Trade Contractor considers a portion complete, the Trade Contractor shall prepare and submit a Punch List to the District as provided under paragraph 9.9.1.

9.10.2 Inspection Prior to Occupancy or Use.

Immediately prior to such partial occupancy or use, the District, the Trade 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.

Trade Contractor shall comply with Punch List procedures under paragraph 9.9.1.1, and maintain the presence of Project superintendent and Project manager until the punch list is complete to ensure proper and timely completion of the punch list. Under no circumstances shall Trade Contractor

demobilize its forces prior to completion of the punch list. Upon receipt of Trade Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, Architect shall inspect the Work and shall submit to Trade 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 Punch List items not yet satisfactorily completed.

Upon completion of the Work contained in the final inspection report, the Trade Contractor shall notify the District and Architect, who shall again inspect such Work. If the Architect and the District finds the Work contained in such final inspection report acceptable under the Contract Documents and, therefore, the Work fully completed, it shall notify Trade Contractor, who shall then submit to the Architect 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 and the Trade Contractor in writing of reasons why the Work is not complete. Upon acceptance of the Work of the Trade Contractor as fully complete (which, absent unusual circumstances, will occur when the Punch List items have been satisfactorily completed), the District shall record a Notice of Completion with the County Recorder, and the Trade Contractor shall, upon receipt of payment from the District, pay the amounts due Subcontractors.

9.11.2 Retainage.

The retainage, less any amounts disputed by the District or which the District has the right to withhold Pursuant to paragraph 9.6, shall be paid after approval of the District by the Architect's Certificate of Payment, after the satisfaction of the conditions set forth in Article 9, and after thirty-five (35) days after the acceptance of the Work and recording of the Notice of Completion by District. No interest shall be paid on any retainage, or on any amounts withheld due to a failure of the Trade Contractor to perform, in accordance with the terms and conditions of the Contract Documents, except as provided to the contrary in any Escrow Agreement between the District and the Trade Contractor pursuant to *Public Contract Code* section 22300.

9.11.3 Procedures for Application for Final Payment.

9.11.3.1 *Prerequisites for Final Payment.* The following conditions must be fulfilled prior to Final Payment:

- (a) A full and final waiver or release of all Stop Notices in connection with the Work shall be submitted by Trade 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 Trade 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 Trade Contractor all written guarantees, warranties, applications, and bonds required by the Contract Documents for its portion of the Work.
- (d) Trade Contractor must have completed all requirements set forth in paragraph 9.9.1.2.
- (e) Architect shall have issued a Final Certificate of Payment.
- (f) The Trade Contractor shall have delivered to the District all manuals and materials required by the Contract Documents.
- (g) The Trade Contractor shall have completed final clean up as required by paragraph 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.

End of Article 9

ARTICLE 10

PROTECTION OF PERSONS AND PROPERTY

10.1 SAFETY PRECAUTIONS AND PROGRAMS

10.1.1 Trade Contractor Responsibility.

The Trade 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 Trade 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).

Trade 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. OSHA approved hard hats, boots, long pants and eye protection are to be worn on site at all times during construction, by all personnel. In addition to meeting all requirements of OSHA, Cal-OSHA, state, and local codes, Trade Contractor shall furnish, erect and properly maintain at all times, as directed by District 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. Trade 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 Construction Manager by Trade Contractor. Trade Contractor shall correct any violations of safety laws, rules, orders, standards, or regulations. Upon the issuance of a citation or notice of violation by the Division of Occupational Safety and Health, such violation shall be corrected promptly. A copy of Trade Contractor's Safety Plan and all applicable Material Safety Data Sheets shall be submitted to Construction Manager prior to start of Work.

10.1.2 Subcontractor Responsibility.

Trade Contractor shall require that Subcontractors participate in, and enforce, the safety and loss prevention programs established by the Trade Contractor for the Project, which will cover all Work performed by the Trade 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.

10.1.3 Cooperation.

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

10.1.4 Accident Reports.

Subcontractors shall immediately, within two (2) days, report in writing to the Trade 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 within four (4) days by telephone or messenger. Trade Contractor shall thereafter immediately, within two (2) days, report the facts in writing to the District and the Architect giving full details of the accident.

10.1.5 First-Aid Supplies at Site.

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

10.1.6 Material Safety Data Sheets and Compliance with Proposition 65.

(a) Trade 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". The Trade 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.

Trade 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 Trade Contractor agrees to familiarize itself with the provisions of this section, and to comply fully with its requirements.

10.1.7 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 Trade 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 Trade 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 Trade 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 SAFETY OF PERSONS AND PROPERTY

10.2.1 The Trade Contractor.

The Trade 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 Trade Contractor or the Trade 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.

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

10.2.2 Trade Contractor Notices.

The Trade 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.

10.2.3 Safety Barriers and Safeguards.

The Trade 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.

10.2.4 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 Trade Contractor shall exercise utmost care and carry on such activities under supervision of properly qualified personnel. The Trade Contractor shall notify the District any time that explosives or hazardous materials are expected to be stored on Site. Location of storage shall be coordinated with the District and local fire authorities.

10.2.5 Protection of Work.

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

Trade 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 Trade Contractor.

10.2.6 Requirements for Existing Sites.

Trade 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 which may interfere with school routine before or after school hours, enclose working area with a substantial barricade, and arrange Work to cause a minimum amount of inconvenience and danger to students and faculty in their regular school activities. The Trade Contractor shall comply with specifications and directives of the District regarding the timing of certain construction activities in order to avoid unnecessary interference with school functioning.
- (b) Provide substantial barricades around any shrubs or trees indicated to be preserved.
- (c) Deliver materials to building area over route designated by Architect or Construction Manager
- (d) Take preventive measures to eliminate objectionable dust, noise, or other disturbances.

(e) 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 and Architect regarding signs, advertising, fires, and smoking and require that all workers comply with all regulations while on the Project site.

(f) 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 therefrom shall be filed with county and local authorities, at no cost to the District. All filing and plan check fees shall be paid by Trade Contractor.

(g) Provide District on request with Trade Contractor's written safety program and safety plan for each site.

10.2.7 Shoring and Structural Loading.

The Trade 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 Trade 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 Trade 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 Trade Contractor at no cost to the District.

10.2.8 Conformance Within Established Limits.

The Trade 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 District or the Trade Contractor, and shall not unreasonably encumber the premises with construction equipment or materials.

10.2.9 Subcontractor Enforcement of Rules.

Subcontractors shall enforce the District's and the Trade Contractor'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.

10.2.10 Site Access.

The Trade Contractor and the Subcontractors shall use only those ingress and egress routes designated by the District, observe the boundaries of the Site designated by the District, park only in those

areas designated by the District, 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 placing identifying stickers on vehicles.

10.3 EMERGENCIES

10.3.1 Emergency Action.

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

10.3.2 Accident Reports.

The Trade Contractor shall promptly report in writing to the District 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 paragraph 10.1.4, immediately by telephone or messenger to the District.

10.4 HAZARDOUS MATERIALS

10.4.1 Discovery of Hazardous Materials.

In the event the Trade 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 by ' 25249.5 of the California Health and Safety Code, which has not been rendered harmless, the Trade Contractor shall immediately stop Work in the area affected and report the condition to the District and the Architect in writing, whether or not such material was generated by the Trade Contractor or the District. The Work in the affected area shall not thereafter be resumed, except by written agreement of the District and the Trade 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 Trade Contractor.

10.4.2 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 Trade 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.

10.4.3 Indemnification for Hazardous Material Caused by Trade Contractor.

In the event the hazardous materials on the Project Site is caused by the Trade Contractor, the Trade 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 Trade Contractor's generation of hazardous material on the Project Site. In addition, the Trade Contractor shall defend, indemnify and hold harmless District and its 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.

10.4.4 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.

End of Article 10

ARTICLE 11

INSURANCE AND BONDS

11.1 TRADE CONTRACTOR'S LIABILITY INSURANCE

11.1.1 Insurance Requirements.

Before the commencement of the Work, the Trade Contractor shall purchase from and maintain in a company or companies lawfully authorized to do business in California as admitted carriers with a financial rating of at least A+status as rated in the most recent edition of Best's Insurance Reports or as amended by the Supplementary General Conditions, such insurance as will protect the District from claims set forth below, which may arise out of or result from the Trade Contractor's operations under the Contract and for which the Trade Contractor may be legally liable, whether such operations are by the Trade Contractor, by a Subcontractor, by anyone directly or indirectly employed by any of them, or by anyone for whose acts any of them may be liable:

- (a) Claims for damages because of bodily injury, sickness, disease, or death of any person District would require indemnification and coverage for employee claim;
- (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 Trade Contractor or by another person;
- (c) Claims for damages because of injury or destruction of tangible property, including loss of use resulting therefrom, arising from operations under 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;
- (e) Claims involving contractual liability applicable to the Trade Contractor's obligations under the Contract Documents, including liability assumed by and the indemnity and defense obligations of the Trade Contractor and the Subcontractors; and
- (f) Claims involving Completed Operations, Independent Contractors' coverage, and Broad Form property damage, without any exclusions for collapse, explosion, demolition, underground coverage, and excavating. (XCU)
- (g) Claims involving sudden or accidental discharge of contaminants or pollutants.

11.1.2 Subcontractor Insurance Requirements.

The Trade Contractor shall require its Subcontractors to take out and maintain similar public liability insurance and property damage insurance required under paragraph 11.1.1 in like amounts. A "claims made" or modified "occurrence" policy shall not satisfy the requirements of paragraph 11.1.1 without prior written approval of the District.

11.1.3 Additional Insured Endorsement Requirements.

The Trade Contractor shall name, on any policy of insurance required under paragraph 11.1, the District, Architect, Inspector, the State of California, their officers, employees, agents and independent contractors as additional insureds. Subcontractors shall name the Trade Contractor, the District, Architect, Inspector, the State of California, their officers, employees, agents and independent contractors as 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 Trade Contractor pursuant to 11.1.1 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.

11.1.4 Specific Insurance Requirements.

Trade Contractor shall take out and maintain and shall require all subcontractors, if any, whether primary or secondary, to take out and maintain:

1. If Contractor’s Contract (total bid price) is less than \$500,000.00; Insurance amount must be \$1,000,000.00 per occurrence for bodily injury, personal injury and property damage. If Contractor’s Contract (total bid price is at least \$500,000.00 but not more than \$2,000,000.00 the insurance coverage must me \$1,000,000.00 per occurrence for bodily injury, personal injury and property damage, plus an excess Umbrella Liability policy in the amount of 1,000,000.00 covering the above named perils. If contractor’s Contract (total bid price) is more than \$2,000,000.00 the insurance coverage must be 1,000,000.00 per occurrence for bodily injury personal injury and property damage, plus an excess umbrella Liability policy in the amount of \$2,000,000.00 covering the above perils.

- (a) Per occurrence (combined single limit)..... \$1,000,000.00
- (b) Project Specific Aggregate (for this Project only) \$1,000,000.00
- (c) Products and Completed Operations \$1,000,000.00
- (d) Personal and Advertising Injury Limit..... \$1,000,000.00

2. Insurance Covering Special Hazards

The following Special hazards shall be covered by riders or riders to above mentioned public liability insurance or property damage insurance policy or policies of insurance, in amounts as follows:

- (a) Automotive and truck where operated in amounts \$1,000,000.00
- (b) Material Hoist where used in amounts \$1,000,000.00
- (c) Explosion, Collapse and Underground (XCU) coverage \$1,000,000.00

11.2 WORKERS' COMPENSATION INSURANCE

During the term of this Contract, the Trade Contractor shall provide workers' compensation insurance for all of the Trade Contractor's employees engaged in Work under this Contract on or at the Site of the Project and, in case any of the Trade Contractor's Work is subcontracted, the Trade Contractor shall require the Subcontractor to provide workers' compensation insurance for all the Subcontractor's employees engaged in Work under the subcontract. Any class of employee or employees not covered by a Subcontractor's insurance shall be covered by the Trade Contractor's insurance. In case any class of

employees engaged in Work under this Contract on or at the Site of the Project is not protected under the Workers' Compensation laws, the Trade Contractor shall provide or cause a Subcontractor to provide adequate insurance coverage for the protection of those employees not otherwise protected. The Trade Contractor shall file with the District certificates of insurance as required under paragraph 11.6 and in compliance with Labor Code section 3700.

11.3 BUILDER'S RISK/"ALL RISK" INSURANCE

11.3.1 Course-of-Construction Insurance Requirements.

The Trade Contractor, during the progress of the Work and until final acceptance of the Work by District upon completion of the entire Contract, will maintain Builder's Risk, Course of Construction or similar first party property coverage issued on a replacement cost value basis consistent with the total replacement cost of all insurable Work and the Project included within the Contract Documents. Coverage is to insure against all risks of accidental direct physical loss, and must include, by the basic grant of coverage or by endorsement, the perils of vandalism, malicious mischief (both without any limitation regarding vacancy or occupancy), fire, sprinkler leakage, civil authority, sonic boom, collapse, wind, lightning, smoke and riot. The coverage will include debris removal, demolition, increased costs due to enforcement of building ordinance and law in the repair and replacement of damage and undamaged portions of the property, and reasonable costs for the Architect's and engineering services and expenses required as a result of any insured loss upon the Work and Project which is the subject of the Contract Documents, including completed Work and Work in progress, to the full insurable value thereof. Such insurance shall include the District and the Architect as additional named insureds, and any other person with an insurable interest as designated by the District.

The Architect shall submit to the District for its approval all items deemed to be uninsurable. The risk of the damage to the Work due to the perils covered by the Builder's Risk/All Risk" Insurance, as well as any other hazard which might result in damage to the Work, is that of the Trade Contractor and the surety, and no claims for such loss or damage shall be recognized by the District nor will such loss or damage excuse the complete and satisfactory performance of the Contract by the Trade Contractor.

The PTC shall be responsible for the Deductible on any claim made against the project's Builder's Risk Policy for a loss related to the TC scope of work.

11.4 FIRE INSURANCE

Before the commencement of the Work, the Trade Contractor shall procure, maintain, and cause to be maintained at the Trade Contractor's expense, fire insurance on all Work subject to loss or damage by fire. The amount of fire insurance shall be sufficient to protect the Project against loss or damage in full until the Work is accepted by the District.

11.5 OTHER INSURANCE

The Trade Contractor shall provide all other insurance required to be maintained under applicable laws, ordinances, rules, and regulations.

11.6 PROOF OF INSURANCE

The Trade Contractor shall not commence Work nor shall it allow any Subcontractor to commence Work under this Contract 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. Date of cancellation or reduction may not be less than thirty (30) days after the date of mailing notice.”

(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 District.

(d) The Trade Contractor and its Subcontractors shall produce a certified copy of any insurance policy required under this Section upon written request of the District.

11.7 COMPLIANCE

In the event of the failure of the Trade Contractor to furnish and maintain any insurance required by this Article 11, the Trade Contractor shall be in default under the Contract. Compliance by Trade Contractor with the requirement to carry insurance and furnish certificates or policies evidencing the same shall not relieve the Trade Contractor from liability assumed under any provision of the Contract Documents, including, without limitation, the obligation to defend and indemnify the District and the Architect.

11.8 WAIVER OF SUBROGATION

Trade Contractor waives (to the extent permitted by law) any right to recover against the District for damages to the Work, any part thereof, or any and all claims arising by reason of any of the foregoing, but only to the extent that such damages and/or claims are covered by property insurance and only to the extent of such coverage (which shall exclude deductible amounts) by insurance actually carried by the District.

The provisions of this section are intended to restrict each party to recovery against insurance carriers only to the extent of such coverage and waive fully and for the benefit of each, any rights and/or claims which might give rise to a right of subrogation in any insurance carrier. The District and the Trade Contractor shall each obtain in all policies of insurance carried by either of them, a waiver by the insurance companies thereunder of all rights of recovery by way of subrogation for any damages or claims covered by the insurance.

11.9 PERFORMANCE AND PAYMENT BONDS

11.9.1 Bond Requirements.

Prior to commencing any portion of the Work, the Trade Contractor shall furnish separate payment and performance bonds for its portion of the Work which shall cover 100% faithful performance of and 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 Trade 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 Trade Contractor

will release the surety. If the Trade Contractor fails to furnish the required bonds, the District may terminate the Contract for cause.

11.9.2 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.

11.9.3 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.

11.9.4 County Clerk's Certificate

In addition to the required Payment and Performance Bonds, the Trade Contractor shall, prior to the commencement of work, submit to the District a certificate from the clerk of the county that the certificate of authority of the insurer has not been surrendered, revoked, canceled, annulled or suspended, or in the event that it has, that renewed authority has been granted.

End of Article 11

ARTICLE 12

UNCOVERING AND CORRECTION OF WORK

12.1 UNCOVERING OF WORK

12.1.1 Uncovering Work for Required Inspections.

If a portion of the Work is covered without Inspector or Architect approval or not in compliance with the Contract Documents, it must, if required in writing by the Inspector or the Architect, be uncovered for the Inspector's or the Architect's observation and be replaced at the Trade Contractor's expense without change in the Contract Sum or Time.

12.1.2 Costs for Inspections not Required.

If a portion of the Work has been covered which the Inspector or the Architect has not specifically requested to observe prior to its being covered, the Inspector or the Architect may request to see such Work, and it shall be uncovered by the Trade 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 Trade Contractor shall pay such costs unless the condition was caused by the District or a separate trade contractor, in which event the District shall be responsible for payment of such costs to the trade contractor.

12.2 CORRECTION OF WORK

12.2.1 Correction of Rejected Work.

The Trade 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 Trade 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.

12.2.2 District's Rights if Trade Contractor Fails to Correct.

If the Trade Contractor fails to correct nonconforming Work within a reasonable time, the District may correct it, pursuant to Article 9.

End of Article 12

ARTICLE 13

MISCELLANEOUS PROVISIONS

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 Trade 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

13.4.1 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.

13.4.2 No Waiver.

No action or failure to act by the Inspector, the District, 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 TESTS AND INSPECTIONS

13.5.1 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.

13.5.2 Independent Testing Laboratory.

The District will select and pay an independent testing laboratory, approved by DSA, 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 Trade 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 Trade Contractor, and deducted from the next Progress Payment.

13.5.3 Advance Notice to Inspector.

The Trade Contractor shall notify the Inspector a sufficient time in advance of its readiness for required observation or inspection so that the Inspector may arrange for same. The Trade Contractor shall notify the Inspector a sufficient time in advance 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.

13.5.4 Testing Off-Site.

Any material shipped by the Trade 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.

13.5.5 Additional Testing or Inspection.

If the Inspector, the Architect, the District, or public authority having jurisdiction determines that portions of the Work require additional testing, inspection, or approval not included under paragraph 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 paragraph 13.5.7.

13.5.6 Costs for Retesting.

If such procedures for testing, inspection, or approval under paragraphs 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 Trade 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 services and expenses. Any such costs shall be paid by the District, invoiced to the Trade Contractor, and deducted from the next Progress Payment.

13.5.7 Costs for Premature Test.

In the event the Trade Contractor requests any test or inspection for the Project and is not completely ready for the inspection, the Trade 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 and Architect's fees and expenses, and the amount of the invoice of shall be deducted from the next Progress Payment.

13.6 TRENCH EXCAVATION

13.6.1 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 Trade Contractor shall, in advance of excavation, submit to the District or a registered civil or structural engineer employed 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.

13.6.2 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.

13.6.3 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.

13.6.4 No Excavation Without Permits.

The Trade 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

13.7.1 Wage Rates.

Pursuant to the provisions of Article 2 (commencing at section 1720), Chapter 1, Part 7, Division 2, of the Labor Code, the governing board of 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 Work 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 with the Clerk of the District's governing board, and copies will be made available to any interested party on request. The Trade Contractor shall post a copy of such wage rates at the Site.

13.7.2 Holiday and Overtime Pay.

Holiday and overtime work, when permitted by law, shall be paid for at a rate of at least one and one-half (1.5) times the above specified rate of per diem wages, unless otherwise specified.

13.7.3 Wage Rates Not Affected by Subcontracts.

The Trade 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 Trade Contractor or any Subcontractor and such workers.

13.7.4 Travel and Subsistence.

The Trade Contractor shall pay and shall cause to be paid to each worker needed to execute the Work on the Project travel and subsistence payments, as such travel and subsistence payments are defined by the Department of Industrial Relations in accordance with Labor Code section 1773.8.

13.7.5 Forfeiture and Payments.

Pursuant to Labor Code section 1775, the Trade Contractor shall as a penalty to the District, forfeit Fifty Dollars (\$50.00) for each calendar day, or portion thereof, for each worker paid less than the prevailing rate of per diem wages, determined by the Director, for such craft or classification in which such worker is employed for any Work done under the Agreement by the Trade Contractor or by any Subcontractor under it. The amount of the penalty shall be determined by the Labor Commission and shall be based on consideration of the Trade Contractor's mistake, inadvertence, or neglect in failing to pay the correct prevailing rate of per diem wage, the previous record of the Trade Contractor in meeting his or her prevailing rate of per diem wage obligations, or the Trade Contractor's willful failure to pay the correct prevailing rate of per diem wages. A mistake, inadvertence, or neglect in failing to pay the correct prevailing rate of per diem wage is not excusable if the Trade Contractor had knowledge of it or the obligations under this part. The difference between such prevailing rate of per diem wage and the amount paid to each worker for each calendar day or portion thereof for which each worker was paid less than the prevailing rate of per diem wage shall be paid to each worker by the Trade Contractor.

13.8 RECORD OF WAGES PAID: INSPECTION

13.8.1 Application of Labor Code.

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 public work.

“(1) The payroll records enumerated under subdivision (a) shall be certified and shall be available for inspection at all reasonable hours at the principal office of the Contractor on the following basis:

“(2) A certified copy of an employee's payroll record shall be made available for inspection or furnished to such employee or his or her authorized representative on request.

“(3) A certified copy of all payroll records enumerated in subdivision (a) shall be made available for inspection or furnished upon request to a representative of the body awarding the contract, the Division of Labor Standards Enforcement, and the Division of Apprenticeship Standards of the Department of Industrial Relations.

“(b) A certified copy of all payroll records enumerated in subdivision (a) 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 either the body awarding the contract, the Division of Apprenticeship Standards, or the Division of Labor Standards Enforcement. If the requested payroll records have not been provided pursuant to paragraph (2), the requesting party shall, prior to being provided

the records, reimburse the costs of the preparation by the Contractor, subcontractors, 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.

“(d) Each Contractor shall file a certified copy of the records enumerated in subdivision (a) with the entity that requested such records within 10 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 awarding body, the Division of Apprenticeship Standards or the Division of Labor Standards Enforcement shall be marked or obliterated in such a manner as to prevent disclosure of an individual's name, address and social security number. The name and address of the Contractor awarded the Contract or performing the Contract shall not be marked or obliterated.

“(f) The contractor shall inform the body awarding the contract of the location of the records enumerated under subdivision (a), 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 shall have 10 days in which to comply, subsequent to receipt of written notice specifying in what respects such Contractor must comply with this section. In the event that the Contractor fails to comply within the 10-day period, the Contractor 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 labor Standards Enforcement, such penalties shall be withheld from the progress payments then due.”

The responsibility for compliance with this Article shall rest upon the Trade Contractor.

13.9 APPRENTICES

13.9.1 Apprentice Wages and Definitions.

All apprentices employed by the Trade Contractor to perform services under the Contract shall be paid the standard wage paid to apprentices under the regulations of the craft or trade at 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 Work of the craft or trade to which he or she is registered. Only apprentices, as defined in section 3077 of the *Labor Code*, who are in training under apprenticeship standards and written apprenticeship agreements under Chapter 4 (commencing with section 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.

13.9.2 Employment of Apprentices.

Trade Contractor agrees to comply with the requirements of Labor Code section 1777. When the Trade Contractor to whom the Contract is awarded by the District, or any Subcontractor under him or her, in performing any of the Work under the Contract or subcontract, employs workers in any apprenticeable craft or trade, the Trade Contractor and Subcontractor shall apply to the appropriate and approved joint apprenticeship committee administering the apprenticeship standards of the craft or trade in the area of

the Site of the Project, for a certificate approving the Trade Contractor or Subcontractor under the apprenticeship standards for the employment and training of apprentices in the area or industry affected. The joint apprenticeship committee or committees, subsequent to approving the subject Trade Contractor or Subcontractor, shall arrange for the dispatch of apprentices to the Trade Contractor or Subcontractor in order to comply with this section. Every Trade Contractor and Subcontractor shall submit the contract award information to the applicable joint apprenticeship committee which shall include an estimate of journeyman hours to be performed under the Contract, the number of apprentices to be employed, and the approximate dates the apprentices will be employed. There shall be an affirmative duty upon the joint apprenticeship committee or committees administering the apprenticeship standards of the crafts or trade in the area of the Site of the public work, to ensure equal employment and affirmative action and apprenticeship for women and minorities. Contractors or Subcontractors shall not be required to submit individual applications for approval to local joint apprenticeship committees provided they are already covered by the local apprenticeship standards. The ratio of Work performed by apprentices to journeymen shall be in accordance with Labor Code section 1777.

13.9.2.1 *Apprenticeable Craft or Trade.* "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 Director of the Department of Industrial Relations.

13.9.3 Apprentice Fund.

A Trade Contractor to whom the Contract is awarded 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 and who is not contributing to a fund or funds to administer and conduct the apprenticeship program in any such craft or trade in the area of the site of the Project, to which fund or funds other contractors in the area of the site of the Project are contributing, shall contribute to the fund or funds in each craft or trade in which he or she employs journeymen or apprentices on the Project in the same amount or upon the same basis and in the same manner as the other contractors do, but where the trust fund administrators are unable to accept the funds, contractors not signatory to the trust agreement shall pay a like amount to the California Apprenticeship Council. The Trade Contractor or Subcontractor may add the amount of the contributions in computing his or her bid for the contract.

13.9.4 Prime Trade Contractor Compliance.

The responsibility of compliance with Article 13 and ' 1777.5 of the Labor Code for all apprenticeable occupations is with the Prime Trade Contractor.

13.10 ASSIGNMENT OF ANTITRUST CLAIMS

13.10.1 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 Trade 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 Trade 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.

13.10.2 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 Government Code § 10532, or any amendments thereto, all books, records, and files of the District, the Trade 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. Trade Contractor shall preserve and cause to be preserved such books, records, and files for the audit period.

End of Article 13

ARTICLE 14

TERMINATION OR SUSPENSION OF THE CONTRACT

14.1 TERMINATION BY THE TRADE CONTRACTOR FOR CAUSE

14.1.1 Grounds for Termination.

The Trade 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 Trade Contractor, a Subcontractor, a Sub-subcontractor, their agents or employees, or any other persons performing portions of the Work for whom the Trade 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 Trade 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 Architect 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 Contract if the Trade Contractor:

- (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 Trade Contractor and the Trade Contractor's surety, if any, written notice of seven (7) days, terminate the 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 Trade Contractor;

- (b) Accept assignment of Subcontracts; and
- (c) Complete the Work by any reasonable method the District may deem expedient.

14.2.3 Payments Withheld.

If the District terminates the Contract for one of the reasons stated in paragraph 14.2.1, the Trade Contractor shall not be entitled to receive further payment until the Work is complete.

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 Trade Contractor. If such costs exceed the unpaid balance, the Trade Contractor shall pay the difference to the District. The amount to be paid to the Trade 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 (TRADE CONTRACTOR NOT AT FAULT)

District may terminate the Contract upon fifteen (15) calendar days of written notice to the Trade Contractor, if it is found that reasons beyond the control of either the District or Trade Contractor make it impossible or against the District's interest to complete the work. In such a case, the Trade 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).

End of Article 14

End of General Conditions

SECTION 011000 - SUMMARY

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section Includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Coordination with occupants.
5. Work restrictions.
6. Specification and drawing conventions.
7. Miscellaneous provisions.

- B. Related Requirements:

1. Section 015000 "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification: Murrieta Valley High School Automotive Lift

1. Project Location: 42200 Nighthawk Way, Murrieta, CA 92562.

- B. Owner: Murrieta Valley Unified School District.

- C. Architect: BakerNowicki Design Studio.

- D. Architect's Consultants: The Architect has retained the following design professionals who have prepared designated portions of the Contract Documents:

1. Structural: KNA Consulting Engineers.
2. Plumbing: Dufoe Consulting Engineers
3. Electrical: JCE Consulting Engineers

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of Project is defined by the Contract Documents and consists of the following:
 - 1. Theater Improvements including but not limited to, new theatrical lighting, rigging adjustments, new cyclorama curtain, new drinking fountain and new site signage.
- B. Type of Contract:
 - 1. Project will be constructed under a single prime contract.

1.5 REGULATORY REQUIREMENTS

- A. Perform Work in accordance with the applicable provisions of Parts 1-5, 7, 8, 10 and 12, Title 24, California Code of Regulations.
- B. Particular attention is directed to the following Sections of the Safety of Construction of Public Schools, Chapter 4, Part 1, Title 24, CCR.
 - 1. Section 4-343: Responsibility of the Contractor.
 - 2. Section 4-336; Verified Reports.
- C. Perform Work in accordance with the applicable provisions of local Codes and Regulations, including the following as adopted by jurisdictional authority
 - 1. 2016 - California Building Code
 - 2. 2016 - California Mechanical Code
 - 3. 2016 - California Plumbing Code
 - 4. 2016 - California Electrical Code.
 - 5. 2016 - California Code of Regulations, Title 24; applicable sections related to accessibility and energy conservation requirements.

1.6 During the entire construction period, it shall be the sole responsibility of the Contractor to maintain conditions at the Project Site to meet the requirements of the Federal Occupational Safety and Health Administration (OSHA) and California occupational regulations . This provision shall cover the Contractor's employees and all other persons working upon or visiting the site. The Contractor shall become fully informed of all applicable standards and regulations and inform all persons and representatives applicable standards and regulations and inform all persons and representatives responsible for work under this Contract.

1.7 ACCESS TO SITE

A. General: Contractor shall have limited use of Project site for construction operations as indicated on Drawings by the Contract limits and as indicated by requirements of this Section.

B. Use of Site: Limit use of Project site to areas within the Contract limits indicated. Do not disturb portions of Project site beyond areas in which the Work is indicated.

1. Driveways, Walkways and Entrances: Keep driveways and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.

a. Schedule deliveries to minimize use of driveways and entrances by construction operations.

b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

C. Condition of Existing Building: Maintain portions of existing building affected by construction operations in a weathertight condition throughout construction period. Repair damage caused by construction operations.

1.8 COORDINATION WITH OCCUPANTS

A. Partial Owner Occupancy: Owner will occupy the premises during entire construction period, with the exception of areas under construction. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's operations. Maintain existing exits unless otherwise indicated.

1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and authorities having jurisdiction.

2. Provide not less than 72 hours' notice to Owner of activities that will affect Owner's operations.

1.9 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and with other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work in the existing building to normal business working hours of 7:00 a.m. to 5:30 p.m., Monday through Friday, unless otherwise indicated. When school is in session, work shall be generally performed after school hours from 3:30 p.m. to 6:00 a.m., Monday through Friday. The District's school calendar is posted on the District's website at www.murriet.k12.ca.us, and is updated periodically.
 - a. Work Outside Regular Hours: Work outside regular working hours requires Owner approval and is subject to the following restrictions:
 - 1) Work hours on week-ends and evenings shall comply with applicable City of Murrieta ordinances.
 - 2) For work after dark, obtain approval from Owner's Representative for location of any lights that are used outside.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
 - 1. Notify Owner not less than two days in advance of proposed utility interruptions.
 - 2. Obtain Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
 - 1. Notify Owner not less than two days in advance of proposed disruptive operations.
 - 2. Obtain Owner's written permission before proceeding with disruptive operations.
- E. Employee Identification: Provide identification tags for Contractor personnel working on Project site. Require personnel to use identification tags at all times.

1.10 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:

1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.
- B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
- C. Drawing Coordination: Requirements for materials and products identified on Drawings are described in detail in the Specifications. One or more of the following are used on Drawings to identify materials and products:
1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
 2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
 3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 011000

SECTION 012100 - ALLOWANCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements governing allowances.
 - 1. Certain items are specified in the Contract Documents by allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when direction will be provided to Contractor. If necessary, additional requirements will be issued by Change Order.
- B. Types of allowances include the following:
 - 1. Contingency allowances.

1.3 CONTINGENCY ALLOWANCES

- A. Use the contingency allowance only as directed by Architect for Owner's purposes and only by Change Orders that indicate amounts to be charged to the allowance.
- B. Contractor's overhead, profit, and related costs for products and equipment ordered by Owner under the contingency allowance are included in the allowance and are not part of the Contract Sum. These costs include delivery, installation, taxes, insurance, equipment rental, and similar costs.
- C. Change Orders authorizing use of funds from the contingency allowance will include Contractor's related costs and reasonable overhead and profit margins.
- D. At Project closeout, credit unused amounts remaining in the contingency allowance to Owner by Change Order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine products covered by an allowance promptly on delivery for damage or defects. Return damaged or defective products to manufacturer for replacement.

3.2 PREPARATION

- A. Coordinate materials and their installation for each allowance with related materials and installations to ensure that each allowance item is completely integrated and interfaced with related work.

3.3 SCHEDULE OF ALLOWANCES

- A. Allowance No. 1: Contingency Allowance: Include a contingency allowance of \$10,000.00 for use according to Owner's written instructions.

END OF SECTION 012100

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for products selected under an allowance.
 - 2. Section 016000 "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.3 DEFINITIONS

- A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.
 - 1. Substitutions for Cause: Changes proposed by Contractor that are required due to changed Project conditions, such as unavailability of product, regulatory changes, or unavailability of required warranty terms.
 - 2. Substitutions for Convenience: Changes proposed by Contractor or Owner that are not required in order to meet other Project requirements but may offer advantage to Contractor or Owner.

1.4 AGENCY REQUIREMENTS

- A. All substitutions affecting ACS, FLS and SS shall be considered a change order or addenda and shall be approved by DSA prior to fabrication and installation. (Section 4-338, Part 1).

1.5 ACTION SUBMITTALS

- A. Substitution Requests: Submit three copies of each request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
 - 1. Substitution Request Form: Use form provided in Project Manual.

2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or revisions needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable Specification Section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
3. Contractor agrees to compensate Architect, at Architects current billing rates, for substitution requests that require modification to the Contract Documents. Compensation shall be made by an adjustment to the Contract amount.
 - a. Where required by Division of the State Architect (D.S.A.) approvals, the Contractor shall pay all plan check fees. Or fees required to obtain approval.

- b. The Contractor shall pay the Architect and his Consultants for all services rendered for the drawings, calculations, review time, and/or D.S.A. plan check time for each substitute item(s) for approval.
4. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within a reasonable period after the Architect receives final documentation.
- a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
 - b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.6 QUALITY ASSURANCE

- A. Compatibility of Substitutions: Investigate and document compatibility of proposed substitution with related products and materials. Engage a qualified testing agency to perform compatibility tests recommended by manufacturers.

1.7 PROCEDURES

- A. Coordination: Revise or adjust affected work as necessary to integrate work of the approved substitutions.

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

- A. Substitutions for Cause: Substitutions may be considered when a Product becomes unavailable through no fault of the Contractor. Submit requests for substitution immediately on discovery of need for change, but not later than 15 days prior to time required for preparation and review of related submittals.
 - 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.

- d. Requested substitution has received necessary approvals of authorities having jurisdiction.
- e. Requested substitution is compatible with other portions of the Work.
- f. Requested substitution has been coordinated with other portions of the Work.
- g. Requested substitution provides specified warranty.
- h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- i. A maximum of one substitution request shall be submitted for any one item.
- j. Substitutions with material effect on the project will be submitted for approval, prior to fabrication or installation, by D.S.A. as a Change Order per Section 012600.

B. Substitutions for Convenience: Requests are restricted to before bid opening.

A. The Instruction to bidders specify time restrictions for submitting request for Substitution during the bidding periods according to the requirements specified in this section. In the event that the bidder does not agree in the request form to provide the specified item and the District denies the request substitution, the bidder's bid shall be considered non-responsive and the District may award the contract to the next lowest bidder or in its sole discretion, release all bidders.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications.
- B. Related Requirements:
 - 1. Section 012500 "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.

1.3 MINOR CHANGES IN THE WORK

- A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on standard BakerNowicki Design Studio form.

1.4 AGENCY REQUIREMENTS

- A. All addenda must be signed by the Architect and approved by DSA. (Section 4-338, Part1)

1.5 PROPOSAL REQUESTS

- A. Owner-Initiated Proposal Requests: Construction Manager will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. If necessary, the description will include supplemental or revised Drawings and Specifications.
 - 1. Work Change Proposal Requests issued by Construction Manager are not instructions either to stop work in progress or to execute the proposed change.
 - 2. Within 10 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.

- a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Construction Manager.
- 1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 - 2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - 3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - 4. Include costs of labor and supervision directly attributable to the change.
 - 5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - 6. Comply with requirements in Section 012500 "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
 - 7. Proposal Request Form: Use form provided by Owner. Sample copy is included in Project Manual.

1.6 ADMINISTRATIVE CHANGE ORDERS

- A. Allowance Adjustment: See Section 012100 "Allowances" for administrative procedures for preparation of Change Order Proposal for adjusting the Contract Sum to reflect actual costs of allowances.

1.7 CHANGE ORDER PROCEDURES

- A. On Owner's approval of a Work Changes Proposal Request, Architect will issue a Change Order for signatures of Owner and Contractor on AIA Document G701 form included in Project Manual.

- B. Change Orders must be signed by all the following: Architect/Engineer of record, Owner, Structural Engineer and DSA.

1.8 CONSTRUCTION CHANGE DIRECTIVE

- A. Work Change Directive: Contractor may issue a Work Change Directive on AIA Document G714 EJCDC Document C-940. Work Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
 - 1. Work Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation: Maintain detailed records on a time and material basis of work required by the Work Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 012900 - PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Requirements:
 - 1. Section 012100 "Allowances" for procedural requirements governing the handling and processing of allowances.
 - 2. Section 012600 "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 3. Section 013200 "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.

1.3 DEFINITIONS

- A. Schedule of Values: A statement furnished by Contractor allocating portions of the Contract Sum to various portions of the Work and used as the basis for reviewing Contractor's Applications for Payment.

1.4 SCHEDULE OF VALUES

- A. Coordination: Coordinate preparation of the schedule of values with preparation of Contractor's construction schedule.
 - 1. Coordinate line items in the schedule of values with other required administrative forms and schedules, including the following:
 - a. Application for Payment forms with continuation sheets.
 - b. Submittal schedule.
 - c. Items required to be indicated as separate activities in Contractor's construction schedule.

2. Submit the schedule of values to Architect through Construction Manager at earliest possible date, but no later than seven days before the date scheduled for submittal of initial Applications for Payment.
 3. Subschedules for Separate Elements of Work: Where the Contractor's construction schedule defines separate elements of the Work, provide subschedules showing values coordinated with each element.
- B. Format and Content: Use Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal
 2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of five percent of the Contract Sum.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.
 5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.

6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Allowances: Provide a separate line item in the schedule of values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.
8. Purchase Contracts: Provide a separate line item in the schedule of values for each purchase contract. Show line-item value of purchase contract. Indicate owner payments or deposits, if any, and balance to be paid by Contractor.
9. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
10. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and Construction Manager and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment is indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
- C. Application for Payment Forms: Use forms acceptable to Architect and Owner for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.
- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Construction Manager will return incomplete applications without action.
 1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.

2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. **Stored Materials:** Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Value of materials previously stored and remaining stored as of date of previous Applications for Payment.
 - b. Value of previously stored materials put in place after date of previous Application for Payment and on or before date of current Application for Payment.
 - c. Value of materials stored since date of previous Application for Payment and remaining stored as of date of current Application for Payment.
- F. **Transmittal:** Submit three signed and notarized original copies of each Application for Payment to Owner. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. **Waivers of Mechanic's Lien:** With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.
 5. **Waiver Forms:** Submit executed waivers of lien on forms, acceptable to Owner.

- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
- I. Application for Payment at Substantial Completion: After Architect issues the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portion of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificate(s) of Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.
 3. Updated final statement, accounting for final changes to the Contract Sum.
 4. AIA Document G706, "Contractor's Affidavit of Payment of Debts and Claims."
 5. AIA Document G706A, "Contractor's Affidavit of Release of Liens."
 6. Evidence that claims have been settled.
 7. Final liquidated damages settlement statement.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012900

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:

- 1. General coordination procedures.
- 2. Requests for Information (RFIs).
- 3. Project meetings.

- B. Related Requirements:

- 1. Section 013200 "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
- 2. Section 017300 "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
- 3. Section 017700 "Closeout Procedures" for coordinating closeout of the Contract.

1.3 DEFINITIONS

- A. RFI: Request from Owner, Construction Manager, Architect, or Contractor seeking information required by or clarifications of the Contract Documents.

1.4 AGENCY REQUIREMENTS

- A. Title 24 Parts 1-5 must be kept on site during construction.

1.5 INFORMATIONAL SUBMITTALS

- A. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design. Use CSI Form 1.5A. Include the following information in tabular form:

1. Name, address, and telephone number of entity performing subcontract or supplying products.
 2. Number and title of related Specification Section(s) covered by subcontract.
 3. Drawing number and detail references, as appropriate, covered by subcontract.
- B. Key Personnel Names: Within 7 days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home, office, and cellular telephone numbers and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.

1.6 GENERAL COORDINATION PROCEDURES

- A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
 2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
 3. Make adequate provisions to accommodate items scheduled for later installation.
- B. Prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.
1. Prepare similar memoranda for Owner and separate contractors if coordination of their Work is required.
- C. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
1. Preparation of Contractor's construction schedule.
 2. Preparation of the schedule of values.
 3. Installation and removal of temporary facilities and controls.
 4. Delivery and processing of submittals.
 5. Progress meetings.
 6. Preinstallation conferences.
 7. Project closeout activities.
 8. Startup and adjustment of systems.

D. Conservation: Coordinate construction activities to ensure that operations are carried out with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

1. Salvage materials and equipment involved in performance of, but not actually incorporated into, the Work. See other Sections for disposition of salvaged materials that are designated as Owner's property.

1.7 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.

1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:

1. Project name.
2. Project number.
3. Date.
4. Name of Contractor.
5. Name of Architect and Construction Manager.
6. RFI number, numbered sequentially.
7. RFI subject.
8. Specification Section number and title and related paragraphs, as appropriate.
9. Drawing number and detail references, as appropriate.
10. Field dimensions and conditions, as appropriate.
11. Contractor's suggested resolution. If Contractor's suggested resolution impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
12. Contractor's signature.
13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.

C. RFI Forms: AIA Document G716 or as approved by Architect .

1. Attachments shall be electronic files in Adobe Acrobat PDF format.

- D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow seven working days for Architect's response for each RFI. RFIs received by Architect or Construction Manager after 1:00 p.m. will be considered as received the following working day.
1. The following Contractor-generated RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 2. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Section 012600 "Contract Modification Procedures."
 - a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect and Construction Manager in writing within 10 days of receipt of the RFI response.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly.
1. Project name.
 2. Name and address of Contractor.
 3. Name and address of Architect and Construction Manager.
 4. RFI number including RFIs that were returned without action or withdrawn.
 5. RFI description.
 6. Date the RFI was submitted.
 7. Date Architect's and Construction Manager's response was received.
- F. On receipt of Architect's and Construction Manager's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect and Construction Manager within seven days if Contractor disagrees with response.
1. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.8 PROJECT MEETINGS

- A. General: Contractor will schedule and conduct meetings and conferences at Project site unless otherwise indicated.
1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
 2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
 3. Minutes: Entity responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within three days of the meeting.
- B. Preconstruction Conference: Owner will schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect, but no later than 15 days after execution of the Agreement.
1. Conduct the conference to review responsibilities and personnel assignments.
 2. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
 3. Agenda: Discuss items of significance that could affect progress, including the following:
 - a. Tentative construction schedule.
 - b. Phasing.
 - c. Critical work sequencing and long-lead items.
 - d. Designation of key personnel and their duties.
 - e. Lines of communications.
 - f. Procedures for processing field decisions and Change Orders.
 - g. Procedures for RFIs.
 - h. Procedures for testing and inspecting.
 - i. Procedures for processing Applications for Payment.
 - j. Distribution of the Contract Documents.
 - k. Submittal procedures.
 - l. Preparation of record documents.
 - m. Use of the premises and existing buildings.
 - n. Work restrictions.
 - o. Working hours.
 - p. Owner's occupancy requirements.
 - q. Responsibility for temporary facilities and controls.
 - r. Procedures for moisture and mold control.
 - s. Procedures for disruptions and shutdowns.
 - t. Construction waste management and recycling.

- u. Parking availability.
- v. Office, work, and storage areas.
- w. Equipment deliveries and priorities.
- x. First aid.
- y. Security.
- z. Progress cleaning.

4. Minutes: Contractor will record and distribute meeting minutes.

C. Progress Meetings: Contractor will conduct progress meetings at weekly intervals.

- 1. Coordinate dates of meetings with Owner.
- 2. Meetings will extend through project closeout.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
- B. Related Requirements:
 - 1. Section 013300 "Submittal Procedures" for submitting schedules and reports.
 - 2. Section 014000 "Quality Requirements" for submitting a schedule of tests and inspections.

1.3 INFORMATIONAL SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. PDF electronic file.

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.

2.2 STARTUP CONSTRUCTION SCHEDULE

- A. Bar-Chart Schedule: Submit startup, horizontal, bar-chart-type construction schedule within seven days of date established for the Notice to Proceed.
- B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line. Outline significant construction activities for first 30 days of construction.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

- A. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
 - 1. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

1.3 DEFINITIONS

- A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action. Action submittals are those submittals indicated in individual Specification Sections as "action submittals."
- B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements. Informational submittals are those submittals indicated in individual Specification Sections as "informational submittals."
- C. Portable Document Format (PDF): An open standard file format licensed by Adobe Systems used for representing documents in a device-independent and display resolution-independent fixed-layout document format.

1.4 ACTION SUBMITTALS

- A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or revisions to submittals noted by Architect and additional time for handling and reviewing submittals required by those corrections.

1.5 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

- A. Architect's Digital Data Files: Electronic digital data files of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals.

1. Architect will furnish Contractor one set of digital data drawing files of the Contract Drawings for use in preparing Shop Drawings.
 - a. Contractor shall provide Architect with 7 days notice to consider request for electronic files.
 - b. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
 - c. Digital Drawing Software Program: The Contract Drawings are available in ACAD 2016.

- B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
 1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
 - a. **Architect reserve** the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

- C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
 1. The Architect's action will be taken within a reasonable time period, while allowing sufficient time, in the Architect's professional judgement, to permit adequate review.

- D. Electronic Submittals: Identify and incorporate information in each electronic submittal file as follows:
 1. Assemble complete submittal package into a single indexed file incorporating submittal requirements of a single Specification Section and transmittal form with links enabling navigation to each item.
 2. Name file with submittal number or other unique identifier, including revision identifier.

- a. File name shall use project identifier and Specification Section number followed by a decimal point and then a sequential number (e.g., MMHS-061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., LNHS-061000.01.A).
- 3. Provide means for insertion to permanently record Contractor's review and approval markings and action taken by Architect.
- 4. Transmittal Form for Electronic Submittals: Use software-generated form from electronic project management software electronic form acceptable to Owner, containing the following information:
- E. Options: Identify options requiring selection by Architect.
- F. Deviations and Additional Information: On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.
- G. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
 - 1. Note date and content of previous submittal.
 - 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 - 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.
- H. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- I. Use for Construction: Retain complete copies of submittals on Project site. Use only final action submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

- A. General Submittal Procedure Requirements: Prepare and submit submittals required by individual Specification Sections. Types of submittals are indicated in individual Specification Sections.
 - 1. Post electronic submittals as PDF electronic files directly to BOX specifically established for Project.

- a. Architect, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
- 2. Submit electronic submittals via email as PDF electronic files.
 - a. Architect, will return annotated file. Annotate and retain one copy of file as an electronic Project record document file.
- 3. Action Submittals: Submit electronic copies of each submittal unless otherwise indicated.
- 4. Informational Submittals: Submit electronic copies of each submittal unless otherwise indicated. Architect will not return copies.
- 5. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
 - a. Provide a digital signature with digital certificate on electronically submitted certificates and certifications where indicated.
- B. Transmit submittals within time periods established by the General Conditions and as required to maintain orderly and sequential progress of the work.
- C. Maintain complete and current submittal log, indicating status of all submittals and re-submittals. Provide summary of submittal status at pay request meeting.
- D. Failure to make timely submittals will not be reason for extension of Contract Time.
- E. Architect's review of submittals shall not relieve the Contractor for compliance with the Contract Documents, or for responsibility for deviations from Contract Documents.
 - 1. In review of submittals, Architect will not provide dimensions or elevations for field conditions, or for conditions available from a detailed review of documents.
- F. Copying of Contract Documents for use as submittals is not acceptable. Contractor shall produce original documents for shop drawings and other submittals.
- G. Transmit each submittal separately with Architect accepted form.
 - 1. Combine required material for a single specification Section into a single submittal. Incomplete or partial submittals will be returned without action for re-submittal in proper form.
 - 2. Do not combine data from more than one specification section or drawing component into a single submittal. Such submittals received will be returned without action for re-submittal in proper form.
 - 3. Submittals not reviewed by General Contractor will be returned without action for proper review and re-submittal.
- H.

- I. Product Data: Collect information into a single submittal for each element of construction and type of product or equipment.
 1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
 2. Mark each copy of each submittal to show which products and options are applicable.
 3. Include the following information, as applicable:
 - a. Manufacturer's catalog cuts.
 - b. Manufacturer's product specifications.
 - c. Standard color charts.
 - d. Statement of compliance with specified referenced standards.
 - e. Testing by recognized testing agency.
 - f. Application of testing agency labels and seals.
 - g. Notation of coordination requirements.
 - h. Availability and delivery time information.
 4. For equipment, include the following in addition to the above, as applicable:
 - a. Wiring diagrams showing factory-installed wiring.
 - b. Printed performance curves.
 - c. Operational range diagrams.
 - d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.
 5. Submit Product Data before or concurrent with Samples.
 6. Submit Product Data in the following format:
 - a. PDF electronic file.
- J. Shop Drawings: Prepare Project-specific information, drawn accurately to scale. Do not base Shop Drawings on reproductions of the Contract Documents or standard printed data.
 1. Preparation: Fully illustrate requirements in the Contract Documents. Include the following information, as applicable:
 - a. Identification of products.
 - b. Schedules.
 - c. Compliance with specified standards.
 - d. Notation of coordination requirements.
 - e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.

2. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 3. Submit Shop Drawings in the following format:
 - a. PDF electronic file.
- K. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 2. Identification: Attach label on unexposed side of Samples that includes the following:
 - a. Generic description of Sample.
 - b. Product name and name of manufacturer.
 - c. Sample source.
 - d. Number and title of applicable Specification Section.
 - e. Specification paragraph number and generic name of each item.
 3. For projects where electronic submittals are required, provide corresponding electronic submittal of Sample transmittal, digital image file illustrating Sample characteristics, and identification information for record.
 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect,, will return submittal with options selected.

6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.
 - a. Number of Samples: Submit three sets of Samples. Architect will retain Sample sets; remainder will be returned.
 - 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
 - 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

- L. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:
 1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
 2. Manufacturer and product name, and model number if applicable.
 3. Number and name of room or space.
 4. Location within room or space.
 5. Submit product schedule in the following format:
 - a. PDF electronic file.
 - b. paper copies of product schedule or list unless otherwise indicated. Architect, will return copies.

- M. Coordination Drawing Submittals: Comply with requirements specified in Section 013100 "Project Management and Coordination."

- N. Contractor's Construction Schedule: Comply with requirements specified in Section 013200 "Construction Progress Documentation."

- O. Application for Payment and Schedule of Values: Comply with requirements specified in Section 012900 "Payment Procedures."

- P. Test and Inspection Reports and Schedule of Tests and Inspections Submittals: Comply with requirements specified in Section 014000 "Quality Requirements."

- Q. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Section 017700 "Closeout Procedures."

- R. Maintenance Data: Comply with requirements specified in Section 017823 "Operation and Maintenance Data."
- S. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.
- T. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.
- U. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
- V. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
- W. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
- X. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.
- Y. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
- Z. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
- AA. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - 1. Name of evaluation organization.
 - 2. Date of evaluation.
 - 3. Time period when report is in effect.
 - 4. Product and manufacturers' names.
 - 5. Description of product.
 - 6. Test procedures and results.
 - 7. Limitations of use.

- BB. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
- CC. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
- DD. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
- EE. Design Data: Prepare and submit written and graphic information, including, but not limited to, performance and design criteria, list of applicable codes and regulations, and calculations. Include list of assumptions and other performance and design criteria and a summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Include page numbers.

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

- A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Project Closeout and Maintenance Material Submittals: See requirements in Section 017700 "Closeout Procedures."
- C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

- A. Action Submittals: Architect and Construction Manager will review each submittal, make marks to indicate corrections or revisions required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate

- B. Partial submittals prepared for a portion of the Work will be reviewed when use of partial submittals has received prior approval from Architect.
- C. Incomplete submittals are unacceptable, will be considered nonresponsive, and will be returned for resubmittal without review.
- D. Submittals not required by the Contract Documents may be returned by the Architect without action.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, Commissioning Authority, or authorities having jurisdiction are not limited by provisions of this Section.
 - 4. Specific test and inspection requirements are not specified in this Section.
- C. Related Requirements:
 - 1. Section 012100 "Allowances" for testing and inspecting allowances.

1.3 DEFINITIONS

- A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- B. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by Architect or Construction Manager.

- C. Preconstruction Testing: Tests and inspections performed specifically for Project before products and materials are incorporated into the Work, to verify performance or compliance with specified criteria.
- D. Product Testing: Tests and inspections that are performed by an NRTL, an NVLAP, or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with specified requirements.
- E. Source Quality-Control Testing: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- F. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.
- H. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.
 - 1. Use of trade-specific terminology in referring to a trade or entity does not require that certain construction activities be performed by accredited or unionized individuals, or that requirements specified apply exclusively to specific trade(s).
- I. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.4 AGENCY REQUIREMENTS

- A. Project inspector must be employed by the owner and approved by all of the following: Architect/Engineer of record, Structural Engineer and DSA.

1.5 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.6 REPORTS AND DOCUMENTS

- A. Manufacturer's Technical Representative's Field Reports: Prepare written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of technical representative making report.
 - 2. Statement on condition of substrates and their acceptability for installation of product.
 - 3. Statement that products at Project site comply with requirements.
 - 4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
 - 5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 6. Statement whether conditions, products, and installation will affect warranty.
 - 7. Other required items indicated in individual Specification Sections.
- B. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Include the following:
 - 1. Name, address, and telephone number of factory-authorized service representative making report.
 - 2. Statement that equipment complies with requirements.
 - 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 - 4. Statement whether conditions, products, and installation will affect warranty.
 - 5. Other required items indicated in individual Specification Sections.
- C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

- B. **Manufacturer Qualifications:** A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- C. **Fabricator Qualifications:** A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. **Installer Qualifications:** A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. **Professional Engineer Qualifications:** A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. **Specialists:** Certain Specification Sections require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.
 - 1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.
- G. **Testing Agency Qualifications:** An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.
 - 1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 - 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- H. **Manufacturer's Technical Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. **Factory-Authorized Service Representative Qualifications:** An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.8 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to perform these services.
1. Owner will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting they are engaged to perform.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be charged to Contractor, and the Contract Sum will be adjusted by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
 5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
 6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
- C. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Section 013300 "Submittal Procedures."
- D. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

- E. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

- F. Testing Agency Responsibilities: Cooperate with Architect, Construction Manager, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 - 1. Notify Architect, Construction Manager, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 - 2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
 - 3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
 - 4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
 - 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 - 6. Do not perform any duties of Contractor.

- G. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - 1. Access to the Work.
 - 2. Incidental labor and facilities necessary to facilitate tests and inspections.
 - 3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - 4. Facilities for storage and field curing of test samples.
 - 5. Delivery of samples to testing agencies.
 - 6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - 7. Security and protection for samples and for testing and inspecting equipment at Project site.

- H. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - 1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.9 SPECIAL TESTS AND INSPECTIONS

- A. Special Tests and Inspections: Owner will engage a qualified special inspector to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, as required.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

- A. Test and Inspection Log: Prepare a record of tests and inspections. Include the following:
 - 1. Date test or inspection was conducted.
 - 2. Description of the Work tested or inspected.
 - 3. Date test or inspection results were transmitted to Architect.
 - 4. Identification of testing agency or special inspector conducting test or inspection.
- B. Maintain log at Project site. Post changes and revisions as they occur. Provide access to test and inspection log for Architect's and Construction Manager's reference during normal working hours.

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
 - 1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Section 017300 "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

1.3 USE CHARGES

- A. Water and Sewer Service from Existing System: Water from Owner's existing water system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.
- B. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use without metering and without payment of use charges. Provide connections and extensions of services as required for construction operations.

PART 2 - PRODUCTS

2.1 MATERIALS

PART 3 - EXECUTION

- A. Water Service: Connect to Owner's existing water service facilities. Clean and maintain water service facilities in a condition acceptable to Owner. At Substantial Completion, restore these facilities to condition existing before initial use.
- B. Electric Power Service: Connect to Owner's existing electric power service. Maintain equipment in a condition acceptable to Owner.

3.2 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.

- B. Security Enclosure and Lockup: Lock entrances at end of each work day.

3.3 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
- C. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 - 1. Materials and facilities that constitute temporary facilities are property of Contractor.
 - 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Section 017700 "Closeout Procedures."

END OF SECTION 015000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Installation of the Work.
 - 2. Cutting and patching.
 - 3. Progress cleaning.
 - 4. Starting and adjusting.
 - 5. Protection of installed construction.
 - 6. Correction of the Work.

1.3 DEFINITIONS

- A. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- B. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.
- C. Qualification Data: For land surveyor professional engineer.

1.4 QUALITY ASSURANCE

- A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection

2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and -alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 - l. Sprayed fire-resistive material.
 - m. Equipment supports.
 - n. Piping, ductwork, vessels, and equipment.
 - o. Noise- and vibration-control elements and systems.
 3. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.
- B. Cutting and Patching Conference: Before proceeding, meet at Project site with parties involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding.
- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in other Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.

1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
 1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; underground electrical services, and other utilities.
 2. Furnish location data for work related to Project that must be performed by public utilities serving Project site.
- B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
 1. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
 2. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
 3. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
- C. Written Report: Where a written report listing conditions detrimental to performance of the Work is required by other Sections, include the following:
 1. Description of the Work.
 2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- B. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.
- C. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Section 013100 "Project Management and Coordination."

3.3 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
 - 1. Make vertical work plumb and make horizontal work level.
 - 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 - 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 - 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.
- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.4 CUTTING AND PATCHING

- A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Existing Utility Services and Mechanical/Electrical Systems: Where existing services/systems are required to be removed, relocated, or abandoned, bypass such services/systems before cutting to prevent interruption to occupied areas.

- F. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- G. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.

4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.
 5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- H. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.5 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
1. Remove liquid spills promptly.
 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Section 017419 "Construction Waste Management and Disposal."

- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.
- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.6 STARTING AND ADJUSTING

- A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- D. Manufacturer's Field Service: Comply with qualification requirements in Section 014000 "Quality Requirements."

3.7 PROTECTION OF INSTALLED CONSTRUCTION

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Comply with manufacturer's written instructions for temperature and relative humidity.

END OF SECTION 017300

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Salvaging nonhazardous demolition and construction waste.
 - 2. Recycling nonhazardous demolition and construction waste.
 - 3. Disposing of nonhazardous demolition and construction waste.

1.3 DEFINITIONS

- A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.
- B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.
- C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.
- D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.
- E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.
- F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

1.4 PERFORMANCE REQUIREMENTS

- A. General: Achieve end-of-Project rates for salvage/recycling of 50 percent by weight of total non-hazardous solid waste generated by the Work. Practice efficient waste management in the use of materials in the course of the Work. Use all reasonable means to divert construction and demolition waste from landfills and incinerators. Facilitate recycling and salvage of materials.

1.5 QUALITY ASSURANCE

- A. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Waste Management Conference: Conduct conference at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.
 - 1. Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

3.2 SALVAGING DEMOLITION WASTE

- A. Salvaged Items for Owner's Use: Salvage items for Owner's use and handle as follows:
Murrieta Valley High School Auto Lift
Murrieta Valley Unified School District
BakerNowicki Design Studio #13013

1. Clean salvaged items.
2. Pack or crate items after cleaning. Identify contents of containers with label indicating elements, date of removal, quantity, and location where removed.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area designated by Owner.
5. Protect items from damage during transport and storage.

3.3 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

- A. General: Recycle paper and beverage containers used by on-site workers.
- B. Preparation of Waste: Prepare and maintain recyclable waste materials according to recycling or reuse facility requirements. Maintain materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to the recycling process.
- C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical according to approved construction waste management plan.
 1. Provide appropriately marked containers or bins for controlling recyclable waste until removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.
 - a. Inspect containers and bins for contamination and remove contaminated materials if found.
 2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
 3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
 4. Store components off the ground and protect from the weather.
 5. Remove recyclable waste from Owner's property and transport to recycling receiver or processor.

3.4 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
 1. Except as otherwise specified, do not allow waste materials that are to be disposed of 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 waste materials.
- C. Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.
- D. Disposal: Remove waste materials and dispose of at designated spoil areas on Owner's property.
- E. Disposal: Remove waste materials from Owner's property and legally dispose of them.

3.5 ATTACHMENTS

END OF SECTION 017419

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for project record documents, including the following:
 - 1. Record Drawings.
 - 2. Record Specifications.

1.3 CLOSEOUT SUBMITTALS

- A. Record Drawings: Comply with the following:
 - 1. Number of Copies: Submit one set(s) of marked-up record prints.
- B. Record Specifications: Submit one paper copy of Project's Specifications, including addenda and contract modifications.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

- A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings, incorporating new and revised drawings as modifications are issued.
 - 1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an acceptable drawing technique.
 - c. Record data as soon as possible after obtaining it.

- d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
2. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.
 3. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 4. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 5. Mark important additional information that was either shown schematically or omitted from original Drawings.
 6. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.
- B. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Same digital data software program, version, and operating system as the original Contract Drawings.
 2. Format: Annotated PDF electronic file with comment function enabled.
 3. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings for use in recording information.
 - a. See Section 013300 "Submittal Procedures" for requirements related to use of Architect's digital data files.
 - b. Architect will provide data file layer information. Record markups in separate layers.

- C. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
 - 1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
- D. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.
 - 1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 - 2. Format: Annotated PDF electronic file with comment function enabled.
 - 3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
 - 4. Identification: As follows:
 - a. Project name.
 - b. Date.
 - c. Designation "PROJECT RECORD DRAWINGS."
 - d. Name of Contractor.

2.2 RECORD SPECIFICATIONS

- A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.
 - 1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
 - 2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
 - 3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
 - 4. For each principal product, indicate whether record Product Data has been submitted in operation and maintenance manuals instead of submitted as record Product Data.
- B. Format: Submit record Specifications as annotated PDF electronic file paper copy scanned PDF electronic file(s) of marked-up paper copy of Specifications.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

- A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and revisions to project record documents as they occur; do not wait until end of Project.

END OF SECTION 017839

SECTION 017900 - DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this Section.

1.2 QUALITY ASSURANCE

- A. Videographer Qualifications: A professional videographer who is experienced photographing demonstration and training events similar to those required.

1.3 COORDINATION

- A. Coordinate instruction schedule with Owner's operations. Adjust schedule as required to minimize disrupting Owner's operations and to ensure availability of Owner's personnel.
- B. Coordinate instructors, including providing notification of dates, times, length of instruction time, and course content.
- C. Coordinate content of training modules with content of approved emergency, operation, and maintenance manuals. Do not submit instruction program until operation and maintenance data has been reviewed and approved by Architect.

PART 2 - PRODUCTS

2.1 INSTRUCTION PROGRAM

- A. Program Structure: Develop an instruction program that includes individual training modules for each system and for equipment not part of a system, as required by individual Specification Sections.

PART 3 - EXECUTION

3.1 PREPARATION

- A. Assemble educational materials necessary for instruction, including documentation and training module. Assemble training modules into a training manual organized in coordination with requirements in Section 017823 "Operation and Maintenance Data."

B. Set up instructional equipment at instruction location.

END OF SECTION 017900

SECTION 033000 - CAST-IN-PLACE CONCRETE

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 cast-in-place concrete, including formwork, reinforcement, concrete materials, mixture design, placement procedures, and finishes, for the following:

- 1. Grout.

1.3 DEFINITIONS

- A. Cementitious Materials: Portland cement alone or in combination with one or more of the following: blended hydraulic cement, fly ash and other pozzolans, ground granulated blast-furnace slag, and silica fume; subject to compliance with requirements.

1.4 QUALITY ASSURANCE

- A. Installer Qualifications: A qualified installer who employs on Project personnel qualified as ACI-certified Flatwork Technician and Finisher and a supervisor who is an ACI-certified Concrete Flatwork Technician.
- B. Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
 - 1. Manufacturer certified according to NRMCA's "Certification of Ready Mixed Concrete Production Facilities."
- C. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- D. Welding Qualifications: Qualify procedures and personnel according to AWS D1.4/D 1.4M, "Structural Welding Code - Reinforcing Steel."
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:

1. ACI 301, "Specifications for Structural Concrete," **Sections 1 through 5.**
 2. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."
- F. Concrete Testing Service: Engage a qualified independent testing agency to perform material evaluation tests and to design concrete mixtures.

PART 2 - PRODUCTS

2.1 FORM-FACING MATERIALS

- A. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.
1. Formulate form-release agent with rust inhibitor for steel form-facing materials.
- B. Form Ties: Factory-fabricated, removable or snap-off metal or glass-fiber-reinforced plastic form ties designed to resist lateral pressure of fresh concrete on forms and to prevent spalling of concrete on removal.
1. Furnish units that will leave no corrodible metal closer than 1 inch to the plane of exposed concrete surface.
 2. Furnish ties that, when removed, will leave holes no larger than 1 inch in diameter in concrete surface.
 3. Furnish ties with integral water-barrier plates to walls indicated to receive dampproofing or waterproofing.

2.2 CONCRETE MIXTURES, GENERAL

- A. Prepare design mixtures for each type and strength of concrete, proportioned on the basis of laboratory trial mixture or field test data, or both, according to ACI 301.
1. Use a qualified independent testing agency for preparing and reporting proposed mixture designs based on laboratory trial mixtures.

2.3 CONCRETE MIXTURES FOR BUILDING ELEMENTS

- A. Building Walls: Proportion normal-weight concrete mixture as follows:
1. Minimum Compressive Strength: As indicated on drawings.
 2. Maximum Water-Cementitious Materials Ratio: As indicated on drawings.
 3. Slump Limit: As indicated on drawings.

2.4 GROUT

- A. Nonmetallic, Shrinkage-Resistant Grout: ASTM C 1107, factory-packaged, nonmetallic aggregate grout, noncorrosive and nonstaining, mixed with water to consistency suitable for application and a 30-minute working time.

PART 3 - EXECUTION

3.1 FORMWORK

- A. Design, erect, shore, brace, and maintain formwork, according to ACI 301, to support vertical, lateral, static, and dynamic loads, and construction loads that might be applied, until structure can support such loads.
- B. Construct formwork so concrete members and structures are of size, shape, alignment, elevation, and position indicated, within tolerance limits of ACI 117.
- C. Construct forms tight enough to prevent loss of concrete mortar.
- D. Fabricate forms for easy removal without hammering or prying against concrete surfaces. Provide crush or wrecking plates where stripping may damage cast concrete surfaces. Provide top forms for inclined surfaces steeper than 1.5 horizontal to 1 vertical.
 - 1. Install keyways, reglets, recesses, and the like, for easy removal.
 - 2. Do not use rust-stained steel form-facing material.
- E. Set edge forms, bulkheads, and intermediate screed strips for slabs to achieve required elevations and slopes in finished concrete surfaces. Provide and secure units to support screed strips; use strike-off templates or compacting-type screeds.
- F. Provide temporary openings for cleanouts and inspection ports where interior area of formwork is inaccessible. Close openings with panels tightly fitted to forms and securely braced to prevent loss of concrete mortar. Locate temporary openings in forms at inconspicuous locations.
- G. **Chamfer** exterior corners and edges of permanently exposed concrete.
- H. Form openings, chases, offsets, sinkages, keyways, reglets, blocking, screeds, and bulkheads required in the Work. Determine sizes and locations from trades providing such items.
- I. Clean forms and adjacent surfaces to receive concrete. Remove chips, wood, sawdust, dirt, and other debris just before placing concrete.

- J. Retighten forms and bracing before placing concrete, as required, to prevent mortar leaks and maintain proper alignment.
- K. Coat contact surfaces of forms with form-release agent, according to manufacturer's written instructions, before placing reinforcement.

3.2 EMBEDDED ITEMS

- A. Place and secure anchorage devices and other embedded items required for adjoining work that is attached to or supported by cast-in-place concrete. Use setting drawings, templates, diagrams, instructions, and directions furnished with items to be embedded.

3.3 REMOVING AND REUSING FORMS

- A. General: Formwork for sides of beams, walls, columns, and similar parts of the Work that does not support weight of concrete may be removed after cumulatively curing at not less than 50 deg F for **24** hours after placing concrete. Concrete has to be hard enough to not be damaged by form-removal operations and curing and protection operations need to be maintained.
 - 1. Leave formwork for beam soffits, joists, slabs, and other structural elements that supports weight of concrete in place until concrete has achieved **at least 70 percent of** its 28-day design compressive strength.
 - 2. Remove forms only if shores have been arranged to permit removal of forms without loosening or disturbing shores.
- B. Clean and repair surfaces of forms to be reused in the Work. Split, frayed, delaminated, or otherwise damaged form-facing material will not be acceptable for exposed surfaces. Apply new form-release agent.
- C. When forms are reused, clean surfaces, remove fins and laitance, and tighten to close joints. Align and secure joints to avoid offsets. Do not use patched forms for exposed concrete surfaces unless approved by Architect.

3.4 SHORES AND RESHORES

- A. Comply with ACI 318 and ACI 301 for design, installation, and removal of shoring and reshoring.

3.5 CONCRETE PLACEMENT

- A. Before placing concrete, verify that installation of formwork, reinforcement, and embedded items is complete and that required inspections have been performed.

- B. Do not add water to concrete during delivery, at Project site, or during placement unless approved by Architect.
- C. Before test sampling and placing concrete, water may be added at Project site, subject to limitations of ACI 301.
- D. Deposit concrete continuously in one layer or in horizontal layers of such thickness that no new concrete will be placed on concrete that has hardened enough to cause seams or planes of weakness. If a section cannot be placed continuously, provide construction joints as indicated. Deposit concrete to avoid segregation.
 - 1. Deposit concrete in horizontal layers of depth to not exceed formwork design pressures and in a manner to avoid inclined construction joints.
 - 2. Consolidate placed concrete with mechanical vibrating equipment according to ACI 301.
 - 3. Do not use vibrators to transport concrete inside forms. Insert and withdraw vibrators vertically at uniformly spaced locations to rapidly penetrate placed layer and at least 6 inches into preceding layer. Do not insert vibrators into lower layers of concrete that have begun to lose plasticity. At each insertion, limit duration of vibration to time necessary to consolidate concrete and complete embedment of reinforcement and other embedded items without causing mixture constituents to segregate.
- E. Cold-Weather Placement: Comply with ACI 306.1 and as follows. Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing actions, or low temperatures.
 - 1. When average high and low temperature is expected to fall below 40 deg F for three successive days, maintain delivered concrete mixture temperature within the temperature range required by ACI 301.
 - 2. Do not use frozen materials or materials containing ice or snow. Do not place concrete on frozen subgrade or on subgrade containing frozen materials.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in mixture designs.
- F. Hot-Weather Placement: Comply with ACI 301 and as follows:
 - 1. Maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated to total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade uniformly moist without standing water, soft spots, or dry areas.

3.6 MISCELLANEOUS CONCRETE ITEMS

- A. Filling In: Fill in holes and openings left in concrete structures after work of other trades is in place unless otherwise indicated. Mix, place, and cure concrete, as specified, to blend with in-place construction. Provide other miscellaneous concrete filling indicated or required to complete the Work.
- B. Miscellaneous Site Concrete Components: Provide light water or sandblast finish at the vertical surfaces of all planters, benches, and related site furnishings, sufficient to remove surface paste and expose fine aggregate. Provide smooth steel trowel at flat seating surfaces.
- C. Exterior Slab Floors at service areas: Exterior Service/Utility Concrete Slabs: Provide steel trowel and medium broom finish. Broom finish shall be placed in a pattern as directed by the Architect.
- D. Wall/column/footing face Finish:
 - 1. Sandblasted Concrete:
 - a. Produce surface without honeycomb, air pockets or "bug holes".
 - b. Utilize high density form with joints butt taped or with non absorbent sealant.
 - c. Remove Supertie and finish as recommended by manufacturer.
 - d. Water or sandblast exposed surface by approved means in medium texture, exposing coarse aggregate to a depth of 1/16 inch.
 - 2. Exposed Aggregate Concrete:
 - a. Water or sandblast exposed surface by approved means in medium texture, exposing coarse aggregate to a depth of 1/8 inch.

3.7 CONCRETE SURFACE REPAIRS

- A. Defective Concrete: Repair and patch defective areas when approved by Architect. Remove and replace concrete that cannot be repaired and patched to Architect's approval.
- B. Patching Mortar: Mix dry-pack patching mortar, consisting of one part portland cement to two and one-half parts fine aggregate passing a No. 16 sieve, using only enough water for handling and placing.
- C. Repairing Formed Surfaces: Surface defects include color and texture irregularities, cracks, spalls, air bubbles, honeycombs, rock pockets, fins and other projections on the surface, and stains and other discolorations that cannot be removed by cleaning.

1. Immediately after form removal, cut out honeycombs, rock pockets, and voids more than 1/2 inch in any dimension to solid concrete. Limit cut depth to 3/4 inch. Make edges of cuts perpendicular to concrete surface. Clean, dampen with water, and brush-coat holes and voids with bonding agent. Fill and compact with patching mortar before bonding agent has dried. Fill form-tie voids with patching mortar or cone plugs secured in place with bonding agent.
 2. Repair defects on surfaces exposed to view by blending white portland cement and standard portland cement so that, when dry, patching mortar will match surrounding color. Patch a test area at inconspicuous locations to verify mixture and color match before proceeding with patching. Compact mortar in place and strike off slightly higher than surrounding surface.
 3. Repair defects on concealed formed surfaces that affect concrete's durability and structural performance as determined by Architect.
- D. Repairing Unformed Surfaces: Test unformed surfaces, such as floors and slabs, for finish and verify surface tolerances specified for each surface. Correct low and high areas. Test surfaces sloped to drain for trueness of slope and smoothness; use a sloped template.
1. Repair finished surfaces containing defects. Surface defects include spalls, popouts, honeycombs, rock pockets, crazing and cracks in excess of 0.01 inch wide or that penetrate to reinforcement or completely through unreinforced sections regardless of width, and other objectionable conditions.
 2. After concrete has cured at least 14 days, correct high areas by grinding.
 3. Correct localized low areas during or immediately after completing surface finishing operations by cutting out low areas and replacing with patching mortar. Finish repaired areas to blend into adjacent concrete.
 4. Correct other low areas scheduled to receive floor coverings with a repair underlayment. Prepare, mix, and apply repair underlayment and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface. Feather edges to match adjacent floor elevations.
 5. Correct other low areas scheduled to remain exposed with a repair topping. Cut out low areas to ensure a minimum repair topping depth of 1/4 inch to match adjacent floor elevations. Prepare, mix, and apply repair topping and primer according to manufacturer's written instructions to produce a smooth, uniform, plane, and level surface.
 6. Repair defective areas, except random cracks and single holes 1 inch or less in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts and expose steel reinforcement with at least a 3/4-inch clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding agent. Mix patching concrete of same materials and mixture as original concrete except without coarse aggregate. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete.

7. Repair random cracks and single holes 1 inch or less in diameter with patching mortar. Groove top of cracks and cut out holes to sound concrete and clean off dust, dirt, and loose particles. Dampen cleaned concrete surfaces and apply bonding agent. Place patching mortar before bonding agent has dried. Compact patching mortar and finish to match adjacent concrete. Keep patched area continuously moist for at least 72 hours.
- E. Perform structural repairs of concrete, subject to Architect's approval, using epoxy adhesive and patching mortar.
- F. Repair materials and installation not specified above may be used, subject to Architect's approval.

END OF SECTION 033000

SECTION 055000 - METAL FABRICATIONS

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. Miscellaneous fabricated ferrous metal items, galvanized, plated and primed painted.

1.3 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to AWS D1.1/D1.1M, "Structural Welding Code - Steel."

1.4 PROJECT CONDITIONS

- A. Field Measurements: Verify actual locations of walls and other construction contiguous with metal fabrications by field measurements before fabrication.

1.5 COORDINATION

- A. Coordinate selection of shop primers with topcoats to be applied over them. Comply with paint and coating manufacturers' written recommendations to ensure that shop primers and topcoats are compatible with one another.

PART 2 - PRODUCTS

2.1 METALS, GENERAL

- A. Metal Surfaces, General: Provide materials with smooth, flat surfaces unless otherwise indicated. For metal fabrications exposed to view in the completed Work, provide materials without seam marks, roller marks, rolled trade names, or blemishes.

2.2 FERROUS METALS

- A. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
- B. Steel Tubing: ASTM A 500, cold-formed steel tubing.
- C. Slotted Channel Framing: Cold-formed metal box channels (struts) complying with MFMA-4.
 - 1. Size of Channels: As indicated.

2.3 NONFERROUS METALS

- A. Aluminum Plate and Sheet: ASTM B 209, Alloy 6061-T6.
- B. Aluminum Extrusions: ASTM B 221, Alloy 6063-T6.

2.4 FASTENERS

- A. General: Unless otherwise indicated, provide Type 304 stainless-steel fasteners for exterior use and zinc-plated fasteners with coating complying with ASTM B 633 or ASTM F 1941, Class Fe/Zn 5, at exterior walls. Select fasteners for type, grade, and class required.
 - 1. Provide stainless-steel fasteners for fastening aluminum.
- B. Steel Bolts and Nuts: Regular hexagon-head bolts, ASTM A 307, Grade A; with hex nuts, ASTM A 563; and, where indicated, flat washers.
- C. Stainless-Steel Bolts and Nuts: Regular hexagon-head annealed stainless-steel bolts, ASTM F 593; with hex nuts, ASTM F 594; and, where indicated, flat washers; Alloy Group 1.
- D. Eyebolts: ASTM A 489.
- E. Machine Screws: ASME B18.6.3.
- F. Lag Screws: ASME B18.2.1.
- G. Wood Screws: Flat head, ASME B18.6.1.
- H. Plain Washers: Round, ASME B18.22.1.
- I. Lock Washers: Helical, spring type, ASME B18.21.1.

2.5 MISCELLANEOUS MATERIALS

- A. Welding Rods and Bare Electrodes: Select according to AWS specifications for metal alloy welded.
- B. Low-Emitting Materials: Paints and coatings 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."
- C. Galvanizing Repair Paint: High-zinc-dust-content paint complying with SSPC-Paint 20 and compatible with paints specified to be used over it.

2.6 FABRICATION, GENERAL

- A. Shop Assembly: Preassemble items in the shop to greatest extent possible. Disassemble units only as necessary for shipping and handling limitations. Use connections that maintain structural value of joined pieces. Clearly mark units for reassembly and coordinated installation.
- B. Cut, drill, and punch metals cleanly and accurately. Remove burrs and ease edges to a radius of approximately 1/32 inch unless otherwise indicated. Remove sharp or rough areas on exposed surfaces.
- C. Form bent-metal corners to smallest radius possible without causing grain separation or otherwise impairing work.
- D. Form exposed work with accurate angles and surfaces and straight edges.
- E. Weld corners and seams continuously to comply 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. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- F. Form exposed connections with hairline joints, flush and smooth, using concealed fasteners or welds where possible. Where exposed fasteners are required, use Phillips flat-head (countersunk) fasteners unless otherwise indicated. Locate joints where least conspicuous.
- G. Fabricate seams and other connections that will be exposed to weather in a manner to exclude water. Provide weep holes where water may accumulate.

- H. Cut, reinforce, drill, and tap metal fabrications as indicated to receive finish hardware, screws, and similar items.
- I. Provide for anchorage of type indicated; coordinate with supporting structure. Space anchoring devices to secure metal fabrications rigidly in place and to support indicated loads.

2.7 FINISHES, GENERAL

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Finish metal fabrications after assembly.
- C. Finish exposed surfaces to remove tool and die marks and stretch lines, and to blend into surrounding surface.

2.8 STEEL AND IRON FINISHES

- A. Galvanizing: Hot-dip galvanize items as indicated to comply with ASTM A 153/A 153M for steel and iron hardware and with ASTM A 123/A 123M for other steel and iron products.
 - 1. Do not quench or apply post galvanizing treatments that might interfere with paint adhesion.
- B. Shop prime iron and steel items not indicated to be galvanized unless they are to be embedded in concrete, or unless otherwise indicated.

2.9 ALUMINUM FINISHES

- A. Finish designations prefixed by AA comply with the system established by the Aluminum Association for designating aluminum finishes.
- B. Class I, Clear Anodic Finish: AA-M12C22A41 (Mechanical Finish: nonspecular as fabricated; Chemical Finish: etched, medium matte; Anodic Coating: Architectural Class I, clear coating 0.018 mm or thicker) complying with AAMA 611.

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

- A. Cutting, Fitting, and Placement: Perform cutting, drilling, and fitting required for installing metal fabrications. Set metal fabrications accurately in location, alignment, and elevation; with edges and surfaces level, plumb, true, and free of rack; and measured from established lines and levels.
- B. Fit exposed connections accurately together to form hairline joints. Weld connections that are not to be left as exposed joints but cannot be shop welded because of shipping size limitations. Do not weld, cut, or abrade surfaces of exterior units that have been hot-dip galvanized after fabrication and are for bolted or screwed field connections.
- C. Field Welding: Comply with the following requirements:
 - 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. At exposed connections, finish exposed welds and surfaces smooth and blended so no roughness shows after finishing and contour of welded surface matches that of adjacent surface.
- D. Fastening to In-Place Construction: Provide anchorage devices and fasteners where metal fabrications are required to be fastened to in-place construction. Provide threaded fasteners for use with concrete and masonry inserts, toggle bolts, through bolts, lag screws, wood screws, and other connectors.
- E. Provide temporary bracing or anchors in formwork for items that are to be built into concrete, masonry, or similar construction.
- F. Corrosion Protection: Coat concealed surfaces of aluminum that will come into contact with grout, concrete, masonry, wood, or dissimilar metals with the following:
 - 1. Cast Aluminum: Heavy coat of bituminous paint.
 - 2. Extruded Aluminum: Two coats of clear lacquer.

3.2 INSTALLING MISCELLANEOUS FRAMING AND SUPPORTS

- A. General: Install framing and supports to comply with requirements of items being supported, including manufacturers' written instructions and requirements indicated on Shop Drawings.
- B. Anchor supports for operable partitions securely to and rigidly brace from building structure.

3.3 ADJUSTING AND CLEANING

- A. Touchup Painting: Immediately after erection, clean field welds, bolted connections, and abraded areas. Paint uncoated and abraded areas with the same material as used for shop painting to comply with SSPC-PA 1 for touching up shop-painted surfaces.
 - 1. Apply by brush or spray to provide a minimum 2.0-mil dry film thickness.

END OF SECTION 055000

SECTION 079200 - JOINT SEALANTS

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. Sealants and joint treatment necessary to provide a positive barrier against passage of moisture and air.
 - 2. Sealants at all penetrations of sound rated walls and floors.

1.3 ACTION SUBMITTALS

- A. Product Data: For each joint-sealant product indicated.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- 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. Qualification Data: For qualified Installer.
- B. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.
- C. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
- D. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

- E. Warranties: Sample of special warranties.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: Manufacturer's authorized representative who is trained and approved for installation of units required for this Project.
- B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

1.6 PROJECT CONDITIONS

- A. Do not proceed with installation of joint sealants under the following conditions:
 - 1. When ambient and substrate temperature conditions are outside limits permitted by joint-sealant manufacturer or are below 40 deg F.
 - 2. When joint substrates are wet.
 - 3. Where joint widths are less than those allowed by joint-sealant manufacturer for applications indicated.
 - 4. Where contaminants capable of interfering with adhesion have not yet been removed from joint substrates.

1.7 WARRANTY

- A. Special Installer's Warranty: Manufacturer's standard form in which 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.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backings, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.
- B. VOC Content of Interior Sealants: Sealants and sealant primers used inside the weatherproofing system shall comply with the following limits for VOC content when calculated according to 40 CFR 59, Subpart D (EPA Method 24):
 - 1. Architectural Sealants: 250 g/L.
 - 2. Sealant Primers for Nonporous Substrates: 250 g/L.

3. Sealant Primers for Porous Substrates: 775 g/L.
- C. Low-Emitting Interior Sealants: Sealants and sealant primers used inside the weatherproofing system 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. Liquid-Applied Joint Sealants: Comply with ASTM C 920 and other requirements indicated for each liquid-applied joint sealant specified, including those referencing ASTM C 920 classifications for type, grade, class, and uses related to exposure and joint substrates.
 1. Suitability for Immersion in Liquids. Where sealants are indicated for Use I for joints that will be continuously immersed in liquids, provide products that have undergone testing according to ASTM C 1247. Liquid used for testing sealants is deionized water, unless otherwise indicated.
- E. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.
- F. Suitability for Contact with Food: Where sealants are indicated for joints that will come in repeated contact with food, provide products that comply with 21 CFR 177.2600.
- G. Colors of Exposed Joint Sealants: As selected by Architect from manufacturer's full range.
- H. In concealed installations, and in partially or fully exposed installations where approved by the Architect, use standard gray sealant.

2.2 SEALANTS

- A. General:
 1. All sealants for any one Type shall be the product of a single manufacturer, suitable for the intended use, and per the following product characteristics.
 2. Unless noted otherwise, use sealants in application as defined below.
 3. For other applications provide products especially formulated for the proposed use and approved in advance by the Architect.
- B. Product Characteristics:
 1. Type 1: Unless noted otherwise, at exterior openings, joints, material transitions, bedding, and other conditions where anticipated joint movement will be plus/minus 25% or less.

- a. Products: Dow Corning 795, Pecora 895, Tremco Tremsil 600, or equal.
2. Type 2: At all exposed metal to metal wall and roof flashing conditions, all exposed prefinished metal roofing and flashing conditions; storefront perimeter conditions, and all other conditions where anticipated joint movement will be plus/minus 25 - 50%.
 - a. Products: Dow Corning 795, GE Silicones Silglaze II, or equal.
3. Type 3: At horizontal concrete paving joints exposed to pedestrian and vehicular traffic, and all joints subject to immersion:
 - a. Products: Pecora DynaTred, Mameco Vulkem 227, Sonneborn NP2, or equal.
4. Type 4: Exterior application in conjunction with wood products:
 - a. Tremco Dymonic, Sika Sikaflex-1a, Sonneborn NP1, or equal.
5. Type 5: Pipes and conduits penetrating underground walls:
 - a. Sealant compatible with waterproofing system.
6. Type 6: Interior applications in conjunction with sanitary conditions (nonfooduse):
 - a. Products: General Electric Silicone Sanitary Sealant 1702, Dow Corning 786, Pecora 898 Sanitary Silicone Sealant, or equal.
7. Type 7: Interior sound control applications.
 - a. Products: USG Sheetrock Acoustical Sealant, Pecora AC20FTR, Tremco Acoustical Sealant, or equal.
8. Type 8: Unless noted otherwise, at interior openings, joints, material transitions and bedding, at locations shown on drawings, and other conditions where anticipated joint movement will be 25% or less.
 - a. Products: Pecora 864, Dow Corning 795, Sonneborn Omniseal, Sikaflex 1A, or equal.
9. Type 9: At all concealed prefinished metal roofing and flashing conditions, provide butyl sealant as recommended by metal roofing manufacturer.
10. Type 10: At all metal flashing and gutter joints subject to periodic or continuous water immersion:
 - a. Products: Dow Corning 799, Pecora 863, or equal.
11. Type 11: At joints in acoustical laminated glass:

- a. Products: Dow Corning 795, Pecora 895, Tremco Tremsil 600, or equal.
- 12. For other applications provide products especially formulated for the proposed use and approved in advance by the Architect.

2.3 JOINT SEALANT BACKING

- A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.
- B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) Type O (open-cell material) Type B (bicellular material with a surface skin) or any of the preceding types, as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

2.4 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, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.
- C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 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 all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
 2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
 - a. Concrete.
 - b. Unglazed surfaces of ceramic tile.
 - c. Exterior insulation and finish systems.
 3. Remove laitance and form-release agents from concrete.
 4. 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 of joint sealants. Nonporous joint substrates include the following:
 - a. Metal.
 - b. Glass.
 - c. Porcelain enamel.
 - d. Glazed surfaces of ceramic tile.
- B. Joint Priming: Prime joint substrates. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.
- C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION OF JOINT SEALANTS

- A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.
- B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

- C. 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.
 - 1. Do not leave gaps between ends of sealant backings.
 - 2. Do not stretch, twist, puncture, or tear sealant backings.
 - 3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

- 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 according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
 - 1. Remove excess sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
 - 3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

- F. Acoustical Sealant Installation: At sound-rated assemblies and elsewhere as indicated, seal construction at perimeters, behind control joints, and at openings and penetrations with a continuous bead of acoustical sealant. Install acoustical sealant at both faces of partitions at perimeters and through penetrations. Comply with ASTM C 919 and with manufacturer's written recommendations.

3.4 CLEANING

- A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

SECTION 087100 - DOOR HARDWARE

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. Mechanical door hardware for:

- a. Swinging doors.
- b. Gates.

- B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:

- 1. Windows
- 2. Cabinets (casework), including locks in cabinets
- 3. Signage
- 4. Toilet accessories
- 5. Overhead doors

C. Related Sections:

- 1. Division 01 Section 012500 Alternates for alternates affecting this section.
- 2. Division 07 Section 079200 Joint Sealants for sealant requirements applicable to threshold installation specified in this section.

1.3 REFERENCES

A. UL - Underwriters Laboratories

- 1. UL 305 - Panic Hardware

B. DHI - Door and Hardware Institute

- 1. Sequence and Format for the Hardware Schedule
- 2. Recommended Locations for Builders Hardware
- 3. Key Systems and Nomenclature

- C. ANSI - American National Standards Institute
1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties
- D. DSA Minimum Requirements; Door and Gate hardware:
1. Doors/doorways as part of an accessible route shall comply with CBC Sections 11B-404.
 2. The clear opening width for a door shall be 32” minimum. For a swinging door it shall be measured between the face of the door and the stop, with the door open 90 degrees. There shall be no projections into it below 34” and 4” maximum projections into it between 34” and 80” above the finish floor or ground. Door closers and stops shall be permitted to be 78” minimum above the finish floor or ground. CBC Section 11B-404.2.3
 3. Handles, pulls, latches, locks, and other operable parts on accessible doors shall comply with CBC Section 11B-309.4 and shall be operable with one hand and shall not require tight grasping, pinching, or twisting of the wrist. Operable parts of such hardware shall be 34” minimum and 44” maximum above finish floor or ground. Where sliding doors are in the fully open position, operating hardware shall be exposed and usable from both side. CBC Section 11B-404.2.7
 4. The force for pushing or pulling open a door shall be as follows: CBC Section 11B-404.2.9.
 5. Interior hinged doors, sliding or folding doors, and exterior hinged doors: **5 pounds** maximum. Required fire doors: the minimum opening force allowable by the DSA authority, not to exceed 15 pounds (67N). These forces do not apply to the force required to retract latch bolts or disengage other devices that hold the door in a closed position.
 6. The force required for activating any operable parts, such as lever hardware, or disengaging other devices shall be 5 pounds (22.2N) maximum to comply with CBC Section 11B-309.4.
 7. Door closing speed shall be as follows: CBC Section 11B-404.2.8
 8. Closer shall be adjusted so that the required time to move a door from an open position of 90 degrees to a position of 12 degrees from the latch is 5 seconds min.
 9. Spring hinges shall be adjusted so that the required time to move a door from an open position of 70 degrees to the closed position is 1.5 seconds minimum.
 10. Thresholds shall comply with CBC Section 11B-404.2.5.
 11. Floor stops shall not be located in the path of travel and 4” maximum from walls. DSA Policy 99-08.
 12. Hardware (including panic hardware) shall not be provided with “Night Latch” (NL) function for any accessible doors or gates unless the following conditions are met per DSA Interpretation 10-08 DSA /AC (External), revised 4/28/09. Such conditions must be clearly demonstrated and indicated in the specifications:
 13. Such hardware has a 'dogging' feature.
 14. It is dogged during the time the facility is open.
 15. Such 'dogging' operation is performed only by employees as their job function (non-public use).

16. Pair of doors: limit swing of one leaf to 90 degrees so that a clear floor space is provided beyond the arc of the swing for the wall-mounted tactile sign. CBC Section 11B-703.4.2.1

1.4 SUBMITTALS

A. General:

1. Submit in accordance with Conditions of Contract and Division 01 requirements.
2. Highlight, encircle, or otherwise specifically identify on submittals deviations from Contract Documents, issues of incompatibility or other issues which may detrimentally affect the Work.
3. Prior to forwarding submittal, comply with procedures for verifying existing door and frame compatibility for new hardware, as specified in PART 3, "EXAMINATION" article, herein.

B. Action Submittals:

1. Product Data: Product data including manufacturers' technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
2. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
 - a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
3. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
 - a. Door Index; include door number, heading number
 - b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
 - c. Type, style, function, size, and finish of each hardware item.
 - d. Name and manufacturer of each item.
 - e. Fastenings and other pertinent information.
 - f. Location of each hardware set cross-referenced to indications on Drawings.
 - g. Explanation of all abbreviations, symbols, and codes contained in schedule.
 - h. Mounting locations for hardware.
 - i. Door and frame sizes and materials.

- j. Name and phone number for local manufacturer's representative for each product.
- k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
 - 1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.

4. Key Schedule:

- a. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
- b. Use ANSI/BHMA A156.28 "Recommended Practices for Keying Systems" as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
- c. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
- d. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
- e. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
 - 1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
- f. Prepare key schedule by or under supervision of supplier, detailing Murrieta Valley Unified School District Lock Department's final keying instructions for locks.

5. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:

- 1. Qualification Data: For Supplier, Installer and Architectural Hardware Consultant.
- 2. Product Certificates for electrified door hardware, signed by manufacturer:

- a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
3. Certificates of Compliance:
- a. Certificates of compliance for fire-rated hardware and installation instructions if requested by Architect or Authority Having Jurisdiction.
 - b. Installer Training Meeting Certification: Letter of compliance, signed by Contractor, attesting to completion of installer training meeting specified in “QUALITY ASSURANCE” article, herein.
4. Product Test Reports: For compliance with accessibility requirements, based on evaluation of comprehensive tests performed by manufacturer and witnessed by qualified testing agency, for door hardware on doors located in accessible routes.
5. Warranty: Special warranty specified in this Section.
- D. Closeout Submittals:
1. Operations and Maintenance Data: Provide in accordance with Division 01 and include:
- a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
 - b. Catalog pages for each product.
 - c. Name, address, and phone number of local representative for each manufacturer.
 - d. Parts list for each product.
 - e. Final approved hardware schedule, edited to reflect conditions as-installed.
 - f. Final keying schedule
 - g. Copies of floor plans with keying nomenclature
 - h. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.5 QUALITY ASSURANCE

- A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.
1. Where specific manufacturer's product is named and accompanied by “No Substitute,” including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)
- a. Where no additional products or manufacturers are listed in product category, requirements for “No Substitute” govern product selection.

2. Where products indicate “acceptable manufacturers” or “acceptable manufacturers and products”, provide product from specified manufacturers, subject to compliance with specified requirements and “Single Source Responsibility” requirements stated herein.
- B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project and that provides certified Architectural Hardware Consultant (AHC) available to Owner, Architect, and Contractor, at reasonable times during the Work for consultation.
1. Warehousing Facilities: In Project's vicinity.
 2. Scheduling Responsibility: Preparation of door hardware and keying schedules.
 3. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
 4. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
- C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.
- D. Architectural Hardware Consultant Qualifications: Person who is experienced in providing consulting services for door hardware installations that are comparable in material, design, and extent to that indicated for this Project and meets these requirements:
1. For door hardware, DHI-certified, Architectural Hardware Consultant (AHC).
 2. Can provide installation and technical data to Architect and other related subcontractors.
 3. Can inspect and verify components are in working order upon completion of installation.
 4. Capable of producing wiring diagrams.
 5. Capable of coordinating installation of electrified hardware with Architect and electrical engineers.
- E. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.

- F. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.
- G. Smoke- and Draft-Control Door Assemblies: Where smoke- and draft-control door assemblies are required, provide door hardware that meets requirements of assemblies tested according to UL 1784 and installed in compliance with NFPA 105.
 - 1. Air Leakage Rate: Maximum air leakage of 0.3 cfm/sq. ft. (3 cu. m per minute/sq. m) at tested pressure differential of 0.3-inch wg (75 Pa) of water.
- H. Means of Egress Doors: Latches do not require more than 15 lbf (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.
- I. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in “REFERENCES” article, herein.
 - 1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbf (22.2 N).
 - 2. Maximum opening-force requirements:
 - a. Interior, Non-Fire-Rated Hinged Doors: 5 lbf (22.2 N) applied perpendicular to door.
 - b. Fire Doors: Minimum opening force allowable by authorities having jurisdiction.
 - 3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch high.
 - 4. Adjust door closer sweep periods so that, from open position of 90 degrees, the time required to move door to a position of 12 degrees from the latch is 5 seconds minimum.
- J. Keying Conference: Conduct conference at Project site to comply with requirements in Division 01.
 - 1. Attendees: Palm Springs Unified School District Lock Depart, Contractor, Architect, Installer and Supplier's Architectural Hardware Consultant.
 - 2. Incorporate keying conference decisions into final keying schedule after reviewing door hardware keying system including:
 - a. Function of building, flow of traffic, purpose of each area, degree of security required, and plans for future expansion.
 - b. Preliminary key system schematic diagram.

- c. Requirements for key control system.
 - d. Requirements for access control.
 - e. Address for delivery of keys.
- K. Pre-installation Conference: Conduct conference at Project site
- 1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
 - 2. Inspect and discuss preparatory work performed by other trades.
 - 3. Review required testing, inspecting, and certifying procedures.
- L. Coordination Conferences:
- 1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
 - a. Attendees: Door hardware supplier, door hardware installer, Contractor.
 - b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.
- B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
- 1. Deliver each article of hardware in manufacturer's original packaging.
- C. Project Conditions:
- 1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
 - 2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.
- D. Protection and Damage:
- 1. Promptly replace products damaged during shipping.
 - 2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.

- 3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.
- E. Deliver keys to manufacturer of key control system for subsequent delivery to Owner.
- F. Deliver keys and permanent cores to Murrieta Valley Unified School District Lock Department by registered mail, overnight package service or as directed.

1.7 COORDINATION

- A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.
- B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.
- C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.
- D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.
- E. Existing Openings: Where hardware components are scheduled for application to existing construction or where modifications to existing door hardware are required, field verify existing conditions and coordinate installation of door hardware to suit opening conditions and to provide proper door operation.
- F. Direct shipments not permitted, unless approved by Contractor.

1.8 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
 - 1. Warranty Period: Years from date of Substantial Completion, for durations indicated.
 - a. Exit Devices:
 - 1) Mechanical: 3 years.
 - b. Locksets:

- 1) Mechanical: 3 years.
 - c. Continuous Hinges: Lifetime warranty
 - d. Key Blanks: Lifetime
2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.9 MAINTENANCE

A. Extra Materials:

1. Furnish extra materials that match products installed and that are packaged with protective covering for storage and identified with labels describing contents.

B. Maintenance Tools:

1. Furnish complete set of special tools required for maintenance and adjustment of hardware, including changing of cylinders.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. The Owner requires use of certain products for their unique characteristics and particular project suitability to insure continuity of existing and future performance and maintenance standards. After investigating available product offerings Awarding Authority has elected to prepare proprietary specifications. These products are specified with the notation: "No Substitute."
 1. Where "No Substitute" is noted, submittals and substitution requests for other products will not be considered.
- B. Approval of manufacturers and/or products other than those listed as "Scheduled Manufacturer" or "Acceptable Manufacturers" in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.
- C. Approval of products from manufacturers indicated in "Acceptable Manufacturers" is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer's product.
- D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

- E. Where specified hardware is not adaptable to finished shape or size of members requiring hardware, furnish suitable types having same operation and quality as type specified, subject to Architect's approval.

2.2 MATERIALS

A. Fasteners

1. Provide hardware manufactured to conform to published templates, generally prepared for machine screw installation.
2. Furnish screws for installation with each hardware item. Finish exposed (exposed under any condition) screws to match hardware finish, or, if exposed in surfaces of other work, to match finish of this other work including prepared for paint surfaces to receive painted finish.
3. Provide concealed fasteners for hardware units exposed when door is closed except when no standard units of type specified are available with concealed fasteners. Do not use thru-bolts for installation where bolt head or nut on opposite face is exposed in other work unless thru-bolts are required to fasten hardware securely. Review door specification and advise Architect if thru-bolts are required.
4. Install hardware with fasteners provided by hardware manufacturer.

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.

1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

2.3 HINGES

A. Provide five-knuckle, ball bearing hinges.

1. Manufacturers and Products:
 - a. Scheduled Manufacturer and Product: Ives 5BB series
 - b. Acceptable Manufacturers and Products: Hager BB series, McKinney TA/T4A series, Stanley FBB Series

B. Requirements:

1. **1-3/4 inch** thick doors, up to and including **36 inches** wide:
 - a. Exterior: Standard weight, bronze or stainless steel, **4-1/2 inches** high
 - b. Interior: Standard weight, steel, **4-1/2 inches** high
2. **1-3/4 inch** thick doors over **36 inches** wide:

- a. Exterior: Heavy weight, bronze/stainless steel, 5 inches high
 - b. Interior: Heavy weight, steel, 5 inches high
3. 2 inches or thicker doors:
- a. Exterior: Heavy weight, bronze or stainless steel, 5 inches high
 - b. Interior: Heavy weight, steel, 5 inches high
4. Provide three hinges per door leaf for doors 90 inches or less in height, and one additional hinge for each 30 inches of additional door height.
5. Where new hinges are specified for existing doors or existing frames, provide new hinges of identical size to hinge preparation present in existing door or existing frame.
6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
- a. Steel Hinges: Steel pins
 - b. Non-Ferrous Hinges: Stainless steel pins
 - c. Out-Swinging Exterior Doors: Non-removable pins
 - d. Out-Swinging Interior Lockable Doors: Non-removable pins
 - e. Interior Non-lockable Doors: Non-rising pins
7. Width of hinges: 4-1/2 inches at 1-3/4 inch thick doors, and 5 inches at 2 inches or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
8. Doors 36 inches wide or less furnish hinges 4-1/2 inches high; doors greater than 36 inches wide furnish hinges 5 inches high, heavy weight or standard weight as specified.
9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
- Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches or less in height. Provide one additional bearing hinge for each 30 inches of additional door height.

2.4 FLUSH BOLTS

A. Manufacturers:

- 1. Scheduled Manufacturer: Ives
- 2. Acceptable Manufacturers: Rockwood, Trimco

B. Requirements:

1. Provide automatic, constant latching, and manual flush bolts with forged bronze or stainless steel face plates, extruded brass levers, and with wrought brass guides and strikes. Provide 12 inch steel or brass rods at doors up to 90 inches in height. For doors over 90 inches in height increase top rods by 6 inches for each additional 6 inches of door height. Provide dust-proof strikes at each bottom flush bolt.

2.5 EXIT DEVICES

A. Manufacturer and Product:

1. Scheduled Manufacturer: Assa Abloy / Arrow
2. Acceptable Manufacturers and Products: Refer to Section 012500 for substitution procedures

B. Manufacturers and Products:

1. Scheduled Manufacturer: To establish standard of quality and design intent, exit device specifications have been based on Assa Abloy products. Products of other manufacturers meeting or exceeding design and performance requirements specified herein will be considered for substitution subject to compliance with provisions of Division 01 Section Product Requirements.

C. Requirements:

1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, UL certified to meet maximum 5 pound requirements according to the California Building Code section 11B-309.4,] and UL listed for Panic Exit or Fire Exit Hardware.
Cylinders: Refer to KEYING article, herein.
2. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
3. Quiet Operation: Incorporate fluid damper or other device that eliminates noise of exit device operation.
4. Touchpad: Extend minimum of one half of door width, but not the full length of exit device rail. Provide end-cap with two-point attachment to door. Match exit device finish, stainless steel for US26, US26D, US28, US32, and US32D finishes; and for all other finishes, provide compatible finish to exit device. Provide compression springs in devices, latches, and outside trims or controls; tension springs prohibited.
5. Provide rim devices with a dual cylinder or inside thumb turn cylinder option with a visual security indicator that identifies the trims locked/unlocked status of the door from the inside of the room. Indicator in unlocked state presents a 1/2 inch x 1/2 inch white metal flag with black icon at top of device head. Indicator in locked state has no flag present. Provide rim devices without the dual cylinder or inside thumb turn cylinder option capable of being retrofitted with the visual security indicator.

6. Provide exit devices with deadlatching feature for security and for future addition of alarm kits and/or other electrical requirements.
7. Provide exit devices with manufacturer's approved strikes.
8. Provide exit devices cut to door width and height. Locate exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
9. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
10. Removable Mullions: **2 inches x 3 inches** steel tube. Where scheduled as keyed removable mullion that is removed by use of a keyed cylinder, which is self-locking when re-installed.
11. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than **35 pounds** of torque are applied, and which can easily be re-set.
 - a. Lever Style: Match lever style of locksets.
12. Provide UL labeled fire exit hardware for fire rated openings.
13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
14. Provide electrified options as scheduled in the hardware sets.

2.6 CYLINDERS

A. Manufacturers:

1. Scheduled Manufacturer: Schlage, Arrow
2. Acceptable Manufacturers: Refer to Section 012500 for substitution procedures

- 2.7 Provide cylinders/cores, from the same manufacturer of locksets, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer's series as indicated. Refer to KEYING article, herein. Padlocks for gates are to be Master Lock Company Edge products.
- 2.8 All padlocks are to be Master Lock Company brand 7050 or 7040 keyed into an existing factory furnished restricted Edge system.
- 2.9 Hardware supplier will need to coordinate with the District Lock Dept. to complete the Master Keyed Order Form and the Master Key Summary.
1. Provide cylinders in the below-listed configuration(s), distributed throughout the Project as indicated.
 - a. Keying: Manufacturer-keyed permanent cylinders/cores, configured into keying system per "KEYING" article herein.
 - b. Features: Cylinders/cores shall incorporate the following features.
 2. Nickel silver bottom pins.
 3. Temporary Construction Cylinder Keying. OPTION if using construction keying with full-sized non-IC core; NOT AVAILABLE with Primus high security cylinders.
 - a. Provide construction cores that permit voiding construction keys without cylinder removal, furnished in accordance with the following requirements.
 - 1) Split Key Construction Keying System.
 - 2) 3 "split" construction control keys and extractor tool.
 - 3) 12 construction change (day) keys.
 - b. Owner or Owner's Representative will void operation of temporary construction keys.
 4. Replaceable Construction Cores.
 - a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
 - 1) 12 construction change (day) keys.
 - b. Owner or Owner's Representative will replace temporary construction cores with permanent cores.

2.10 KEYING

- A. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.
- B. Requirements:
 - 1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
 - a. Keying system as directed by the Owner.
 - b. All padlocks are to be Master Lock Company brand 7050 or 7040 keyed into an existing factory furnished restricted Edge system.
 - c. Hardware supplier will need to coordinate with the District Lock Dept. to complete the Master Keyed Order Form and the Master Key Summary.
 - 2. Forward bitting list and keys separately from cylinders, by means as directed by Murrieta Valley Unified School District Lock Department. Failure to comply with forwarding requirements shall be cause for replacement of cylinders/cores involved at no additional cost to Palm Springs Unified School District.
 - 3. Provide keys with the following features.
 - a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
 - 4. Identification:
 - a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Blind code marks shall not include actual key cuts.
 - b. Identification stamping provisions must be approved by the Architect and Murrieta Valley Unified School District Lock Department.
 - c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
 - d. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
 - e. Forward permanent cylinders/cores to Murrieta Valley Unified School District Lock Department, separately from keys, by means as directed by Murrieta Valley Unified School District Lock Department.
 - 5. Quantity: Furnish in the following quantities.
 - a. Change (Day) Keys: 3 per cylinder/core.
 - b. Permanent Control Keys: 3.
 - c. Master Keys: 6.
 - d. Unused balance of key blanks shall be furnished to Murrieta Valley Unified School District Lock Department with the cut keys.

2.11 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

A. Manufacturers:

1. Scheduled Manufacturer: Zero International
2. Acceptable Manufacturers: NGP, Pemko

B. Requirements:

1. Provide thresholds, weatherstripping (including door sweeps, seals, astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:
 - a. Saddle Thresholds: 1/2 inch high by jamb width by door width
 - b. Bumper Seal Thresholds: 1/2 inch high by 5 inches wide by door width
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.

2.12 FINISHES

A. Finish: BHMA 626/652 (US26D); except:

1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Continuous Hinges: BHMA 628 (US28) or 630 (US32D)
3. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
4. Protection Plates: BHMA 630 (US32D)
5. Overhead Stops and Holders: BHMA 630 (US32D)
6. Door Closers: Powder Coat to Match
7. Wall Stops: BHMA 630 (US32D)
8. Latch Protectors: BHMA 630 (US32D)
9. Weatherstripping: Clear Anodized Aluminum
10. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Prior to installation of hardware, examine doors and frames, with Installer present, for compliance with requirements for installation tolerances, labeled fire-rated door assembly construction, wall and floor construction, and other conditions affecting performance.

- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
 - 1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
 - 2. Custom Steel Doors and Frames: HMMA 831.
 - 3. Wood Doors: DHI WDHS.3, "Recommended Locations for Architectural Hardware for Wood Flush Doors."
- B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.
- C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.
- D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.
- E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.
- F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.
- G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.
- H. Lock Cylinders: Install construction cores to secure building and areas during construction period.
 - 1. Replace construction cores with permanent cores as indicated in keying section.
 - 2. . OPTION: Furnish permanent cores to Murrieta Valley Unified School District Lock Department for installation.
- I. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.
- J. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section 079200 "Joint Sealants."

- K. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.
- L. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.
- M. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.
- N. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

3.3 FIELD QUALITY CONTROL

- A. Architectural Hardware Consultant: Engage qualified independent Architectural Hardware Consultant to perform inspections and to prepare inspection reports.
 - 1. Architectural Hardware Consultant will inspect door hardware and state in each report whether installed work complies with or deviates from requirements, including whether door hardware is properly installed and adjusted.

3.4 ADJUSTING

- A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
 - 1. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.
- B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer's Architectural Hardware Consultant shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.5 CLEANING AND PROTECTION

- A. Clean adjacent surfaces soiled by door hardware installation.
- B. Clean operating items as necessary to restore proper function and finish.
- C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.6 DEMONSTRATION

- A. Provide training for Palm Springs Unified School District Lock Department's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

1.1 DOOR HARDWARE SCHEDULE

- A. Hardware Sets:

Heading 01

1 SGL EX. Door 843A AUTO SHOP CLASSROOM

3' 0" X 8' 0" X 1 3/4" X HMD X HMF X NONRTD

Each Assembly to have:

1	EA	GASKETING	8303AA
1	EA	THRESHOLD	103A-226

Heading 02

1 SGL Gate G1 AUTO SHOP YARD

4' 0" X 8' 0" X STEEL GATE X STEEL FRAME X NONRTD

Each Assembly to have:

1	EA	PANIC EXIT DEVICE	S1250
1	EA	CLASSROOM LEVER & CYLINDER LOCK	SRX87

End of Schedule

3.5 PROTECTION

- A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION 079200

SECTION 104413 - FIRE EXTINGUISHER 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. Fire protection cabinets for the following:
 - a. Portable fire extinguishers.
- B. Related Sections:
 - 1. Section 104416 "Fire Extinguishers."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for fire protection cabinets.
 - 1. Fire Protection Cabinets: Include roughing-in dimensions, details showing mounting methods, relationships of box and trim to surrounding construction, door hardware, cabinet type, trim style, and panel style.
- B. Shop Drawings: For fire protection cabinets. Include plans, elevations, sections, details, and attachments to other work.

1.4 COORDINATION

- A. Coordinate size of fire protection cabinets to ensure that type and capacity of fire extinguishers indicated are accommodated.

1.5 SEQUENCING

- A. Apply vinyl lettering on field-painted, fire protection cabinets after painting is complete.

1.6 REGULATORY REQUIREMENTS

- A. Fire Extinguisher Cabinets must comply with CBC Sections 11B-308, 11B-309 and 11B-403.
- B.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum: Alloy and temper recommended by aluminum producer and manufacturer for type of use and finish indicated, and as follows:
 - 1. Sheet: **ASTM B 209**.
- B. Break Glass: Clear annealed float glass, ASTM C 1036, Type I, Class 1, Quality q3, 1.5 mm thick, single strength.

2.2 FIRE PROTECTION CABINET <Insert drawing designation>

- A. Cabinet Type: Suitable for fire extinguisher.
 - 1. Products: Subject to compliance with requirements, available products that may be incorporated into the Work include, but are not limited to, the following:
 - a. J. L. Industries, Inc., a division of Activar Construction Products Group; .
 - b. Kidde Residential and Commercial Division, Subsidiary of Kidde plc; .
 - c. Larsen's Manufacturing Company; .
 - d. Moon-American; .
 - e. Potter Roemer LLC; .
- B. Cabinet Construction: Nonrated.
- C. Cabinet Material: Aluminum sheet.
- D. Surface-Mounted Cabinet: Cabinet box fully exposed and mounted directly on wall with no trim. Provide where walls are of insufficient depth for semirecessed cabinet installation.
- E. Cabinet Trim Material: Aluminum sheet.
- F. Door Material: Aluminum sheet .
- G. Door Style: Center glass panel with frame .

- H. Door Glazing: Break glass.
- I. Door Hardware: Manufacturer's standard door-operating hardware of proper type for cabinet type, trim style, and door material and style indicated.
 - 1. Provide manufacturer's standard.
 - 2. Provide manufacturer's standard hinge permitting door to open 180 degrees.
- J. Accessories:
 - 1. Mounting Bracket: Manufacturer's standard steel, designed to secure fire extinguisher to fire protection cabinet, of sizes required for types and capacities of fire extinguishers indicated, with plated or baked-enamel finish.
 - 2. Identification: Lettering complying with authorities having jurisdiction for letter style, size, spacing, and location. Locate as indicated.
 - a. Identify fire extinguisher in fire protection cabinet with the words "FIRE EXTINGUISHER."
 - 1) Location: Applied to cabinet door.
 - 2) Application Process: Pressure-sensitive vinyl letters.
 - 3) Lettering Color: Red.
 - 4) Orientation: Vertical.
- K. Finishes:
 - 1. Manufacturer's standard baked-enamel paint for the following:
 - a. Exterior of cabinet door except for those surfaces indicated to receive another finish.
 - b. Interior of cabinet and door.
 - 2. Aluminum: Baked enamel or powder coat.

2.3 FABRICATION

- A. Fire Protection Cabinets: Provide manufacturer's standard box (tub) with trim, frame, door, and hardware to suit cabinet type, trim style, and door style indicated.
 - 1. Weld joints and grind smooth.
 - 2. Provide factory-drilled mounting holes.
 - 3. Prepare doors and frames to receive locks.
 - 4. Install door locks at factory.
- B. Cabinet Doors: Fabricate doors according to manufacturer's standards, from materials indicated and coordinated with cabinet types and trim styles selected.
 - 1. Miter and weld perimeter door frames.

2.4 GENERAL FINISH REQUIREMENTS

- A. Comply with NAAMM's "Metal Finishes Manual for Architectural and Metal Products" for recommendations for applying and designating finishes.
- B. Protect mechanical finishes on exposed surfaces of fire protection cabinets from damage by applying a strippable, temporary protective covering before shipping.
- C. Finish fire protection cabinets after assembly.
- D. Appearance of Finished Work: Noticeable variations in same piece are not acceptable. Variations in appearance of adjoining components are acceptable if they are within the range of approved Samples and are assembled or installed to minimize contrast.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install fire protection cabinets in locations and at mounting heights indicated
 - 1. Fire Protection Cabinets: 48 inches above finished floor to top of cabinet.
- B. Fire Protection Cabinets: Fasten cabinets to structure, square and plumb.
 - 1. Provide inside latch and lock for break-glass panels.
- C. Identification: Apply vinyl lettering at locations indicated.

3.3 ADJUSTING AND CLEANING

- A. Remove temporary protective coverings and strippable films, if any, as fire protection cabinets are installed unless otherwise indicated in manufacturer's written installation instructions.
- B. Adjust fire protection cabinet doors to operate easily without binding. Verify that integral locking devices operate properly.
- C. On completion of fire protection cabinet installation, clean interior and exterior surfaces as recommended by manufacturer.

- D. Touch up marred finishes, or replace fire protection cabinets that cannot be restored to factory-finished appearance. Use only materials and procedures recommended or furnished by fire protection cabinet and mounting bracket manufacturers.
- E. Replace fire protection cabinets that have been damaged or have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION 104413

SECTION 104416 - FIRE EXTINGUISHERS

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 portable, hand-carried fire extinguishers.
- B. Related Sections:
 - 1. Section 104413 "Fire Extinguisher Cabinets."

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated. Include rating and classification, material descriptions, dimensions of individual components and profiles, and finishes for fire extinguisher and mounting brackets.

1.4 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For fire extinguishers to include in maintenance manuals.

1.5 QUALITY ASSURANCE

- A. NFPA Compliance: Fabricate and label fire extinguishers to comply with NFPA 10, "Portable Fire Extinguishers.", and Title 19 CCR.
- B. Fire Extinguishers: Listed and labeled for type, rating, and classification by an independent testing agency acceptable to authorities having jurisdiction.
 - 1. Provide fire extinguishers approved, listed, and labeled by FMG.

1.6 COORDINATION

- A. Coordinate type and capacity of fire extinguishers with fire protection cabinets to ensure fit and function.

1.7 REGULATORY REQUIREMENTS

- A. Fire Extinguisher Cabinets must comply with CBC Sections 11B-308 and 11B-309.

PART 2 - PRODUCTS

2.1 PORTABLE, HAND-CARRIED FIRE EXTINGUISHERS

- A. Fire Extinguishers: Type, size, and capacity for each fire protection cabinet and mounting bracket indicated.
 - 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:
 - 2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
 - a. Amerex Corporation.
 - b. Ansul Incorporated; Tyco International Ltd.
 - c. Badger Fire Protection; a Kidde company.
 - d. Buckeye Fire Equipment Company.
 - e. Fire End & Croker Corporation.
 - f. J. L. Industries, Inc.; a division of Activar Construction Products Group.
 - g. Kidde Residential and Commercial Division; Subsidiary of Kidde plc.
 - h. Larsen's Manufacturing Company.
 - i. Moon-American.
 - j. Pem All Fire Extinguisher Corp.; a division of PEM Systems, Inc.
 - k. Potter Roemer LLC.
 - l. Pyro-Chem; Tyco Safety Products.
 - 3. Valves: Manufacturer's standard.
 - 4. Handles and Levers: Manufacturer's standard.
 - 5. Instruction Labels: Include pictorial marking system complying with NFPA 10, Appendix B.
- B. Multipurpose Dry-Chemical Type in Steel Container <Insert drawing designation>: UL-rated 4-A:60-B:C, **10-lb** nominal capacity, with monoammonium phosphate-based dry chemical in enameled-steel container.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine fire extinguishers for proper charging and tagging.
 - 1. Remove and replace damaged, defective, or undercharged fire extinguishers.
- B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION

- A. General: Install fire extinguishers in locations indicated and in compliance with requirements of authorities having jurisdiction.

END OF SECTION 104416

SECTION 260100 - ELECTRICAL GENERAL PROVISIONS

ARTICLE 1 SUMMARY

- 1.1 This Division of the specification outlines the provisions of the contract work to be performed under this Division.
- 1.2 This Section applies to and forms a part of each section of specifications in Division 26 and all work performed under the electrical and communications contracts.
- 1.3 In addition, work in this Division is governed by the provisions of the bidding requirements, contract forms, general conditions and all sections under general requirements.
- 1.4 These specifications contain statements which may be more definitive or more restrictive than those contained in the General Conditions. Where these statements occur, they shall take precedence over the General Conditions.
- 1.5 Where the words 'provide' or 'provision' are used, it shall be definitely interpreted as 'furnishing and installing complete in operating condition'. Where the words 'as indicated' or 'as shown' are used, it shall mean as shown on contract drawings.
- 1.6 Where items are specified in the singular, this Division shall provide the quantity as shown on drawings plus any spares or extras mentioned on drawings or specifications. All specified and supplied equipment shall be new.

ARTICLE 2 CONTRACTOR QUALIFICATIONS

- 2.1 The Contractor shall have a current California C-10 Electrical Contractor's license and all individuals working on this project shall have passed the Department of Industrial Relations Division of apprenticeship Standards – "Electrician Certification Program."

ARTICLE 3 CODES, PERMITS AND FEES

- 3.1 Comply with all applicable laws, ordinances, rules, regulations, codes, or rulings of governmental units having jurisdiction as well as standards of NFPA, and serving utility requirements.
- 3.2 Obtain permits, fees, inspections, meter and the like, associated with work in each section of this Division.
- 3.3 Installation procedures, methods and conditions shall comply with the latest requirements of the Federal Occupational Safety and Health Act (OSHA).

ARTICLE 4 EXAMINATION OF PREMISES

- 4.1 Examine the construction drawings and premises prior to bidding. No allowances will be made for not being knowledgeable of existing conditions.

ARTICLE 5 STANDARDS

- 5.1 The following standard publications of the latest editions enforced and supplements thereto shall form a part of these specifications. All electrical work must, as a minimum, be in accordance with these standards.
- 5.1.1 2016 California Electrical Code (CEC), Part 3 Title 24 CCR.
 - 5.1.2 National Fire Protection Association.
 - 5.1.3 Underwriters' Laboratories, Inc. (UL).
 - 5.1.4 Certified Ballast Manufacturers' Association (CBM).
 - 5.1.5 National Electrical Manufacturers' Association (NEMA).
 - 5.1.6 Institution of Electrical & Electronics Engineers (IEEE).
 - 5.1.7 American Society for Testing & Materials (ASTM).
 - 5.1.8 National Board of Fire Underwriters (NBFU).
 - 5.1.9 National Board of Standards (NBS).
 - 5.1.10 American National Standards Institute (ANSI).
 - 5.1.11 Insulated Power Cable Engineers Association (IPECS).
 - 5.1.12 Electrical Testing Laboratories (ETL).
 - 5.1.13 National Electrical Safety Code (NESC).
 - 5.1.14 2016 California Building Code (CBC), Part 2, Title 24 CCR.
 - 5.1.15 2016 California Fire Code (CFC), Part 9, Title 24, CCR.
 - 5.1.16 2016 NFPA 72 with California State Amendments
 - 5.1.17 National Electrical Testing Association (NETA), 2010 or most current

ARTICLE 6 DEFINITIONS

- 6.1 Concealed: Hidden from sight, as in trenches, chases, hollow construction, or above furred spaces, hung ceilings - acoustical or plastic type, or exposed to view only in tunnels, attics, shafts, crawl spaces, unfinished spaces, or other areas solely for maintenance and repair.
- 6.2 Exposed, Non-Concealed, Unfinished Space: A room or space that is ordinarily accessible only to building maintenance personnel, a room noted on the 'finish schedule' with exposed and unpainted construction for walls, floors, or ceilings or specifically mentioned as 'unfinished'.
- 6.3 Finish Space: Any space ordinarily visible, including exterior areas.

ARTICLE 7 WORK AND MATERIALS

- 7.1 Unless otherwise specified, all materials must be new and of the best quality. Materials previously incorporated into other projects, salvaged, or refurbished are not considered new. Perform all labor in a thorough and workmanlike manner.
- 7.2 All materials provided under the contract must bear the UL label where normally available. Note that this requirement may be repeated under equipment specifications. In general, such devices as will void the label should be provided in separate enclosures and wired to the labeled unit in proper manner.

ARTICLE 8 SHOP DRAWINGS AND SUBMITTALS

- 8.1 Submit shop drawings and all data in accordance with Division 1 of these specifications and as noted below for all equipment provided under this Division.
- 8.2 Shop drawings submittals demonstrate to the Architect that the Contractor understands the design concept. The Contractor demonstrates his understanding by indicating which equipment and material he intends to furnish and install and by detailing the fabrication and installation methods of material and equipment he intends to use. If deviations, discrepancies, or conflicts between submittals and specifications are discovered either prior to or after submittals are processed, notify the Architect immediately.
- 8.3 Manufacturer's data and dimension sheets shall be submitted giving all pertinent physical and engineering data including weights, cross sections and maintenance instructions. Standard items of equipment such as receptacles, switches, plates, etc., which are cataloged items, shall be listed by manufacturer.
- 8.4 Index all submittals and reference them to these specifications. All submittal items shall be assembled and submitted, one for each specification section. (Multiple specification sections may be grouped together in one common submittal binder, as long as each individual section is clearly identified.) Partial or incomplete submittal sections will not be reviewed.

ARTICLE 9 EQUIPMENT PURCHASES

- 9.1 Arrange for purchase and delivery of all materials and equipment within 20 days after approval of submittals. All materials and equipment must be ordered in ample quantities for delivery at the proper time. If items are not on the project in time to expedite completion, the Owner may purchase said equipment and materials and deduct the cost from the contract sum.
- 9.2 Provide all materials of similar class or service by one manufacturer.

ARTICLE 10 COOPERATIVE WORK

- 10.1 Correct without charge any work requiring alteration due to lack of proper supervision or failure to make proper provision in time. Correct without charge any damage to adjacent work caused by the alteration.

- 10.2 Cooperative work includes: General supervision and responsibility for proper location and size of work related to this Division, but provided under the other sections of these specifications, and installation of sleeves, inserts, and anchor bolts for work under each section in this Division.

ARTICLE 11 VERIFICATION OF DIMENSIONS

- 11.1 Scaled and figured dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions, etc., and be responsible for properly fitting equipment and materials together and to the structure in spaces provided.
- 11.2 Drawings are essentially diagrammatic, and many offsets, bends, pull boxes, special fittings, and exact locations are not indicated. Carefully study drawings and premises in order to determine best methods, exact location, routes, building obstructions, etc. and install apparatus and equipment in manner and locations to avoid obstructions, preserve headroom, keep openings and passageways clear, and maintain proper clearances.

ARTICLE 12 CUTTING AND PATCHING

- 12.1 All cutting and patching shall be in accordance with Division 1 of these specifications and as noted below.
- 12.2 Cut existing work and patch as necessary to properly install new work. As the work progresses, leave necessary openings, holes, chases, etc., in their correct location. If the required openings, holes, chases, etc., are not in their correct locations, make the necessary corrections at no cost to the Owner. Avoid excessive cutting and do not cut structural members including wall framing without the consent of the Architect.

ARTICLE 13 CLOSING-IN OF UNINSPECTED WORK

- 13.1 Cover no work until inspected, tested, and approved by the Architect. Where work is covered before inspection and test, uncover it and when inspected, tested, and approved, restore all work to original proper condition at no additional cost to Owner.

ARTICLE 14 EXCAVATION AND BACKFILL

- 14.1 All excavation and backfill shall be in accordance with Division 1 of these specifications and as noted below.

- 14.2 Perform all necessary excavation, shoring, and backfilling required for the proper laying of all conduits inside the building and premises, and outside as may be necessary.
- 14.3 Excavate all trenches open cut, keep trench banks as nearly vertical as practicable, and sheet and brace trenches where required for stability and safety. Excavate trenches true to line and make bottoms no wider than necessary to provide ample work room. Grade trench bottoms accurately. Machine grade only to the top line of the conduits, doing the remainder by hand. Do not cut any trench near or under footings without first consulting the Architect. All trenches shall be done in accordance with OSHA standards and regulations.
- 14.4 Backfilling shall be done with each layer compacted before another layer is added. No stones or coarse lumps shall be laid directly on a conduit or conduits.
- 14.5 Trenches shall be filled with the specified material. Sod, if any, shall be removed in cut sections and replaced in same manners.
- 14.6 Provide pumps and drainage of all open trenches for purposes of installing electrical duct and wiring.
- 14.7 Perform all backfilling in accordance with the requirements of and under the direction of the Geotechnical Engineer.
- 14.8 Where new underground trenching is required on sites or in any area where existing underground utilities exist, the Contractor shall provide an independent professional utility locating service to locate exact vertical and horizontal locations of all existing utilities. Where existing utilities are found the Contractor shall hand dig those areas to avoid disruption. The Contractor shall be responsible for immediate repairs to existing underground utilities damaged during construction. The Contractor shall repair all existing asphalt, concrete and landscape surfaces damaged or removed during construction to match their original conditions. Where trenching extends through public streets or roadways, the Contractor shall notify underground service alert in addition to the independent locating service 48 hours before start of construction to determine location of existing utilities by calling (800) 422-4133.

ARTICLE 15 CONCRETE

- 15.1 Where used for structures to be provided under the contract such as bases, etc., concrete work, and associated reinforcing shall be as specified under Division 3 of these specifications.
- 15.2 See other sections for additional requirements for underground vaults, cable ducts, etc.

ARTICLE 16 ACCESSIBILITY

- 16.1 Install all control devices or other specialties requiring reading, adjustment, inspection, repairs, removal, or replacement conveniently and accessibly throughout the finished building.
- 16.2 All required access doors or panels in walls and ceilings are to be furnished and installed as part of the work under this Section. Refer to Division 1 of these specifications and as noted below.
- 16.3 Where located in fire rated assemblies, provide doors which match the rating of the assembly and are approved by the jurisdictional authority.
- 16.4 Refer to 'finish schedule' for types of walls and ceilings in each area and the architectural drawings for rated wall construction.
- 16.5 Coordinate work of the various sections to locate specialties requiring accessibility with others to avoid unnecessary duplication of access doors.

ARTICLE 17 FLASHING

- 17.1 Flash and counter flash all conduits penetrating roofing membrane as shown on Architectural drawings. All work shall be in accordance with Division 7 of these specifications.

ARTICLE 18 IDENTIFICATION OF EQUIPMENT

- 18.1 All electrical equipment shall be labeled, tagged, stamped, or otherwise identified in accordance with the following schedules:

18.1.1 General:

- 18.1.1.1 In general, the installed laminated nameplates as hereinafter called for shall also clearly indicate its use, areas served, circuit identification, voltage and any other useful data.

- 18.1.1.2 All auxiliary systems, including communications, shall be labeled to indicate function.

18.1.2 Lighting and Local Panelboards:

- 18.1.2.1 Panel identification shall be with white and black micarta nameplates. Letters shall be no less than 3/8" high.

- 18.1.2.2 Circuit directory shall be two column typewritten card set under glass or glass equivalent. Each circuit shall be identified by the room number and/or number of unit and other pertinent data as required.

18.1.3 Distribution Switchboards and Feeders Sections:

18.1.3.1 Identification shall be with 1" x 4" laminated white micarta nameplates with black lettering on each major component, each with name and/or number of unit and other pertinent data as required. Letters shall be no less than 3/8" high.

18.1.3.2 Circuit breakers and switches shall be identified by number and name with 3/8" x 1-1/2" laminated micarta nameplates with 3/16" high letters mounted adjacent to or on circuit breaker or switch.

18.1.4 Disconnect Switches, Motor Starters and Transformers:

18.1.4.1 Identification shall be with white micarta laminated labels and 3/8" high black lettering.

18.1.5 All communication system terminal boxes including T.V., telephone/intercom, security, fire alarm, clock, and computer networking shall be provided with white micarta laminated labels and 3/8" high black lettering.

ARTICLE 19 CONSTRUCTION FACILITIES

19.1 Furnish and maintain from the beginning to the completion all lawful and necessary guards, railings, fences, canopies, lights, warning signs, etc. Take all necessary precautions required by City, State Laws, and OSHA to avoid injury or damage to any persons and property.

19.2 Temporary power and lighting for construction purposes shall be provided under this Section. All work shall be in accordance with Division 1 of these specifications.

ARTICLE 20 GUARANTEE

20.1 Guarantee all material, equipment and workmanship for all sections under this Division in writing to be free from defect of material and workmanship for one year from date of final acceptance, as outlined in the general conditions. Replace without charge any material or equipment proven defective during this period. The guarantee shall include performance of equipment under all site conditions, conditions of load, installing any additional items of control and/or protective devices, as required.

ARTICLE 21 PATENTS

21.1 Refer to the General Conditions for Contractor's responsibilities regarding patents.

ARTICLE 22 PLUMBING (DIVISION 22) / HEATING, VENTILATING, AND AIR
CONDITIONING
(DIVISION 23) / ELECTRICAL – COORDINATION REQUIREMENTS

- 22.1 All electrical work performed for this project shall conform to the California Electrical Code, to Local Building Codes and in conformance with Division 22, 23, and 26 of these specifications, whether the work is provided under the “Plumbing”, “Heating, Ventilating, and Air Conditioning”, or the “Electrical” Division of these specifications. Where the Division 22 and/or Division 23 Contractor is required to provide electrical work, he shall arrange for the work to be done by a licensed Division 26 Contractor, using qualified electricians. The Division 22 and/or Division 23 Contractor shall be solely and completely responsible for the correct functioning of all equipment regardless of who provided the electrical work.
- 22.2 The work under Division 22 and/or Division 23 shall include the following:
- 22.2.1 All motors required by mechanical equipment.
- 22.2.2 All starters for mechanical equipment which are not provided under the electrical division as part of a motor control center or otherwise indicated on the electrical drawings.
- 22.2.3 All wiring interior to packaged equipment furnished as an integral part of the equipment.
- 22.2.4 All control **wiring and conduit** for mechanical control systems.
- 22.2.5 All control systems required by mechanical equipment.
- 22.3 The work under Division 26 shall include the following:
- 22.3.1 All power wiring and conduit; and conduit only for EMS control conductors between each building and the main control panel.
- 22.3.2 Electrical disconnects as shown on the electrical drawings.
- 22.3.3 Starters forming part of a motor control center.
- 22.4 All power wiring and conduit to equipment furnished under Division 22 and/or Division 23 shall be provided under Division 26. Control wiring and conduit, whether line voltage or low voltage, shall be provided under the division which furnishes the equipment.
- 22.5 Power wiring shall be defined as all wiring between the panelboard switchboard overcurrent device, motor control center starter or switch, and the safety disconnect switch or control panel serving the equipment. Also, the power wiring between safety disconnect switch and the equipment line terminals.

- 22.6 Control wiring shall be defined as all wiring, either line voltage or low voltage, required for the control and interlocking of equipment, including but not limited to wiring to motor control stations, solenoid valves, pressure switches, limit switches, flow switches, thermostats, humidistats, safety devices, smoke detectors, and other components required for the proper operation of the equipment.
- 22.7 All motor starters which are not part of motor control centers and which are required for equipment furnished under this Division shall be furnished and installed by the Division furnishing the equipment and power wiring connected under Division 26. Motor starters and control devices in motor control centers shall be furnished and installed under Division 26.
- 22.8 Division 26 Contractor shall make all final connections of power wiring to equipment furnished under this Division.
- 22.9 Wiring diagrams complete with all connection details shall be furnished under each respective Section.
- 22.10 Motor starters supplied by Plumbing and/or Heating, Ventilating and Air Conditioning shall be fused combination type minimum NEMA Size 1, and conform to appropriate NEMA standards for the service required. Provide NEMA type 3R/12 gasketed enclosures in wet locations. Provide all starters with appropriately sized overload protection and heater strips provided in each phase, hand/off auto switches, a minimum of 2 NO and NC auxiliary contacts as required, and an integral disconnecting means. For ½ horsepower motors and below, when control requirements do not dictate the use of a starter, a manual motor starter switch with overload protection in each phase may be provided. Acceptable manufacturers are Allen Bradley, General Electric, Square D, Furnas and Cutler Hammer.

ARTICLE 23 EQUIPMENT ROUGH-IN

- 23.1 Rough-in all equipment, fixtures, etc. as designed on the drawings and as specified herein. The drawings indicate only the approximate location of rough-ins. Mounting heights of all switches, receptacles, wall mounted fixtures and such equipment must be coordinated with the Architectural Designs. The Contractor shall obtain all rough-in information before progressing with any work for rough-in connections. Minor changes in the contract drawings shall be anticipated and provided for under this Division of the specifications to comply with rough-in requirements.

ARTICLE 24 OWNER FURNISHED AND OTHER EQUIPMENT

- 24.1 Rough-in and make final connections to all Owner furnished equipment shown on the drawings and specified, and all equipment furnished under other sections of the specifications.

ARTICLE 25 EQUIPMENT FINAL CONNECTIONS

- 25.1 Provide all final connections for the following:
 - 25.1.1 All equipment furnished under this Division.
 - 25.1.2 Electrical equipment furnished under other sections of the specification.
 - 25.1.3 Owner furnished equipment as specified under this Division.

ARTICLE 26 INSERTS, ANCHORS, AND MOUNTING SLEEVES

- 26.1 Inserts and anchors must be:
 - 26.1.1 Furnished and installed for support of work under this Division.
 - 26.1.2 Mounting of equipment that is of such size as to be free standing and that equipment which cannot conveniently be located on walls, such as motor starters, etc., shall be rigidly supported on a framework of galvanized steel angle of Unistrut or B-line systems with all unfinished edges painted.
 - 26.1.3 Furnish and install all sleeves as required for the installation of all work under all Sections of this Division and for all communication systems including any communication systems described in this Section which are bid to the General Contractor. Sleeves through floors, roof, and walls shall be as described in "Conduit and Fittings" Section 26 05 33.

ARTICLE 27 SEISMIC ANCHORING

- 27.1 All switchgear and other free standing electrical equipment or enclosures shall be anchored to the floor and braced at the top of the equipment to the structure. Where details have not been provided on the drawings, anchorage shall comply with CBC Section 1616A.1.12. The Contractor shall submit drawings signed by the Contractors registered structural Engineer indicating method of compliance prior installation.
- 27.2 All sound systems, communication, signal or data networking equipment or enclosures shall be anchored to the structure. Where details have not been provided on the drawings, anchorage shall comply with CBC Section 1616A.1.12. The Contractor shall submit drawings signed by the Contractors registered Structural Engineer indicating method of compliance prior to installation.

ARTICLE 28 RUST PROOFING

28.1 Rust proofing must be applied to all ferrous metals and shall be in accordance with Section 05500 of these specifications and as noted below.

28.1.1 Hot-dipped galvanized shall be applied and after forming of angle-iron, bolts, anchors, etc.

28.1.2 Hot-dipped galvanized coating shall be applied after fabrication for junction boxes and pull boxes cast in concrete.

ARTICLE 29 GENERAL WIRING

29.1 Where located adjacent in walls, outlet boxes shall not be placed back to back, nor shall extension rings be used in place of double boxes, all to limit sound transmission between rooms. Provide short horizontal nipple between adjacent outlet boxes, which shall have depth sufficient to maintain wall coverage in rear by masonry wall.

29.2 In those instances where outlet boxes, recessed terminal boxes, or recessed equipment enclosures are installed in a fire rated assembly, provide "Flamesafe FSD 1077" fire stopping pads or approved equal, over the outlet or box.

29.3 Complete rough-in requirements of all equipment to be wired under the contract are not indicated. Coordinate with respective trades furnishing equipment or with the Architect as the case may be for complete and accurate requirements to result in a neat, workmanlike installation.

ARTICLE 30 SEPARATE CONDUIT SYSTEMS

30.1 Each electrical and signal system shall be contained in a separate conduit system as shown on the drawings and as specified herein. This includes each power system, each lighting system, each signal system of whatever nature, telephone, standby system, sound system, control system, fire alarm system, etc.

30.2 Further, each item of building equipment must have its own run of power wiring. Control wiring may be included in properly sized conduit for equipment feeders of #6 AWG and smaller, having separate conduit for larger sizes.

ARTICLE 31 CLEANUP

31.1 In addition to cleanup specified under other sections, thoroughly clean all parts of the equipment. Where exposed parts are to be painted, thoroughly clean off any spattered construction materials and remove all oil and grease spots. Wipe the surface carefully and scrape out all cracks and corners.

- 31.2 Use steel brushes on exposed metal work to carefully remove rust, etc., and leave smooth and clean.
- 31.3 During the progress of the work, keep the premises clean and free of debris.

ARTICLE 32 UTILITY SERVICES

- 32.1 The Division 26 Contractor shall contact the serving utility companies; notify the serving power, telephone and cable TV utilities of the following:
 - 32.1.1 Name and address of Contractor.
 - 32.1.2 Estimated times of construction start, completion and required service connections.
 - 32.1.3 Project service voltage, phase load, and service size.
 - 32.1.4 Provide to the Architect written verification from each utility company indicating their concurrence with the contract documents.
- 32.2 Contractor shall notify underground service alert 48 hours before start of construction to determine location of existing utilities by calling (800) 422-4133. All work shall be in accordance with the Division 1 Sections of these specifications.
- 32.3 All utility company requirements shall be complied with and approval shall be obtained from the utility company for service equipment. Such as, verification of a field test of the ground fault protection on the main service equipment, panic hardware and etc.

ARTICLE 33 PAINTING

- 33.1 Paint all unfinished metal as required in accordance with Division 1 of these specifications. (Galvanized and factory painted equipment shall be considered as having a sub-base finish.)

ARTICLE 34 GENERAL DEMOLITION REQUIREMENTS

- 34.1 Remove existing work and items which are required to be removed in such manner that minimum damage and disturbance is caused to adjacent and connection work scheduled to remain. Repair or replace existing work schedule.
- 34.2 Include preparation of existing areas to receive new materials and removal of materials and equipment to alter or repair the existing building as indicated and as specified.

- 34.3 Perform demolition exercising proper care to prevent injury to the public, workmen and adjoining property.
- 34.4 Perform the removal, cutting, drilling of existing work with extreme care and use small tools in order not to jeopardize the structural integrity of the building.
- 34.5 Rebuild to existing condition or better, existing work which has to be removed to allow the installation of new work as required.
- 34.6 Remove, protect and reinstall existing items as indicated. Replace materials scheduled for reuse which are damaged by the Contractor to the extent that they cannot be reused, with equal quality material, and installation.
- 34.7 Do not reuse in this project materials and items removed from existing site or building, except with specific written approval by the Architect in each case, unless such removed material or item is specifically indicated or specified to be reused.
- 34.8 Remove materials and equipment indicated to be salvaged for reinstallation and store to prevent damage, and reinstall as the work progresses. Do not reuse in this project, other materials and equipment removed from existing site or building, except with specific written approval by the Architect in each case.
- 34.9 Patch areas requiring patching, including damage caused by removing, relocating or adding fixtures and equipment, damages caused by demolition at adjacent materials.
- 34.10 Do not stockpile debris in the existing building, without the approval of the Architect. Remove debris as it accumulates from removal operations to a legal disposal area.
- 34.11 Contractor to assume existing oil filled and dry transformers, oil switches, ballasts, lamps, wooden poles, cross arms, computers, computer monitors, and conductor insulation containing materials considered hazardous. Comply with local, state and federal regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution. Contractor shall be responsible for removal of the above hazardous materials where encountered. Include all costs for such removal as part of this contract.
- 34.12 All fluorescent, compact fluorescent, high intensity discharge, metal halide, mercury vapor, high and low pressure sodium, and neon lamps are to be disposed of as required by the California Waste Rule Regulations as described in the California Code of Regulations, Title 22, Division 4.5 and Chapter 23.
- 34.13 **Communication System:** Where new communication systems, (including telephone, intercom, clock, security, fire alarm, data, multimedia, CATV or lighting controls) are installed to replace existing systems, unless where otherwise directed the existing systems shall remain fully operational until the

new system has been installed and tested. Demolition of the existing systems shall include removal of all equipment and associated wiring and exposed conduits and providing new blank covers for all abandoned device locations.

- 34.14 **Salvage Power Equipment:** The Contractor shall carefully remove all existing switchboards, panelboards, transformers, and confirm in writing which items the Owner wishes to keep. These items shall be transported to the Owner's maintenance facilities by the Contractor. All remaining items shall be disposed of by the Contractor.
- 34.15 **Salvage Lighting Equipment:** The Contractor shall confirm in writing which items the Owner wishes to keep. These items shall be transported to the Owner's maintenance facilities by the Contractor. All remaining items shall be disposed of by the Contractor.
- 34.16 **Salvage Communication Equipment:** The Contractor shall carefully remove all communication devices (telephone, intercom, clock, security, fire alarm, data, multimedia, CATV or lighting controls) and box each type of devices separately. The Contractor shall deliver all items to the Owner's maintenance facility.

ARTICLE 35 PROJECT CLOSEOUT

- 35.1 Prior to completion of project, compile a complete equipment maintenance manual for all equipment supplied under sections of this Division, in accordance with Division 1 of these specifications and as described below.
- 35.2 Equipment Lists and Maintenance Manuals:
 - 35.2.1 Prior to completion of job, Contractor shall compile a complete equipment list and maintenance manuals. The equipment list shall include the following items for every piece of material equipment supplied under this Section of the specifications:
 - 35.2.1.1 Name, model, and manufacturer.
 - 35.2.1.2 Complete parts drawings and lists.
 - 35.2.1.3 Local supply for parts and replacement and telephone number.
 - 35.2.1.4 All tags, inspection slips, instruction packages, etc., removed from equipment as shipped from the factory, properly identified as to the piece of equipment it was taken from.
- 35.3 Maintenance manuals shall be furnished for each applicable section of the specifications and shall be suitably bound with hard covers and shall include all available manufacturers' operating and maintenance instructions, together with

"as-built" drawings to properly operate and maintain the equipment. The equipment lists and maintenance manuals shall be submitted in duplicate to the Architect for approval not less than 10 days prior to the completion of the job. The maintenance manuals shall also include the name, address, and phone numbers of all subcontractors involved in any of the work specified herein. Four copies of the maintenance manuals bound in single volumes shall be provided.

ARTICLE 36 RECORD DRAWINGS

- 36.1 The Division 26 Contractor shall maintain record drawings as specified in accordance with Division 1 of these specifications, and as noted below.
- 36.2 Drawings shall show locations of all concealed underground conduit runs, giving the number and size of conduit and wires. Underground ducts shall be shown with cross section elevations and shall be dimensioned in relation to permanent structures to indicate their exact location. Drawing changes shall not be identified only with referencing CORs and RFIs, the drawings shall reflect all of the actual additions or changes made. All as-built drawing information shall be prepared by the contractor in AutoCAD, updating the contract computer files as needed to reflect actual installed conditions for all site plans, lighting, power, communication, networking, audio visual, security or fire alarms systems included in the scope of work for this project.
- 36.3 One set of these record drawings shall be delivered to the Architect. The engineer will review documents for completeness, and will not be responsible for editing contractor computer files.

ARTICLE 37 CHANGES AND EXTRA WORK

- 37.1 When **changes** in work are requested, the Division 26 Contractor shall provide unit prices for the work involved in accordance with Division 1 of these specifications, and the following:
 - 37.1.1 The material Costs shall **not exceed** the latest edition of the "Trade Service" end column "C" price list. The materials prices may be higher only where the Contractor can produce invoices to substantiate higher material costs. The Contractor shall submit a print out copy of the trade service sheets with the change order to substantiate these values.
 - 37.1.2 The labor Costs shall **not exceed** the latest edition of the "NECA Manual of Labor Units" **normal column**.
- 37.2 When **credits** in work are requested, the Division 26 Contractor shall provide unit prices for the work involved in accordance with Division 1 of these specifications, and the following:
 - 37.2.1 The Material Costs shall **not be less than 80% of** the latest edition of the "Trade Service" end column price list. The materials prices may be lower

only where the Contractor can produce invoices to substantiate lower material costs. Restocking fees may also be included in this amount where applicable.

37.2.2 The Labor Costs shall **not be less than 80% of** the latest edition of the "NECA Manual of Labor Units" **normal column**.

37.3 Conduit pricing for conduits of all types sized 3" or smaller.

When changes in the scope of work require the Contractor to estimate conduit Installations, they shall **NOT include labor values (only material cost may be included)** for any of the below items. The labor values for conduit installation represented in the NECA manual are inflated to a point where additional labor for the below items can not be justified.

37.3.1 Couplings.

37.3.2 Set Screw or Compression Fittings, locknuts, Bushings and washers.

37.3.3 Conduit straps and associated screws or nails.

37.3.4 LB fittings or other specialty fittings or specialty mounting hardware may be included where needed.

37.4 Wire pricing for all types and sizes.

When changes in the scope of work require the Contractor to estimate wire installations they shall **NOT include labor values (only material cost may be included)** for any of the below items. The labor values for wire installation represented in the NECA manual are inflated to a point where additional labor for the below items can not be justified.

37.4.1 Locknuts, Bushings, tape, wire markers.

37.5 When changes in the scope of work require other equipment installations such as lighting fixtures, panelboards, switchboards, wiring devices, communications equipment etc. the Contractor shall **NOT include labor values (only material cost may be included)** for any of the below items. The labor values for these equipment items represented in the NECA manual are inflated to a point where additional labor for the below items can not be justified.

37.5.1 Associated screws, nails, bolts, anchors or supports.

37.5.2 Locknuts, washers, tape.

37.6 The total labor hours for extra work will be required to be calculated as follows:

37.6.1 Change orders with 1 to 30 total labor hours

General Laborer	10%	of total labor hours
Journeyman	10%	of total labor hours
Foreman	80%	of total labor hours

37.6.2 Change orders with 31 to 100 total labor hours

General Laborer	20%	of total labor hours
Journeyman	40%	of total labor hours
Foreman	40%	of total labor hours

37.6.3 Change orders with over 100 total labor hours

General Laborer	30%	of total labor hours
Journeyman	50%	of total labor hours
Foreman	20%	of total labor hours

37.7 When change orders are issued which allow the work to be completed in the normal sequence of construction, the labor rates shall be based on the most current “Prevailing Wage” – straight time total hourly rate. When change orders require the Contractor to work out of sequence the “Prevailing Wage” – daily overtime hourly rate shall apply. Special condition situations shall be reviewed on an individual basis for alternate hourly rate schedules.

37.8 Costs **will not** be permitted for additional supervision on site or office time for processing any change order other than the 10% overhead allowance as described in Division 1. Cost for special equipment required to install items for an individual change order are permitted and must be individually identified. Lump Sum cost for small tools or any other cost not specifically required for the change order are **not** permitted.

37.9 Contractor estimates shall be formatted to clearly identify each of the following:

37.9.1 Line item description of each type of material or labor item.

37.9.2 Description of quantity for each item.

37.9.3 Description of (material cost per / quantity).

37.9.4 Description of (labor cost per / quantity).

37.9.5 Description of total labor hour breakdown per Foreman, Journeyman or General Laborer as described above.

ARTICLE 38 ELECTRONIC FILES

- 38.1 The Contractor shall make a ***written*** request directly to Johnson Consulting Engineers for electronic drawing files. As a part of the written request, please include the following information:
- 38.1.1 Clearly indicate each drawing sheet needed (i.e., E1.1, E2.1, etc.).
- 38.1.2 Identify the name, phone number, mailing address and e-mail address of the person to receive the files.
- 38.1.3 Provide written confirmation and agreement with the requirements described for payment of computer files, as described below.
- 38.2 Detail or riser diagram sheets, or any other drawings other than floor plans or site plans, ***will not be made available to the Contractor.***
- 38.3 Files will only be provided in the AutoCAD format in which they were created.
- 38.4 Requests for files will be processed as soon as possible; a minimum of 7 working days should be the normal processing time. The Contractor shall be completely responsible for requesting the files in time for their use.
- 38.5 CAD files will be made available via e-mail or on disk, depending on the quantity of files requested. The Contractor requesting the files will be required to pay \$50.00 per drawing plan, or \$300.00 maximum, whichever is ***less.***

END OF SECTION

SECTION 260519 - POWER CONDUCTORS

PART 1 – GENERAL

- 1.1 Furnish and install wire and cable for branch circuits and feeders specified herein and as shown on the electrical drawings.
- 1.2 Submittals: Submit manufacturers' data for the following items:
 - 1.2.1 All cables and terminations
- 1.3 **Common submittal mistakes which will result in the submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining, or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed

PART 2 – PRODUCTS

- 2.1 Wire and cable Rated 120 volt to 600 volt.
 - 2.1.1 All wire and cable shall be new, 600 volt insulated copper, of types specified below for each application. All wire and cable shall bear the UL label and shall be brought to the job in unbroken packages. Wire insulation shall be the color as specified herein and shall be type THWN-2. Insulated conductors shall be installed in all exterior exposed raceways. Conductors for branch circuit lighting, receptacle, power and miscellaneous systems shall be a minimum of No. 12 AWG. Increase conductor size to No. 10 AWG for 120 volt circuits greater than 100 feet from the panel to the load and for 277 volt circuits greater than 200 feet from the panel to the load. Circuit home-runs indicated to be larger than No. 12 must be increased the entire length of the circuit, including equipment grounding conductor. Wire sizes No. 14 through No. 10 shall be solid. No. 8 and larger shall be stranded.
 - 2.1.2 Aluminum conductors will be permitted (only where specifically identified on the drawings. See "600 Volt Feeder Schedule") in sizes 2/0

or larger. Conductors shall be listed by Underwriters Laboratories (UL) and suitable for operation at 600 volts or less, at a maximum operating temperature of 90N C maximum in wet or dry locations. Conductors shall be marked "SUN-RES". Aluminum alloy conductors shall be compact stranded conductors of STABILOY® (AA-8030) as manufactured by Alcan Cable or Listed equal. AA-8000 Series aluminum alloy conductor material shall be recognized by The Aluminum Association.

2.1.3 MC type armored cable reference Section 26 05 33.

2.2 Wire and cable for systems below 120 volts.

2.2.1 All low voltage and communications systems cables routed underground shall be provided with a moisture resistant outer jacket, West Penn "Aquaseal" or equal, unless otherwise specified.

PART 3 - EXECUTION

3.1 Wire and cable shall be pulled into conduits without strain using powdered soapstone, mineralac, or other approved lubricant. In no case shall wire be repulled if same has been pulled out of a conduit run for any purpose. No conductor shall be pulled into conduit until conduit system is complete, including junction boxes, pull boxes, etc.

3.2 All connections of wires shall be made as noted below:

3.2.1 Connections to outlets and switches: Wire formed around binding post of screw.

3.2.2 No. 10 wire and smaller: Circuit wiring connections to lighting fixtures and other hard wired equipment shall be made with pressure type solderless connectors, Buchanan, Scotchlock, Wing Nut, or approved equal. Alternate "WAGO" #773 series or "IDEAL" #32, 33, 34 and 39 series push wire style connectors are also acceptable.

3.3 All wiring shall be continuous without splicing unless where specifically noted on the drawings or where permitted below.

3.3.1 No. 10 wire and smaller above grade: Quantities as needed, connection made with pressure type solderless connectors, Scotchlock or equal.

3.3.2 No. 10 wire and smaller below grade: Quantities as needed, connection made with 'Raychem' long barrel compression terminals with crimping tool and quantity of crimps as recommended by manufacturer, provide 'Raychem' WCSM-S series in-line heat shrink, sealant coated splice kit. Alternate products must be UL listed for direct burial/submersible and rated to (1000V).

- 3.3.3 No. 8 wire and larger above grade: Quantities only where indicated, ‘Raychem’ long barrel compression terminals with crimping tool and quantity of crimps as recommended by manufacturer, provide ‘Raychem’ WCSM-S series in-line heat shrink, sealant coated splice kit. Alternate products must be UL listed for direct burial/submersible and rated to (1000V).
- 3.3.4 No. 8 wire and larger below grade: Quantities only where indicated, ‘Raychem’ long barrel compression terminals with crimping tool and quantity of crimps as recommended by manufacturer, provide ‘Raychem’ WCSM-S series in-line heat shrink, sealant coated splice kit. Alternate products must be UL listed for direct burial/submersible and rated to (1000V).
- 3.4 All wiring throughout shall be color coded as follows:

	<u>480 volt system</u>	<u>208 or 240 volt system</u>
A Phase	Brown	Black
B Phase	Orange	Red
C Phase	Yellow	Blue
Neutral	Grey	White
Ground	Green	Green

- 3.5 Wiring must be color coded throughout its entire length, except feeders may have color coded plastic tape at both ends and any other accessible point.
- 3.6 All control wiring in a circuit shall be color coded, each phase leg having a separate color, and with all segments of the control circuit, whether in apparatus or conduit, utilizing the same color coding.
- 3.7 At all terminations of control wiring, the wiring shall have a numbered T&B or Brady plastic wire marker.
- 3.8 Cables when installed are to be properly trained in junction boxes, etc., and in such a manner as to prevent any forces on the cable which might damage the cable.
- 3.9 All conductors to be installed into a common raceway, shall be pulled into the raceway at the same time.
- 3.10 All conductors shall be installed in such a manner as to not exceed the manufacturers’ recommended pulling tension and bending radius. The equipment used for pulling must be specifically designed for the purpose. Motorized vehicles such as pickup trucks, are not acceptable.

END OF SECTION

SECTION 260526 - GROUNDING

PART 1 – GENERAL

- 1.1 Furnish and install grounding and grounding conductors and electrodes as specified herein and as shown on the drawings.
- 1.2 Submit catalog data for all components.
- 1.3 **Common submittal mistakes which will result in the submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 – EXECUTION

- 2.1 Grounding
 - 2.1.1 All panelboard cabinets, equipment, enclosures, and complete conduit system shall be grounded securely in accordance with pertinent sections of CEC Article 250. Conductors shall be copper. All electrically operated equipment shall be bonded to the grounded conduit system. All non-current carrying conductive surfaces that are likely to become energized and subject to personal contact shall be grounded by one or more of the methods detailed in CEC Article 250. All ground connections shall have clean contact surfaces. Install all grounding conductors in conduit and make connections readily accessible for inspection.
 - 2.1.2 Provide an insulated equipment grounding conductor in all branch circuit and feeder raceway systems, sized in accordance with CEC 250-122.
 - 2.1.3 Provide an additional individual insulated grounding conductor for each circuit which contains an isolated ground receptacle or surge suppression receptacle.

- 2.1.4 Grounding of metal raceways shall be assured by means of provisions of grounding bushings on feeder conduit terminations at the panelboard, and by means of insulated continuous stranded copper grounding wire extended from the ground bus in the panelboard to the conduit grounding bushings.
- 2.1.5 Except for connections which access for periodic testing is required, make grounding connections which are buried or otherwise inaccessible by exothermite type process.
- 2.1.6 The following ohmic values shall be test certified for each item listed. A written report signed and witnessed by the project IOR shall be provided to the engineer. If the ohmic value listed cannot be obtained additional grounding shall be installed to reach the value listed.
 - 2.1.6.1 Service.10 ohms.
 - 2.1.6.2 Step down transformers and non-current carrying metal parts
. 25 ohms.
 - 2.1.6.3 Manholes, handholes, etc.
. 10 ohms.

END OF SECTION

SECTION 260533 - CONDUIT AND FITTINGS

PART 1 – GENERAL

- 1.1 Furnish and install conduit and fittings as shown on the drawings and as specified herein.
- 1.2 Submit Manufacturer's data on the following:
 - 1.2.1 Conduit.
 - 1.2.2 Fittings
 - 1.2.3 Fire stopping Material.
 - 1.2.4 Surface Raceways.
 - 1.2.5 Type MC or MC-PCS cable, provide construction details and UL "E" number.
- 1.3 **Common submittal mistakes which will resulting in the submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 – PRODUCTS

- 2.1 Rigid steel conduit, intermediate metal conduit (IMC), electrical metallic tubing (EMT) and flexible metallic conduit shall be steel, hot dipped galvanized after fabrication.
- 2.2 PVC conduit shall be Carlon or approved equal.
- 2.3 Liquid tight flexible metal conduit shall be Anaconda Sealite type UA or approved equal. Fittings shall be Appleton, Crouse-Hinds, Steel City, T&B, or equivalent.

- 2.4 MC type armored cable, when utilized, shall be provided with the following:
 - 2.4.1 Comply with UL 1479 and CEC 330
 - 2.4.2 90°C, copper, THHN conductors.
 - 2.4.3 Minimum #12 insulated grounding conductor.
 - 2.4.4 Conductors sized No. 10 and smaller shall be solid, No. 8 and larger shall be stranded.
 - 2.4.5 Oversized (150%) neutrals or separate neutrals shall be provided.
 - 2.4.6 Increase phase conductors to No. 10 AWG for 120 volt circuits greater than 100 feet from panel to load and for 277 volt circuits greater than 200 feet from panel to load. Where required increase conductor sizes for entire length of circuit.
 - 2.4.7 Interlocked armored aluminum sheath.
 - 2.4.8 AC or BX type armored cable shall not be substituted in lieu of MC type cable.
 - 2.4.9 Color code cable according to cable type and configuration.
 - 2.4.10 Acceptable manufacturers are AFC and Alflex.
- 2.5 MC-PCS luminary armored cable , when utilized, shall be provided with the following:
 - 2.5.1 Comply with UL 1479 and CEC 330
 - 2.5.2 90°C, copper, THHN conductors.
 - 2.5.3 Minimum #12 insulated grounding conductor.
 - 2.5.4 Lighting phase conductors sized No. 10 and smaller shall be solid, lighting control conductors shall be sized no. 16 solid.
 - 2.5.5 Interlocked armored aluminum sheath.
 - 2.5.6 AC or BX type armored cable shall not be substituted in lieu of MC type cable.
 - 2.5.7 Color code phase cable according to cable type and configuration. Color code control conductors purple/gray.
 - 2.5.8 Acceptable manufacturers are AFC and Alflex.

- 2.6 Fire stopping material shall provide an effective seal against fire, heat, smoke and fire gases. Fire stopping material shall be tested to comply with ASTM E 814 and UL 1479. The submittal for this product shall include the UL listed system number and installation requirements for each type of penetration seal required for this project.
- 2.7 Each length of conduit shall be stamped with the name or trademark of the manufacturer and shall bear the UL label.
- 2.8 All plastic conduit shall be rigid, schedule 40, heavy wall PVC. All PVC conduit shall be UL listed. Underground utility company conduits shall comply with local utility co. requirements.
- 2.9 Plastic conduit shall be stored on a flat surface, and protected from the direct rays of the sun.
- 2.10 Where branch circuit or communication raceways cannot be concealed in ceilings or walls and are required to be exposed in interior spaces, provide nonmetallic surface raceway system sized per the manufacturer capacity requirements. A full complement of nonmetallic fittings must be available and matching device boxes and cover plates must be provided. The color of the raceway system, components and boxes shall be (white). Where data networking cabling is to be installed, all raceway fittings shall meet Category 5 radius requirements. Where specific raceway types have been noted on the drawings they shall be as follows:

2.10.1	System 'SR'	Hubbell Wiremold Panduit Hellerman -Tyton	WALLTRAK 1 series ECLIPSE PN05series LD5 series TSR2 series
2.10.2	System 'SR2'	Hubbell Wiremold Panduit Hellerman -Tyton	WALTRAK 22 2300D Series D2P10 TSR3 series
2.10.3	System 'SR3'	Hubbell Wiremold Panduit Hellerman -Tyton	BASETRAK series 5400 - series 70 series MCR Infostream" series

Provide with offset boxes, inline boxes may only be used where specifically shown on the drawings.

PART 3 – FITTINGS

- 3.1 All metallic fittings, including those for EMT, flexible conduit, or malleable iron. Die cast fittings of any other material are not permitted.

- 3.2 Locknuts shall be steel or malleable iron with sharp clean cut threads.
- 3.3 Entrance seals shall be 0.Z. type FSK or equivalent.
- 3.4 Bushings and locknuts: Where conduits enter boxes, panels, cabinets, etc., they shall be rigidly clamped to the box by locknuts on the outside, and a lock nut and plastic bushing on the inside of the box. All conduits shall enter the box squarely.
- 3.5 Furnish and install insulated bushings as per CEC article No. 300 - 4 (F) on all conduits. The use of insulated bushings does not exclude the use of double locknuts to fasten conduit to the box.
- 3.6 Transition from plastic to steel conduits shall be with PVC female threaded adaptors.
- 3.7 Couplings and connectors for rigid steel or IMC conduit must be threaded, or compression type (set screw fittings are not permitted).
- 3.8 Couplings and connectors for EMT shall be compression, watertight. Set screw connectors are not acceptable, except for systems below 120 volts.
- 3.9 MC or MC-PCS type armored cable shall be provided with listed clamp type die cast zinc set screw connectors. Anti-short bushings shall be provided at all cable ends.
- 3.10 Connectors for flexible metal conduit shall be steel or malleable iron with screw provided to clinch the conduit into the adapter body. For sizes up to $\frac{3}{4}$ " a screw-in, "Jake type," fitting may be used.
- 3.11 Install approved expansion fittings, or liquid tight flex conduit with a minimum 6" slack for conduits passing through all expansion and seismic joints.

PART 4 - EXECUTION

- 4.1 All branch circuits shall be installed concealed in walls or above ceilings or in concrete floor slabs. PVC conduits installed in concrete floor slabs shall transition to PVC coated rigid steel where conduits penetrate above finished grade or finished floor.
- 4.2 Conduit sizes for various numbers and sizes of wire shall be as required by the CEC, but not smaller than $\frac{1}{2}$ " for power wiring and $\frac{3}{4}$ " for communications and fire alarm systems unless otherwise noted. Conduit in slab or below grade shall be $\frac{3}{4}$ " minimum trade size, unless otherwise identified.
- 4.3 Conduit size shall be such that the required number and sizes of wires can be easily pulled in and the Contractor shall be responsible for the selection of the

conduit sizes to facilitate the ease of pulling. Conduit sizes shown on the drawings are minimum sizes in accordance with appropriate tables in the CEC. If because of bends or elbows a larger conduit size is required, the Contractor shall so furnish without further cost to the Owner.

- 4.4 The Contractor shall be entirely responsible for the proper protection of this work from the other trades on the job. When conduit becomes bent or holes are punched through same, or outlets moved after being roughed-in, the Contractor shall replace same, without additional cost to the Owner.
- 4.5 Rigid steel conduit or IMC shall be used as follows:
 - 4.5.1 Exposed exterior locations.
 - 4.5.2 Exposed interior locations below eight feet above floor, except in electrical rooms and closets.
 - 4.5.3 In hazardous or classified areas as required by CEC.
- 4.6 EMT conduit shall be used for areas as follows:
 - 4.6.1 All interior communications, signal, and data networking systems.
 - 4.6.2 All interior power wiring systems where not required to be in rigid steel, IMC or flexible conduit.
- 4.7 Flexible conduit shall be used for areas as follows:
 - 4.7.1 To connect motors, transformers, and other equipment subjected to vibration or where specifically detailed on the drawings.
 - 4.7.2 Flexible conduit shall not be used to replace EMT in other locations where the conduit will be exposed.
 - 4.7.3 Flexible metal conduit shall be ferrous. Installation shall be such that considerable slack is realized. The conduit shall contain separate code sized grounding conductor.
 - 4.7.4 Liquid tight flexible conduit shall be used in conformance with CEC in lengths not to exceed 4'. For equipment connections, route the conduit at 90 degrees to the adjacent path for point of connection. The conduit shall contain separate code sized grounding conductor. Use liquid tight flexible conduit for all equipment connections exposed in possible wet, corrosive or oil contaminated areas, e.g., shops and outside areas.
- 4.8 MC armored cable may be used as follows:

- 4.8.1 All branch circuit wiring for lighting and power circuits where permitted and installed in compliance with UL 1569 and CEC 330.
- 4.9 MC-PCS luminary armored cable may be used as follows:
 - 4.9.1 All Lighting branch circuit wiring for lighting circuits where permitted and installed in compliance with UL 1569 and CEC 300-22(c), 330. This cable permits conductors of control circuits to be placed in a cable with lighting power circuits or class 1 circuits.
 - 4.9.2 It shall not be considered an acceptable option to install lighting control class 1 circuits as an open wire installation.
- 4.10 MC and MC-PCS armored cable shall **not** be used for the following areas:
 - 4.10.1 Any exterior, underground or buried in concrete circuits.
 - 4.10.2 Any circuits feeding HVAC equipment or pumps or any circuit with 30 AMPs or greater overcurrent protection.
 - 4.10.3 Any exposed interior locations except in electrical, communication or mechanical equipment rooms.
 - 4.10.4 Any exposed interior damp/wet locations, kitchens, science classrooms, shop areas, or concealed in science classroom casework, unless provided with approved PVC jacket.
 - 4.10.5 Any hazardous rated area.
- 4.11 Plastic conduit shall be used for all exterior underground, in slab, and below slab on grade conduit installations. Install bell ends at all conduit terminations in manholes and pull boxes. Where plastic conduit transitions from below grade to above grade, no plastic conduit shall extend above finished exterior grade, or above interior finished floor level.
- 4.12 Plastic conduit joints shall be made up in accordance with the manufacturer's recommendations for the particular conduit and coupling selected. Conduit joint couplings shall be made watertight. Plastic conduit joints shall be made up by brushing a plastic solvent cement on the inside of a plastic fitting and on the outside of the conduit ends. The conduit and fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly.
- 4.13 All underground conduit depths shall be as detailed on the drawings or a minimum of 30" below finished grade (when not specifically detailed otherwise), for all exterior underground conduits. Where concrete slurry or concrete encasement is provided, include "Red" color dye in mixture.

- 4.14 All underground conduits for power systems (600v and higher), shall be concrete encased and a minimum of 48" below grade or as detailed on the drawings. Where concrete slurry or concrete encasement is provided, include "Red" color dye in mixture.
- 4.15 Conduit shall be continuous from outlet to outlet, cabinet or junction box, and shall be so arranged that wire may be pulled in with the minimum practical number of junction boxes.
- 4.16 All conduits shall be concealed wherever possible. All conduit runs may be exposed in mechanical equipment rooms, electrical equipment rooms, electrical closets, and in existing or unfinished spaces. No conduit shall be run exposed in finished areas without the specific approval of the Architect.
- 4.17 All raceways which are not buried or embedded in concrete shall be supported by straps, clamps, or hangers to provide a rigid installation. Exposed conduit shall be run in straight lines at right angles to or parallel with walls, beams, or columns. In no case shall conduit be supported or fastened to other pipes or installed to prevent the ready removal of other trades piping. Wire shall not be used to support conduit.
- 4.18 It shall be the responsibility of the Contractor to consult the other trades before installing conduit and boxes. Any conflict between the location of conduit and boxes, piping, duct work, or structural steel supports, shall be adjusted before installation. In general, large pipe mains, waste, drain, and steam lines shall be given priority.
- 4.19 Conduits above lay-in grid type ceilings shall be installed in such a manner that they do not interfere with the "lift-out" feature of the ceiling system. Conduit runs shall be installed to maintain the following minimum spacing wherever practical.
 - 4.19.1 Water and waste piping not less than 3".
 - 4.19.2 Steam and steam condensate lines not less than 12".
 - 4.19.3 Radiation and reheat lines not less than 6".
- 4.20 Provide all necessary sleeves and chases required where conduits pass through floors or walls as part of the work of this section. Core drilling will only be permitted where approved by the Architect.
- 4.21 All empty conduits and surface mounted raceways shall be provided with a ¼" polypropylene plastic pull cord and threaded plastic or metal plugs over the ends. Fasten plastic "Dymo" tape label to exposed spare conduit to identify "power" or "communication" system, and to where it goes.

- 4.22 The ends of all conduits shall be securely plugged, and all boxes temporarily covered to prevent foreign material from entering the conduits during construction. All conduit shall be thoroughly swabbed out with a dry swab to remove moisture and debris before conductors are drawn into place.
- 4.23 Bending: Changes in direction shall be made by bends in the conduit. These shall be made smooth and even without flattening the pipe or flaking the finish. Bends shall be of as long a radius as possible, and in no case smaller than CEC requirements.
- 4.23.1 For power conduits for conductors (600v and below), provide minimum 36" radius (vertical) and 72" radius (horizontal) bends.
- 4.23.2 For power conduits for conductors (greater than 600v), provide minimum 72" radius (vertical) and 72" radius (horizontal) bends.
- 4.24 Supports: Conduit shall be supported at intervals as required by the California Electrical Code. Where conduits are run individually, they shall be supported by approved conduit straps or beam clamps. Straps shall be secured by means of toggle bolts on hollow masonry, machine screws or bolts on metal surfaces, and wood screws on wood construction. **[No perforated straps or wire hangers of any kind will be permitted. Where individual conduits are routed, or above ceilings, they shall be supported by hanger rods and hangers.]** Conduits installed exposed in damp locations shall be provided with clamp backs under each conduit clamp, to prevent accumulation of moisture around the conduits.
- 4.25 Where a number of conduits are to be run exposed and parallel, one with another, they shall be grouped and supported by trapeze hangers. Hanger rods shall be fastened to structural steel members with suitable beam clamps or to concrete inserts set flush with surface. A reinforced rod shall be installed through the opening provided in the concrete inserts. Beam clamps shall be suitable for structural members and conditions. Rods shall be galvanized steel 3/8" diameter minimum. Each conduit shall be clamped to the trapeze hanger with conduit clamps.
- 4.26 All concrete inserts and pipe clamps shall be galvanized. All steel bolts, nuts, washers, and screws shall be galvanized or cadmium plated. Individual hangers, trapeze hangers and rods shall be prime-coated.
- 4.27 Openings through fire rated floors/walls and/or smoke walls through which conduits pass shall be sealed by Fire stopping material to comply with Division 1 to seal off flame, heat, smoke and fire gases. Sleeves shall be provided for power or communication system cables which are not installed in conduits, and shall be sealed inside and out to comply with manufacturers UL system design details. Where multiple conduits and/or cable tray systems pass thru fire-rated walls at one location, the Contractor shall submit copies of the manufacturers UL system design details proposed for use on this project. All Fire stopping material shall

have an hourly fire-rating equal to or higher than the fire rating of the floor or wall through which the conduit, cables, or cable trays pass.

- 4.28 Provide cap or other sealing type fitting on all spare conduits. Conduits stubbed into buildings from underground where cable only extends to equipment, the conduit/cable end shall be sealed to prevent moisture from entering the room or space.
- 4.29 All conduits which are part of a paralleled feeder or branch circuit shall be installed underground.
- 4.30 All conduits which are required as a part of systems specified in Divisions 27 or 28, or any other low voltage communication systems, shall be furnished and installed by the Division 26 Contractor.
 - 4.30.1 The Contractor shall coordinate all conduit requirements with each system supplier prior to bid to determine special conduit system requirements.
 - 4.30.2 The Contractor shall provide a pull rope in all conduits for these systems.
 - 4.30.3 The Contractor shall provide conduit sleeves for all open cable installations thru rated walls or block walls. Provide conduit from each building main termination cabinet or backboard to the nearest accessible ceiling for access into all electrical or communications rooms.
- 4.31 In addition to the above requirements, the following requirements shall apply to all data networking conduits:
 - 4.31.1 Flexible metal conduit may only be used where required at building seismic and/or expansion joints.
 - 4.31.2 All underground conduits shall be provided with minimum 24" radius elbows (vertical) and 60" (horizontal).
 - 4.31.3 No length of conduit above grade shall be installed to exceed 150 feet between pull boxes, or points of connection, unless where specifically detailed on the drawings.
 - 4.31.4 No length of conduit shall be installed to exceed two 90 degree bends between pull boxes, or points of connection, unless where specifically detailed on the drawings.
- 4.32 Where surface raceways are installed in interior spaces, the Contractor shall take care to route in straight lines at right angles to or parallel with walls, beams, or columns. All raceways and device boxes shall be securely screwed to the finish surface with zinc screw "Auger" anchors Stk #ZSA1K by Gray Bar Electric or equal. Tape adhesive application will not be permitted.

- 4.33 The Contractor who installs surface raceway systems shall provide and install complete with wire retention clips, one for every (8) vertical feet or (5) horizontal feet or portion thereof. This Contractor shall also provide each raceway channel with pull strings.
- 4.34 It shall be the responsibility of the Contractor installing the raceway to coordinate the installation of raceway device plates and inserts with the communications or data contractors.
- 4.35 MC or MC-PCS cable shall be cut using a specific metallic sheath armor stripping tool. The use of hacksaws, dikes or any other tools not specifically designed to remove the armor sheath will not be permitted.
- 4.36 MC or MC-PCS cables installed in attic spaces or above lay-in ceilings shall be installed to be protected from physical damage. The cable shall be mounted along the sides or bottom of joists, rafters or studs.
- 4.37 Support wires used for supporting ceilings, lighting fixtures or other equipment items shall **not** be used to support MC or MC-PCS cables. Conduits, duct work, piping or any other equipment shall not be used to support or mount MC cables.
- 4.38 MC or MC-PCS cable supports, fasteners and clips shall be designed specifically for use with MC cables. Standard conduit supports, fasteners and clips, nails or other items are not permitted for installing MC cables.

END OF SECTION

SECTION 260534 - OUTLET AND JUNCTION BOXES

PART 1 – GENERAL

- 1.1 Furnish and install electrical wiring boxes as specified and as shown on the electrical drawings.
- 1.2 Submit manufacturer's data for all items.
- 1.3 **Common submittal mistakes which will resulting in the submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 – PRODUCTS

- 2.1 Boxes shall be as manufactured by Steel City, Appleton, Raco, or approved equal.
- 2.2 All boxes must conform to the provisions of Article 370 of the CEC. All boxes shall be of the proper size to accommodate the quantity of conductors enclosed in the box. Minimum box size shall be 4" square x 1-1/2" deep.
- 2.3 Boxes generally shall be hot dipped galvanized steel with knockouts. Boxes on exterior surfaces or in damp locations shall be corrosion resistant, cast ferrous and shall have threaded hubs for rigid conduit and neoprene gaskets for their covers. Boxes shall be Appleton Type FS, Crouse-Hinds, or the approved equal. Conduit bodies shall be corrosion resistant, cast malleable iron. Conduit bodies shall have threaded hubs for rigid conduit and neoprene gaskets for their covers. Conduit bodies shall be Appleton Unilets, Crouse-Hinds, or the approved equal. Where recessed, boxes shall have square cut corners.
- 2.4 Deep boxes shall be used in wall covered by wainscot or paneling and in walls or glazed tile, brick, or other masonry which will not be covered with plaster. Through the wall type boxes shall not be used unless specifically called for. All boxes shall be nongangable. Boxes in concrete shall be of a type to allow the placing of conduit without displacing the reinforcing bars. All lighting fixture

outlet boxes shall be equipped with the proper fittings to support and attach a light fixture.

- 2.5 All light, switch, receptacle, fire alarm devices and similar outlets shall be provided with approved boxes, suitable for their function. Back boxes shall be furnished and installed as required for the equipment and/or systems under this contract.
- 2.6 Pull and junction boxes shall be code gauge boxes with screw covers. Boxes shall be rigid under torsional and deflecting forces and shall be provided with angle from framing where required. Boxes shall be 4" square with a blank cover in unfinished areas and with a plaster ring and blank cover in finished areas. Covers for flush mounted oversize boxes shall extend $\frac{3}{4}$ " past boxes all around. Covers for 4" square boxes shall extend $\frac{1}{4}$ " past box all around.
- 2.7 All terminal cabinets and junction boxes or equipment back boxes which are required as a part of systems specified in Divisions 27 or 28, or any other low voltage communication systems, shall be furnished and installed by the Division 26 Contractor.
 - 2.7.1 The Division 26 Contractor shall coordinate all box requirements with each system supplier prior to bid to determine special cabinet or back box requirements. The Contractor shall also provide stainless steel blank cover plates for all low voltage systems installed for future equipment.
 - 2.7.2 The Contractor shall provide all plywood backboards indicated on walls or inside equipment enclosures. All backboards shall be a minimum of $\frac{3}{4}$ " thick fire rated type plywood.
 - 2.7.3 The Contractor shall coordinate exact rough in locations and requirements with each system supplier.
- 2.8 In addition to the above requirements, boxes for data networking wiring and equipment shall comply with the following:
 - 2.8.1 All boxes shall be a minimum of 4-11/16" square x 2-1/8" deep.
 - 2.8.2 Where pull boxes are required on individual conduits 1-1/4" or smaller, provide 4-11/16" square x 2-1/8" deep boxes. Where pull boxes are required on conduits larger than 1-1/4" for straight pull through, provide eight times the conduit trade size for box length. Where pull boxes are required on conduits larger than 1-1/4" for an angle or a U-pull through installation, provide a minimum distance of six times the conduit trade size between the entering and exiting conduit run for each cable.
- 2.9 Recessed boxes installed in fire rated floors/walls and /or smoke walls shall be sealed by Fire stopping material to comply with Division 1 to seal off flame, heat, smoke and fire gases. The Contractor shall submit copies of the manufacturers UL system design details proposed for use on this project. All Fire stopping material shall have an hourly fire-rating equal to or higher than the

fire rating of the floor or wall through which the conduit, cables, or cable trays pass.

PART 3 – EXECUTION

- 3.1 Boxes shall be installed where required to pull cable or wire, but in finished areas only by approval of the Architect. Boxes shall be rigidly attached to the structure, independent of any conduit support. Boxes shall have their covers accessible. Covers shall be fastened to boxes with machine screws to ensure continuous contact all around. Covers for surface mounted boxes shall line up evenly with the edges of the boxes.
- 3.2 Outlets are only approximately located on the plans and great care must be used in the actual location of the outlets by consulting the various detailed drawings and specifications. Outlets shall be flush with finished wall or ceiling, boxes installed symmetrically on such trim or fixture. Refer to drawings for location and orientation of all outlet boxes.
- 3.3 Furnish and install all plaster rings as may be required. Plaster rings shall be installed on all boxes where the boxes are recessed. Plaster rings shall be of a depth to reach the finished surface. Where required, extension rings shall be installed so that the plaster ring is flush with the finished surface.
- 3.4 All cabinets and boxes shall be secured by means of toggle bolts on hollow masonry; expansion shields and machine screws or standard precast inserts on concrete or solid masonry; machine screws or bolts on metal surfaces and wood screws on wood construction. All wall and ceiling mounted outlet boxes shall be supported by bar supports extending from the studs or channels on either side of the box. Boxes mounted on drywall or plaster shall be secured to wall studs or adequate internal structure.
- 3.5 Boxes with unused punched-out openings shall have the openings filled with factory-made knockout seals.
- 3.6 Where standby power and normal power are to be located in the same outlet box or 480V in a switch box, install partition barriers to separate the various systems.
- 3.7 All device boxes and junction boxes for fire alarm system shall be painted red and shall be 4-11/16" square by 2-1/8" deep. No exceptions.

END OF SECTION

SECTION 260924 - TIME CLOCKS (ASTRONOMICAL)

PART 1 – GENERAL

- 1.1 Furnish and install all time clocks that are not specifically called for to be furnished by others.
- 1.2 Submit manufacturer's data.
- 1.3 **Common submittal mistakes which will result in submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 - PRODUCTS

- 2.1 Acceptable manufacturers are Tork, Intermatic.
- 2.2 Contacts shall have a minimum rating of 40 amperes at 277V.
- 2.3 Timing motor shall be heavy duty synchronous, self starting, high torque type, and shall be rated at 120, 208, 240, 277 volt 60 HZ.
- 2.4 Motor shall operate normally at temperature range of -31 deg F. to + 116 deg F.
- 2.5 Dial shall be 3" diameter, clearly calibrated with day/night zones and 24-hour rotation, with special gear to provide one revolution per year which automatically varies the on and off settings each day according to the seasonal changes of sunrise and sunset. Day and month of the year shall show clearly through calendar window on the dial.
- 2.6 Clock shall be equipped with 7-spoke omitting wheel marked with days of the week.
- 2.7 Clock shall be housed in a flush enclosure where supply circuits emanate from a flush mounted panelboard and surface enclosure when supply circuits are from a surface mounted panel.

PART 3 - EXECUTION

- 3.1 Furnish and install time clocks as shown on the drawings and herein specified.

END OF SECTION

SECTION 26 27 26

SWITCHES AND RECEPTACLES

PART 1 – GENERAL

- 1.1 Furnish and install all wiring devices as shown on drawings and as herein specified. Unless otherwise noted, device and plate numbers shown are Hubbell and shall be considered the minimum standard acceptable. Other acceptable manufacturers are Pass and Seymour, Leviton, General Electric and Bryant.
- 1.2 Submit manufacturers’ data on all items.
- 1.3 **Common submittal mistakes which will result in the submittals being rejected:**
 - 1.3.1 Not correctly indicating ampacity rating of proposed devices.
 - 1.3.2 Not including all items listed in the above itemized description.
 - 1.3.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.4 Not including actual manufacturer’s catalog information of proposed products.
 - 1.3.5 Do not include multiple manufacturers for similar products and do not indicate “or approved equal” statements or “to be determined later” statements. The products being submitted must be the products installed.

PART 2 – PRODUCTS

- 2.1 All switches shall be of the quiet mechanical type, Specification Grade, 20 amp, 120/277 volt AC as follows:

	<u>HUBBELL</u>	<u>LEVITON</u>	<u>PASS & SEYMOUR</u>
Single Pole	CS120	CS1202	CS20AC1
Two Pole	CS1222	CS2202	CSB20AC2
Three-way	CS320	CS3202	CS20AC3
Key Switch	HBL1221L	1221-2L	PS20AC1-L

- 2.2 All switches shall have the "on" and the "off" position indicated on the handle. If switches of higher ampere ratings are required, they shall be of similar type and quality as those shown above. Groups of switches shown at one location shall be installed under a single plate up to a maximum of six where more than six switches are shown coordinate arrangement with the Architect.
- 2.3 Dimmer switches for incandescent lamp loads shall be square-law type, slide control dimmer with OFF position, Lutron or Hubbell "Nova-T" Series NT-600 (0-500 watt load), NT-1000 (501-900 watt load), NT-1500 (901-1500 watt load), or equal (no known equal).

- 2.4 All convenience receptacles and special outlets throughout shall be grounding type. Convenience receptacles shall be side wired, parallel slot, two pole, three wire, 20 amp as follows:

	<u>HUBBELL</u>	<u>LEVITON</u>	<u>PASS & SEYMOUR</u>
Duplex	5352	5362	PS5362
GFCI	GFR5352	8899	2094
Isolated Ground	IG5362	5362IG	IG6300
Tamper Proof		8300SG	TR63H

- 2.5 All safety or tamper proof receptacles shall have no exposed external current carrying metal parts, and shall have integral wiring leads suitable for two or three wire installations.
- 2.6 Special receptacles shall be as noted on the drawings.
- 2.7 Weatherproof plates shall be designed to meet CEC Article 410-57, wet location listed with cover "open." Where weatherproof receptacles have been identified to be provided with locking covers, the cover shall be as manufactured by Pass & Seymour #4600-8 or Cole Lighting 310 Series. Rough-in requirements vary between manufacturers. Contractor to field verify requirements prior to installation.
- 2.8 All plates throughout shall be stainless steel. Where wiring devices are installed in concrete block walls, provide oversized 3-1/2" x 5" coverplates.
- 2.9 All devices shall be white unless otherwise noted or a special purpose outlet.
- 2.10 Unless where specifically detailed on the drawings, floor boxes shall be PVC suitable for concrete poured floors of minimum 3-1/2" depth, with a modular design to gang two or three sections together.
- 2.10.1 Carlon #E976 series or approved equal
- 2.10.2 Provide brass cover with brass carpet flange unless otherwise detailed.

PART 3 – EXECUTION

- 3.1 Switches for room lighting shall be located no more than 12" center line from door jamb at plus 48" center line above finished floor or +46" to top of devices where located over casework, reference CBC Figure 11B-5D.
- 3.2 All receptacles shall be mounted at plus 18" to center line above finished floor unless noted or shown otherwise. All receptacles shall be installed with the ground pin up, at the top of the receptacle to comply with IEEE 602-1986.
- 3.3 Furnish and install wall plates for all wiring devices, and outlet boxes, including special outlets, sound, communication, signal, and telephone outlets, etc. as required. All cover plates shall be appropriate for type of device.

END OF SECTION

SECTION 262816 - DISCONNECTS

PART 1 – GENERAL

- 1.1 Furnish and install all disconnect switches as shown on the drawings and as required by the CEC.
- 1.2 Submit manufacturers' data for all disconnects and fuses.
 - 1.2.1 Disconnects
 - 1.2.2 Fuses
- 1.3 **Common submittal mistakes which will result in the submittals being rejected:**
 - 1.3.1 Not including all items listed in the above itemized description.
 - 1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.3 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 – PRODUCTS

- 2.1 Acceptable manufacturers shall be Square D, Cutler Hammer, Siemens or General Electric.
- 2.2 Equipment manufactured by any other manufacturers not specifically listed in Section 2.1 are not considered equal, or approved for use on this project.
- 2.3 All switches shall be heavy-duty type, externally operated, quick-make, quick-break, rated 600 volts or 240 volts as required, with the number of poles and ampacity as noted. All switches for motors shall be HP rated. Switches shall have NEMA-Type 1 enclosures, except switches located where exposed to outdoor conditions shall have NEMA Type 3R enclosure. Switches generally shall be fused except where noted to be non-fused on the drawings.
- 2.4 Where fuses are indicated, fuses shall be Bussman or Littlefuse (no known equal). Fuses shall be current limiting type with time delay characteristics to suit the equipment served.

PART 3 – EXECUTION

- 3.1 Mount all switches to structure or U-channel support. U-channel supports shall be cleaned and painted to prevent rust.
- 3.2 Switches shall be accessible with proper clearances in front per CEC 110-16.
- 3.3 All lugs shall be torque tested in the presence of the inspector of record.
- 3.4 Arc Flash and Shock Hazard
 - 3.4.1 The contractor is to provide, and submit to the engineer for approval, incident energy level calculations as determined using the methodologies described in NFPA 70E or IEEE standard 1584-2002.
 - 3.4.2 A warning label, as specified in the above standard, shall be placed on each switchboard, panelboard, and safety switch indicating the incident energy levels on the equipment to warn qualified personnel in accordance with NFPA 70E, section 110.16 Labels shall be laminated white micarta with black lettering on each. Letters shall be no less than 3/8" high.
 - 3.4.3 The incident level calculations for each piece of equipment shall be given to the owner and maintained on file by the maintenance department.
 - 3.4.4 The design goal is to minimize the incident energy to which a maintenance employee may be exposed and in no case more than 8 cal./cm².

END OF SECTION

SECTION 265114 - LED LIGHTING FIXTURES AND LAMPS

PART 1 – GENERAL

- 1.1 Furnish and install all lighting fixtures with lamps as specified and as shown on the drawings. Fixtures shall be complete including canopies, hanger, diffusers, ballasts, etc.
- 1.2 Submit manufacturer's data for each fixture type including the following:
 - 1.2.1 Lighting fixture catalog data and photometry.
 - 1.2.2 Lamp catalog data for each fixture type.
 - 1.2.3 Driver catalog data for each fixture type.
 - 1.2.4 Fixture warranty.
- 1.3 **Common submittal mistakes which will result in the submittal being rejected:**
 - 1.3.1 Not including lamp and driver information for each fixture type.
 - 1.3.2 Not including all items listed in the above itemized description.
 - 1.3.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.
 - 1.3.4 Not including actual manufacturer's catalog information of proposed products.
 - 1.3.5 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PRODUCT SUBSTITUTION

- 1.4 All substitutions or alternate fixtures to those indicated on the project fixture schedule shall be submitted for approval (7) business days prior to the project bid date. Approvals when accepted will be issued in the form of an addendum. No consideration for substitutions will be provided after the award of the contract.
 - 1.4.1 The substitution request must include a statement indicating the difference in price of both the specified and alternate product, both contractor and list price. The substitution request must include a comparison of the total fixture wattage, total fixture lumens, fixture efficiency and warranty comparison.
 - 1.4.2 When proposing to substitute lighting fixture and/or fixture retrofit, a point by point photometric calculation of a typical application as used in this project shall be included. A calculation of the specified and the proposed alternate shall be included.

PART 2 – PRODUCTS

- 2.1 All catalog numbers are given for manufacturer's identification and shall not relieve Contractor from responsibility of full conformance to all applicable written description requirements governing material and fabrication, either in the general or specific sections. Where catalog numbers are indicated as modified, no modification will be required if the standard unit fully conforms to descriptive requirements in the Specifications and matches specified ceiling.
- 2.2 All fixtures of the same type shall be of one manufacturer and of identical finish and appearance. All fixtures and component parts shall bear the UL label.
- 2.3 All steel parts shall be phosphate treated in multistage power spray system for corrosion resistance and paint adhesion. Final finish shall be electrostatically applied baked white enamel of not less than 87 pct. reflectance on reflecting surfaces.
- 2.4 Each fixture shall have a continuous light-seal gasket seated in such manner as to prevent any light leak through any portion or around any edge of the trim frame.
- 2.5 Diffusers shall be framed in a hinged, continuous assembly. Diffuser frame latches shall be spring-loaded or cam-operated.
- 2.6 All recessed fixtures shall be provided with frames appropriate for the type of ceiling involved. No fixtures shall be ordered until the ceiling construction has been verified by the Contractor.

MINIMUM LUMINARY REQUIREMENTS

- 2.7 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.
- 2.8 Recessed Fixtures: Comply with NEMA LE 4.
- 2.9 CRI of **minimum 80 CCT of 4100 K.**
- 2.10 Rated lamp life of 50,000 hours minimum.
- 2.11 Lamps dimmable from 100 percent to 0 percent of maximum light output.
- 2.12 Nominal Operating Voltage: **120 V / 277 V ac**

PART 3 – EXECUTION

- 3.1 All lighting fixtures shall be supported as follows:
 - 3.1.1 From the outlet box by means of a metal strap where its weight is less than five pounds.

- 3.1.2 From its outlet box by means of a hickey or other threaded connection where its weight is from five to fifty pounds.
- 3.1.3 Directly from the structural slab or joists where its weight exceeds fifty pounds.
- 3.1.4 Lighting fixtures shall be supported independent of the ceiling system or additional ceiling support must be added to carry the weight of the lighting fixtures. Recessed lighting fixtures supported from ceiling grid tees shall be furnished with hold down clips in conformance with CEC 410 - 16, spring clips will not be permitted. All fixtures which the manufacturer has not provided UL approved clips, must be attached to the fixture and ceiling grid by metal screws.
- 3.2 Furnish and install supplementary blocking and support as required to support fixture from structural members. Contractor shall submit proposed blocking method for all suspended lighting fixtures for approval prior to rough in.
- 3.3 Suspended and/or pendant mounted fixtures shall be provided with four aircraft safety cables extending in opposite directions, attached to the fixture, and supported from a structural member. The contractor shall submit proposed fixture mounting and aircraft cable attachment methods for approval prior to fixture rough in.
- 3.4 Class 1 wiring to the fixture must be installed either conduit or type MC-PCS cabling no open wiring shall be permitted.
- 3.5 Chain suspension may be used only where specifically permitted on the drawings. Chain shall be heavy duty, nickel or cadmium plated, suitable for weight of specific fixture.
- 3.6 Shop drawings shall be furnished for each fixture type. Catalog cuts, illustrating conformance with specifications, will be acceptable for standard units. Shop drawings shall indicate materials, assembly, finish and dimensions.
- 3.7 Photometric data shall be furnished for any fixture substituted for those listed on the schedule.
- 3.8 Any driver which produces a greater than normal amount of noise shall be replaced by the contractor. Normal will be determined by the level of sound produced by other similar fixtures operating in the area.

END OF SECTION

SECTION 269090 - TESTING

PART 1 – GENERAL

- 1.1 Upon completion of the electrical work, the entire installation shall be tested by the Contractor, and demonstrated to be operating satisfactorily to the Architect, Engineer, Inspector and Owner.
- 1.2 All testing and corrections shall be made prior to demonstration of operation to the Architect, Engineer, Inspector and Owner.
- 1.3 In addition to the demonstration of operation, the Contractor is also required to review the content and quality of instructions provided on items demonstrated with the Architect, Engineer, Inspector and Owner.

PART 2 – EXECUTION

- 2.1 Wiring shall be tested for continuity, short circuits and/or accidental grounds. All systems shall be entirely free from “grounds,” “short circuits,” and any or all defects.
- 2.2 Motors shall be operating in proper rotations, and control devices functioning properly. Check all motor controllers to determine that properly sized overload devices are installed, and all other electrical equipment for proper operation.
- 2.3 Tests and adjustments shall be made prior to acceptance of the electrical installation by the Architect, and a certificate of inspection and acceptance of the electrical installation by local inspection authorities shall be provided.
- 2.4 All equipment or wiring provided which tests prove to be defective or operating improperly shall be corrected or replaced promptly, at no additional cost to the Owner.
- 2.5 Test all motor and feeder circuits with a “megger” tester to determine that insulation values conform to Section 110-20, California Electrical Code (CED). Test reports must be submitted and approved by the engineer before final acceptance.
- 2.6 Test all grounding electrode connections to assure a resistance of no more than 10 ohms is achieved. Augment grounding until the ohmic value stated above is achieved. Provide certified test results to the Architect, Engineer and Inspector.

END OF SECTION