

DOCUMENT 00 01 10

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DIVISION 00 PROCUREMENT & CONTRACTING REQUIREMENTS

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SECTION 01 11 00 – SUMMARY OF WORK

PART 1 - GENERAL

1.01 SUMMARY OF THE WORK

- A. The Work under this Contract necessary for and incidental to the execution and completion of all Work indicated in the Contract Documents for the construction of:

Imperial Valley College
Relocatable Classroom Site Improvements
Imperial, California
Imperial Valley Community College District

1.02 GENERAL DESCRIPTION OF WORK

- A. The Work under this Contract includes furnishing all labor, materials, services and transportation, except as specifically excluded which is required for completion of the Project in accordance with the provisions of the Contract Documents.

1.03 REGULATORY REQUIREMENTS

A. CODE INFORMATION:

1. Codes: All work shall comply with the following Codes:

2019 CALIFORNIA ADMINISTRATIVE CODE, PART 1, TITLE 24, CCR
2019 CALIFORNIA BUILDING CODE (CBC), PART 2, TITLE 24, CCR
2019 CALIFORNIA ELECTRIC CODE (CEC), PART 3, TITLE 24, CCR
(2017 NATIONAL ELECTRIC CODE WITH CALIFORNIA 2016 AMENDMENTS)
2019 CALIFORNIA MECHANICAL CODE (CMC), PART 4, TITLE 24, CCR
(2018 UNIFORM MECHANICAL CODE WITH CALIFORNIA 2016 AMENDMENTS)
2019 CALIFORNIA PLUMBING CODE (CPC), PART 5, TITLE 24, CCR
(2018 UNIFORM PLUMBING CODE WITH CALIFORNIA 2016 AMENDMENTS)
2019 CALIFORNIA ENERGY CODE, PART 6 TITLE 24 CCR
2019 CALIFORNIA FIRE CODE (CFC), PART 9, TITLE 24, CCR
(2018 INTERNATIONAL FIRE CODE WITH CALIFORNIA 2016 AMENDMENTS)
2019 CALIFORNIA GREEN BUILDING STANDARDS CODE, PART 11, TITLE 24 CCR
2019 CALIFORNIA REFERENCED STANDARDS, PART 12, TITLE 24 CCR
TITLE 19 CCR, PUBLIC SAFETY, STATE FIRE MARSHALL REGULATIONS

B. Addenda and Change Orders:

1. In accordance with Part 1, Title 24, Section 4-338, California Code of Regulations, all addenda and change orders shall be approved by the Office of Regulation Services, Division of the State Architect (ORS / DSA).

- C. Perform work in accordance with the applicable provisions of Parts 1 through 12, inclusive, Title 24 (T-24), California Code of Regulations.

- D. Particular attention is directed to the following Sections of the Safety of Construction of Public Schools, Chapter 4, Part 1, T-24, CCR.

1. Section 4-343: Responsibility of the Contractor.

2. Section 4-342: Continuous Inspection of the Work.
3. Section 4-335: Tests.
4. Section 4-336: Verified Reports.

E. During the entire construction period, it shall be the sole responsibility of each 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 responsible for work under this Contract.

1.04 CONTRACTOR USE OF SITE AND PREMISES

- A. Limit use of site and premises to allow:
 1. Work by Owner, if required.
 2. Use of site and premises by Owner and public when and if Owner takes beneficial occupancy of portions of project.
- B. Access to Site: Coordinate with Owners Representative.
- C. Building Exits During Construction: Maintain all exits. Do not obstruct at any time.
- D. Time and Construction Schedule Considerations affecting school operations if Owner requires partial occupancy.
 1. Schedule all construction operations with Owners Representative.
 2. Construction operations generating excessive noise, such as use of pneumatic tools and power actuated fastener equipment, shall be scheduled with the Architect and approved by owner.

Locate all noise generating equipment, such as cut-off saws, in a remote location away from classroom areas.

Provide Owners Representative with 10 working days notice prior to commencing such operations.
 3. Construction operations, such as material deliveries, debris removal, and crane operations shall not occur when students, staff or visitors are present at construction site. Schedule such operations around school schedule, including recess and lunch periods. Where, in the opinion of the Architect and Owner the construction site is sufficiently remote or isolated that students, staff or visitors are not exposed to such operations construction operations may proceed as scheduled.
 4. After Owner takes a beneficial occupancy of portions of project the Prime Contractor, subcontractors and all support staff will not be allowed to enter such school facilities during hours school is in session. Where access is required to complete the work, coordinate access and scheduling with Architect for non-school time.

E. Utility Outages and Shutdown: Provide minimum 15 working days notice of any utility interruption. No deviation to the commencement, nor duration of the outage or shutdown from the schedule agreed upon is allowed.

F. Storage Areas: Coordinate with Owner. Contractor will establish acceptable path for products, staging areas and trash disposals.

1.05 OWNER OCCUPANCY

A. The Owner may take beneficial occupancy of certain portions of the project for the conduct of normal school and business operations prior to final completion.

B. Cooperate with Owner to minimize conflict, and to facilitate Owner's operations.

1.06 FEES, BONDS AND PERMITS

A. Obtain all required permits required for work under this contract, including but not necessarily limited to the following:

1. Encroachment permits.

2. Shoring, trenching and grading permits.

3. Permits required for connection to public services and utilities.

B. Arrange for all required improvements bonds required for work under this contract.

C. All fees, improvement bond costs, public utility engineering fees and related fees, shall be paid by Contractor. Upon submission of documentation satisfactory to the Owner, such costs paid by Contractor shall be reimbursed by Owner.

1.07 PERMISSIBLE WORKING DAYS AND HOURS

A. CONFORM TO Section 01 20 00 for required payment for Inspector's services performed during overtime hours.

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF SECTION 01 12 00

SECTION 01 20 00 – CONTRACT MODIFICATIONS AND PAYMENT PROCEDURES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Schedule of Values.
- B. Inspector of Record Payment Provisions
- C. Change Procedures.
- D. Progress Payment Coordination
- E. Payment for Contract Modifications
- F. Request for Information

1.02 RELATED DOCUMENTS OR SECTIONS

- A. Document 00 52 13 – Agreement Form.
- B. Document 00 72 26 – General Conditions.
- C. Document 01 33 00 – Submittal Procedures.

1.03 SCHEDULE OF VALUES

- A. Submit typed schedule on AIA Form G703-Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic print-out format may be considered, at Architects discretion.
- B. Submit Schedule of Values per schedule defined in General Conditions.
 - 1. Provide separate schedule of values for each building, and a single schedule for site work. Provide separate line items for each allowance.
- C. Format: Conform, to the requirements of the General Conditions. Identify each line item with number and title of the major specification section. Identify site mobilization bonds and insurance.
- D. Revise schedule to list approved Change Orders, with each Application for Payment.
- E. Include in each line item a directly proportional amount representing Contractors overhead and profit.

1.04 INSPECTOR OF RECORD PAYMENT PROVISIONS

- A. In the event Contractors performance of the work activities requires the School District's Inspector of Record to work overtime, holidays or weekends, Inspector's cost shall be reimbursed by Contractor to the School District by deductive contract adjustment.

1.05 CHANGE PROCEDURES

- A. Architect's Supplemental Instructions (ASI): The Architect will advise of minor changes in the Work that does not involve an adjustment to Contract Price or Contract Time by issuing supplemental instructions on AIA Form G710.
- B. Proposal Request (PR): The Architect may issue a Proposal Request, which includes a detailed description of a proposed change with supplementary or revised drawings and specifications. Contractor shall prepare and submit an estimate within 10 days. If accepted by Owner, Architect will prepare Change Order.
- C. Change Order Request (COR):
 - 1. Contractor may submit a COR to the to the Architect and Owners Representative for changes in conditions, Owner changes, or other direction from the Architect, jurisdictional authority or Owners inspector
 - 2. Document the proposed change and its complete impact, including its effect on the cost and schedule of the work.
 - 3. Owners Representative with Architect will review COR and either deny request or prepare a Change Order.
 - 4. Present total cost and schedule impacts in documentation, including all mark-ups permitted by General Conditions. Provide detailed back-up as required by Architect, including supplier costs, subcontractor labor time and rates, and all other data deemed necessary by Architect.
 - 5. Following final review by Architect and Owner of original and supplemental information, and if COR is accepted, no additional cost or schedule adjustments will be included.
- D. Change Order (CO): Change Order and Construction Change Directives will be issued by the Owner in accordance with procedures established in General Conditions.
 - 1. Change Order Forms: AIA G701 Change Order Form, current edition, or other format as selected by Architect.
 - 2. Execution of Change Orders: Owner will issue Change Orders for signatures of parties as provided in the General Conditions of the Contract.
- E. Construction Change Directives (CCD): Construction Change Directives (CCD) will be issued by the Architect.
 - 1. Construction Change Directive Forms: AIA G701 Change Order Form, current edition, or other format as selected by Architect.
 - 2. Unless otherwise agreed, maintain detailed records of work done under the direction of a CCD on Time and Materials basis. Provide full information required to substantiate costs for changes in the work.
- F. Execution of Change Orders: Owner will issue Change Orders for signature of parties as provided in the General Conditions of the Contract.
- G. All changes in contract for construction, regardless of effects on Contract Price or Contract Time, require the approval of DSA in accordance with Section 4-338, Part 1, T-24 CCR, "Addenda and Change Orders".

- A. See Section 01 77 19 – Closeout Procedures for requirements and relationship between progress payment and maintenance of record drawings.
 - B. See Section 01 33 00 – Submittals for requirements and relationship between progress payment and construction schedule updates.
 - C. Submit application on AIA Form G702-Application and Certificate for Payment as follows:
 - 1. Submit initial rough draft of pay application on or before the 20th day of each calendar month during Work progress, for a sum equal to ninety percent (90%) of the value of work performed up to the last day of the previous month, less the aggregate of previous payments to Architect, and Inspector of Record for review.
 - 2. Owners Representative will return initial rough draft of pay application to Contractor following review by all parties.
 - 3. Submit six (6) copies of adjusted pay application to Owner, consisting of 3 complete copies with all back-up and justification, 2 [partial copies (cover sheet, schedule of values and releases) and one pencil copy showing corrections required on initial rough draft. Failure to attach applicable attachments within the time frames specified by the Owner will result in processing not sooner than the next application period.
 - 4. Submit conditional lien releases for work covered by current application, and unconditional releases for work covered by previous month billings.
 - D. Content and Format: Utilize Schedule of Values for listing items in Application for Payment.
 - E. Payment Period: Monthly, scheduled as defined in General Conditions.
- 1.07 PAYMENT FOR CONTRACT MODIFICATIONS
- A. The Contractor shall compensate the Owner, by Owner-Contractor Contract adjustment, for the Architect's reasonable costs to modify Contract Documents required by work not performed in accordance with approved Contract Documents.
- 1.08 REQUEST FOR INFORMATION
- A. When the Contractor is unable to determine from the Contract Documents, the material, process or system to be installed, the Architect shall be requested to make a clarification of the indeterminate item.
 - 1. Whenever possible, such clarification shall be requested at the next appropriate project meeting, with the response entered into the meeting minutes. When clarification at the meeting is not possible, either because of the urgency of the need, or the complexity of the item, Contractor shall prepare and submit an RFI to Architect.
 - B. Submit all RFI's on attached form. Use of Contractors form will not be accepted. RFI's submitted by subcontractors or suppliers will not be accepted.
 - C. RFI's shall be originated by the Contractor:
 - 1. RFI's from subcontractors or material suppliers shall be submitted through, reviewed by, and signed by the Contractor prior to submittal to the Architect.

2. RFI's sent by subcontractor directly to Architect shall not be accepted and will be returned unanswered.
- D. Contractor shall carefully study the Contract Documents to assure that the requested information is not available therein. RFI's which request information available in the Contract Documents will be deemed either "improper" or "frivolous".
- E. In cases where RFI's are issued to request clarification of coordination issues, for example pipe and duct routing, clearances, specific locations of work shown diagrammatically, and similar items, the Contractor shall fully lay out a suggested solution using drawings or sketches drawn to scale, and submit same with the RFI. RFI's which fail to include a suggested solution will be returned unanswered with a requirement that the Contractor submit a complete request.
- F. The Architect will respond to legitimate and bonafide Requests for Information (RFI) initiated by Contractor.
- G. Contractor shall compensate the Architect, by Owner-Contractor Contract adjustment, for the Architects reasonable costs to respond to RFI's if the Architect determines:
 1. The RFI does not reflect careful study and review of the documents, or;
 2. Demonstrates a lack of knowledge or construction competency reasonably expected of a Contractor performing the work.
- H. The Architect's action will be taken with such reasonable promptness while allowing sufficient time in the Architect's professional judgment to permit adequate review.
- I. In the event the Contractor believes that a clarification by the Architect results in additional cost or time. Contractor shall not proceed with the work indicated by the RFI until an Instruction Bulletin is issued to the Contractor to proceed with the work. RFI's shall not automatically justify a cost increase in the work or a change in the project schedule.
 1. Answered RFI's shall not be construed as approval to perform extra work.
 2. Unanswered RFI's will be returned with a stamp or notation: Not Reviewed.
- J. Contractor shall prepare and maintain a log of RFI's, and at each weekly meeting, Contractor shall furnish copies of the log showing outstanding RFI's. Contractor shall note unanswered RFI's in the log.
- K. Contractor shall allow up to 14 days review and response time for RFI's, however, the Architect will endeavor to respond in a timely fashion to RFI's.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

Not Used

END OF SECTION 01 20 00

SECTION 01 29 76 - APPLICATIONS FOR PAYMENT

PART 1 – GENERAL

1.01 SUMMARY

- A. Coordinate the Schedule of Values and Applications for Payment with the Contractor's Construction Schedule.
- B. Schedule of Values: Coordinate preparation of the Schedule of Values with preparation of the Contractor's Construction Schedule.
 - 1. Submit the Schedule of Values at the earliest possible date but no later than 7 days before submittal of the initial Applications for Payment.
- C. Format and Content: Use the Project Manual table of contents as a guide to establish the format for the Schedule of Values. Provide at least one line item for each Specification Section.
- D. Applications for Payment shall be consistent with previous applications and payments as certified by the Architect and paid for by the Owner.
- E. Payment-Application Times: As per General Conditions, Article 58.
- F. Payment-Application Forms: Use AIA Document G702 and Continuation Sheets G703 (OR EQUAL) as the form for Applications for Payment.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 29 76

SECTION 01 31 19 - COORDINATION AND MEETINGS

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Coordination.
- B. Pre-construction meeting.
- C. Progress meetings.
- D. Pre-installation meetings.

1.02 COORDINATION

- A. Coordinate scheduling, submittals, and Work of the various sections of the Project Manual to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later and for accommodating items to be installed by the Owner.
- B. Coordinate sequence of Work to accommodate Owner occupancy, as specified in Document 01 11 00.

1.03 PRECONSTRUCTION MEETING

- A. Architect will schedule a meeting after Notice of Award.
- B. Attendance Required: Architect, Project Coordinator, Prime Contractor, Major Subcontractors, Project Inspector and key Owner personnel.
- C. Agenda:
 - 1. Contract Agreement:
 - a. Transmit Performance and Material Bonds to Architect.
 - b. Review General/Supplementary Conditions.
 - c. Deferred Approvals.
 - 2. Receive documentation from Contractor:
 - a. Construction Schedule
 - b. Schedule of Values
 - c. List of Subcontractors with addresses and phone numbers.
 - d. List of Submittals and estimated date of submittal.
 - 3. Project Administration:
 - a. Application for Payment, Project Schedule, Lien Release, As-built Documents.
 - b. LCP Requirements
 - c. Change Orders and Proposal Requests.
 - d. Submittals and Substitutions, Deferred Approvals.
 - e. Site Meetings.
 - f. Testing Lab.
 - g. Verified Reports
 - 4. Special Owner Conditions
 - a. Temporary facilities.

- b. Owner Occupancy.
 - c. Work by Owner.
 - d. Access to Site - Owner Contact.
5. Construction Process:
- a. Contractor to give overview of construction.
 - b. Contractor to identify items to be selected by Architect/Owner and date selections must be made.
 - c. Contractor to review special requirements for equipment, safety, and noise.
6. Project Close-out:
- a. Close-out Binder.
 - b. As-Built Documents.
 - c. Final Verified Reports.
- D. Contractor to record minutes and distribute copies within five (5) days after meeting to participants and those affected by decisions made.

1.04 PROGRESS MEETINGS

- A. Contractor will schedule and administer meetings throughout progress of the work as needed.
- B. Contractor will make arrangements for meetings, prepare agenda with copies for participants, and preside at meetings.
- C. Attendance Required: Project Coordinator, Prime Contractor, Major Subcontractors, Project Inspector, key Owner personnel and Architect as appropriate to agenda topics for each meeting.
- D. Agenda:
 - 1. Review minutes of previous meetings.
 - 2. Review of Work progress.
 - 3. Field observations, problems, and decisions.
 - 4. Identification of problems which impede planned progress.
 - 5. Review of submittals schedule and status of submittals.
 - 6. Review of off-site fabrication and delivery schedules.
 - 7. Maintenance of progress schedule.
 - 8. Corrective measures to regain projected schedules.
 - 9. Planned progress during succeeding work period.
 - 10. Coordination of projected progress.
 - 11. Maintenance of quality and work standards.
 - 12. Effect of proposed changes on progress schedule and coordination.
 - 13. Other business relating to Work.
- E. Contractor to record minutes and distribute copies within two (2) days after meeting to participants, and those affected by decisions made.

1.05 PREINSTALLATION MEETING

- A. When required in individual specification sections, Contractor shall convene a pre-installation meeting prior to commencing work of the section.
- B. Require attendance of parties directly affecting, or affected by, work of the specific section.

- C. Notify Architect and Prime Contractor fourteen days in advance of meeting date.
 - D. Prepare agenda and preside at meeting:
 - 1. Review conditions of installation, preparation and installation procedures.
 - 2. Review coordination with related work.
 - E. Contractor to record minutes and distribute copies within two days, after meeting, to participants, Owners Representative, Architect, Prime Contractor and those affected by decisions made.
- 1.06 COORDINATION OF SUBMITTALS
- A. Submit submittals as specified in Section 01 33 00 – Submittal Procedures.
- 1.07 COORDINATION OF SPACE
- A. Coordinate use of Project space and sequence of installation of mechanical, and electrical work, which is indicated diagrammatically on Drawings. Follow routings shown for pipes, ducts, and conduits as closely as practical, with due allowance for available physical space; make runs parallel with lines of building. Utilize space efficiently to maximize accessibility for other installations, for maintenance, and for repairs.
 - B. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in the construction. Coordinate locations of fixtures and outlets with finish elements.
- 1.08 COORDINATION WITH WORK BY OWNER
- A. Coordinate with Architect for any work by Owner and installation of all Owner provided and Contractor installed F.O.B. material, as it pertains to work in each Bid Package.
- 1.09 COORDINATION OF CONTRACT CLOSE-OUT
- A. Coordinate completion and cleanup of own work in preparation for Substantial Completion.
 - B. After Owner occupancy of premises, coordinate access to site for own work for correction or defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.
 - C. Assemble and coordinate close-out submittals under provisions of Section 01 77 19, Contract Closeout Procedures.

PART 2 – PRODUCTS (Not Applicable)

PART 3 – EXECUTION (Not Applicable)

END OF SECTION 01 31 19

SECTION 01 33 00 – SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 SUMMARY

- A. Submittal Procedures: Coordinate submittal preparation with construction, fabrication, other submittals, and activities that require sequential operations. Transmit in advance of construction operations to avoid delay.
1. Coordinate submittals for related operations to avoid delay because of the need to review submittals concurrently for coordination. The Architect reserves the right to withhold action on a submittal requiring coordination until related submittals are received. Specifically, in order to assure proper coordination of all project colors, no submittals which require the selection of material colors will be processed and released until all submittals requiring the selection of material colors have been submitted.
 2. Processing: Allow 14 days for initial review. Allow more time if the Architect must delay processing to permit coordination. Allow 14 days for reprocessing.
 - a. No extension of Contract Time will be authorized because of failure to transmit submittals sufficiently in advance of the Work to permit processing.
 3. Submittal Preparation: Place a permanent label on each submittal for identification. Provide a 4- by 5-inch (100- by 125-mm) space on the label or beside title block to record review and approval markings and action taken. Include the following information on the label for processing and recording action taken.
 - a. Project name.
 - b. Date.
 - c. Name and address of the Architect.
 - d. Name and address of the Contractor.
 - e. Name and address of the subcontractor.
 - f. Name and address of the supplier.
 - g. Name of the manufacturer.
 - h. Number and title of appropriate Specification Section.
 4. Submittal Transmittal: Package each submittal appropriately. Transmit with a transmittal form. The Architect will not accept submittals from sources other than the Contractor.
 5. An extended processing period is required for submittals and resubmittal of “Deferred Approval Items” which required approval of the Division of the State Architect. The Owner cannot guarantee processing of such submittals within a stipulated time period.
- B. Contractor's Construction Schedule:
1. As per General Conditions, Article 32.
- C. Daily Construction Reports: Prepare a daily report recording events at the site. Submit duplicate copies to the Owners Representative and Architect at weekly intervals. Include the following information:
1. List of subcontractors at the site.
 2. High and low temperatures, general weather conditions.
 3. Accidents and unusual events.
 4. Stoppages, delays, shortages, and losses.

5. Meter readings and similar recordings.
 6. Emergency procedures.
 7. Orders and requests of governing authorities.
 8. Services connected, disconnected.
 9. Equipment or system tests and startups.
 10. Substantial Completions authorized.
- D. Shop Drawings: Submit newly prepared information drawn to scale. Indicate deviations from the Contract Documents. Do not reproduce Contract Documents or copy standard information. Include the following information:
1. Dimensions.
 2. Identification of products and materials included by sheet and detail number.
 3. Compliance with standards.
 4. Notation of coordination requirements.
 5. Notation of dimensions established by field measurement.
 6. Sheet Size: Except for templates and full-size Drawings, submit six copies on sheets at least 8-1/2 by 11 inches but no larger than 36 by 48 inches.
 - a. Do not use Shop Drawings without an appropriate final stamp indicating action taken.
- E. Product Data: Collect Product Data into a single submittal for each element of construction. Mark each copy to show applicable choices and options. Where Product Data includes information on several products, mark copies to indicate applicable information.
1. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
 2. Submittals: Submit 6 copies. The Architect will retain two and return the others marked with action taken.
 - a. Unless noncompliance with Contract Documents is observed, the submittal serves as the final submittal.
 3. Distribution: Furnish copies to installers, subcontractors, suppliers, and others required for performance of construction activities. Show distribution on transmittal forms. Do not proceed with installation until a copy of Product Data is in the Installer's possession.
 - a. Do not use unmarked Product Data for construction.
- F. Samples: Submit full-size Samples cured and finished as specified and identical with the material proposed. Mount Samples to facilitate review of qualities.
1. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer.
 - e. Compliance with recognized standards.

- f. Availability and delivery time.
2. Submit Samples for review of size, kind, color, pattern, and texture, for a check of these characteristics, and for a comparison of these characteristics between the final submittal and the actual component as delivered and installed. Where variations are inherent in the material, submit at least 3 units that show limits of the variations.
 - a. Refer to other Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar characteristics.
 - b. Refer to other Sections for Samples to be incorporated in the Work. Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 - c. Samples not incorporated into the Work, or designated as the Owner's property, are the Contractor's property and shall be removed from the site.
3. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. One set will be returned marked with the action taken. Maintain sets of Samples, at the Project Site, for quality comparison.
 - a. Unless noncompliance with Contract Documents is observed, the submittal may serve as the final submittal.
 - b. Sample sets may be used to obtain final acceptance of the construction associated with each set.
4. Distribution of Samples: Distribute additional sets to subcontractors, manufacturers, and others as required for performance of the Work. Show distribution on transmittal forms.
- G. Quality Assurance Submittals: Submit quality-control submittals, including design data, certifications, manufacturer's instructions, and manufacturer's field reports required under other Sections of the Specifications.
 1. Certifications: Where certification that a product or installation complies with specified requirements is required, submit a notarized certification from the manufacturer certifying compliance.
 - a. Signature: Certification shall be signed by an officer authorized to sign documents on behalf of the company.
- H. Architect's Action: Except for submittals for the record or information, where action and return are required, the Architect will review each submittal, mark to indicate action taken, and return. Compliance with specified characteristics is the Contractor's responsibility.
 1. Action Stamp: The Architect will stamp each submittal with an action stamp. The Architect will mark the stamp appropriately to indicate the action taken.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 33 00

SECTION 01 35 23 – CONTRACTOR SAFETY

1.01 GENERAL

A. HEALTH AND SAFETY POLICY

1. The policy of the School District is to promote safety at a level to minimize personal injury and potential property damage.
2. Employees of contractors working on this project are required to meet or exceed all established and recognized codes and standards for safety and protection of personnel and property.
3. The safety guidelines included here are made available to you, the Contractor, as an extension of the safety clause in your Contract General Conditions Article 72.
4. These guidelines are not intended to be complete in every detail, but are merely of a general nature. The separate contractors are in no way relieved of their responsibilities for safety of persons and property, and compliance with all statutes, rules, regulations and orders applicable to the conduct of the work.
5. The possession, use of and/or sale of any alcoholic beverage or illegal controlled drug substance will not be permitted on or immediately adjacent to the job site by any contractor, contractor employee, subcontractor employer or associate.
6. The abuse of prescribed medication will not be permitted on or immediately adjacent to the job site by any contractor, contractor employee, subcontractor employee or associate.
7. This Contractor, and other contractors, share the responsibility of monitoring and enforcing, as necessary, A.5 and A.6 above. Any known, (or with due cause believed to be), violator of A.5 or A.6 shall be immediately reported to the Architect.
8. The School District reserves the right to take corrective action, as deemed in the best interest of the project and the District, for violation of any health or safety standard. This corrective action may include, but is not limited to; removal (from the job site) any unsafe tools/equipment, temporary work stoppage for any unhealthy or unsafe condition, immediate removal (from the job site) any person that is unwilling or incapable of conducting themselves in a manner that promotes a healthy and safe working atmosphere. Any person found to be repeatedly in violation of health and/or safety standards will be permanently removed from the site.

B. RESPONSIBILITIES

1. The District demands that all project contractors perform in a reasonable and safe manner.
2. The Contractors working on this project have the ultimate and total responsibility to conduct a sound accident control program as it pertains to their work and their employees, as well as to ensure safe working conditions for employees of other contractors.
3. The Contractor will ensure his employees cooperate with and coordinate safety matters with other contractors to form a joint safety effort.

4. Employees who have been, or will be exposed to excessive (measured against applicable standards) levels of toxic materials or harmful physical agents shall be notified by the Contractor. Notice of corrective action being taken shall be provided to the employees. Accurate records must be kept of all exposures which are required to be monitored under the State and Federal Codes.
5. In the event of a defense by the Contractor against unsafe independent employee actions, the Appeals Board requires that you must show evidence of the following:
 - a. That the employee was experienced in the job being performed;
 - b. That you as the employer have a well devised safety program which includes training employees in safety matters relating to their individual job assignments;
 - c. That you effectively enforce your safety program;
 - d. That you have and enforce a policy of sanctions against employees who violate your safety program; and
 - e. That the employee caused a safety infraction which he or she knew was in violation of your safety requirement.

C. SAFETY ACTIVITIES

1. Contractors will conduct or initiate:
 - a. Safety program as required by current State of California requirements.
 - b. Weekly "tool box" safety meetings between Contractor and Contractor's supervisors, foremen, employees, and subcontractors working on the project; and
 - c. Weekly safety inspections of your work area and those areas of work under your responsibility or shared responsibility as well as taking any other necessary safety precautions.

D. REPORTS

1. Submit all preliminary, weekly, periodic and special reports to the architect. The Contractor is in no way relieved of the requirements for submission of reports to any agency or authority.
 - a. All reports listing deficiencies, accidents, or injuries shall show corrective action taken.
 - b. A weekly status and summary report of each "tool box" meeting held and items discussed. Each report shall also contain attendance names, signatures and company affiliation.
 - c. A weekly status report of inspection results. The attached status forms are for your convenience only.
 - d. A continuing list of deficiencies found, date identified, responsible party, corrective action and date corrected.
 - e. Accident reports and injury forms. Submit a copy of one of the following to the Architect for each case:
 - 1) California Division of Labor Statistics and Research Form 5020 (latest rev.), or;
 - 2) Federal OSHA Form 101, or;
 - 3) Insurance Company form similar to 1 or 2 above.
 - f. A copy of CAL/OSHA Form 200 "Log and Summary of Occupational Injuries and Illness".
2. Special Reports

- a. Notify the architect immediately of any accident involving injury to personnel or property; and complete written reports within 24 hours of a death or injury of five (5) or more employees as a result of one accident.
- b. Copies of all toxic or harmful agent reports (See paragraph B.4.)

3. Governmental Reports

- a. Notification of governmental authorities is the responsibility of each affected contractor.

E. SAFETY DEFICIENCY CORRECTION

1. All safety deficiencies will be corrected by contractors in accordance with the following priorities.
 - a. Immediate correction of items with any probability of major or minor injury to people.
 - b. Correction immediately of any accident probability which could involve people an/or equipment.
 - c. Correction within one day (or sooner) of potential injury or damage to property.

F. OUTSIDE SAFETY INSPECTIONS

1. Unannounced inspections by city, state or federal safety agencies or insurance companies may occur.
 - a. Contractors are to escort representatives of these agencies or companies directly to the Owners Representative or Architect and assist him as required or directed.
 - b. If the Owners Representative or Architect is not available, the Contractor's foreman or representative shall accompany the inspector on the inspection.

G. INVESTIGATING

1. All injuries are to be investigated by the contractors and reported.
2. The Owner shall be notified prior to proceeding with an investigation.

H. SAFETY STANDARDS AND CODE

1. All contractors are to provide their job supervision with applicable safety code publications and ensure they are familiar with the contents.
2. Occupation Safety and Health Administration Standards (latest applicable edition) on the designated applicable safety standards.
3. In states with OSHA approved plans, state codes will take precedence unless federal standards are more stringent, in which case federal standards shall apply.
4. On General Services Administration (GSA) projects, applicable sections of the GSA Manual Accident & Fire Prevention on Construction and Alteration Work will apply in addition to all other codes and standards.
5. All code and standard conflicts will be resolved by applying the most restrictive code and/or standard.
6. Suggested references for contractors are:

- a. Safety & Health Regulation for construction, U.S. Department of Labor, OSHA, Volume 37, No. 243.
- b. Construction safety orders, State Standard, CAL/OSHA, state of California, latest edition.
- c. GSA Manual - GSA - PBSP 5900.3.
- d. U.S. Army Engineering Manual - EM 385-1.
- e. Accident Prevention, Associated General Contractors.
- f. A short guide to the California Occupational Safety and Health Act - National Federation of Independent Business, 150 West 20th Avenue, San Mateo, California 94403.

I. REQUIRED NOTICES: TO BE VISIBLY DISPLAYED

1. Workers' Compensation Insurance Notice.
2. OSHA poster: Safety and Health Protection on the job.
3. State of California Department of Human Resources: Notice to Employees Unemployment Insurance - Disability Insurance.
4. Hard Hat Area Signs.
5. List of ambulances, doctors and hospitals with telephone numbers which can be called during an emergency.
6. Name and title of the safety representative from each contractor's organization.
7. Any other safety signs, slogans, etc. that will improve the general awareness of a joint safety program.

J. PERMITS

1. Permits from the Division in Industrial Safety are required before contractors may undertake the following kinds of work:
 - a. Construction of trenches or excavations which are 5 feet or more deep, into which a person is required to descend;
 - b. Construction of any building, structure, false work, or scaffolding more than three stories high.
2. The Division of Industrial Safety may investigate or confer with the employer before the start of work. If a pre-job safety conference between the Division of Industrial Safety personnel and the employer is a requirement specified by the Division of Industrial Safety at the time the permit is issued, employees or their representatives are to be included at the conference.
3. Permits must be posted at or near each place of employment requiring a permit. If posting at the actual job site is not possible, the permit must be available for inspection at all times on the site, or, in the case of a mobile unit, at the employer's head office in the area.
4. Additional permits may be required from the Division of Industrial Safety or other applicable governmental agencies. It is the responsibility of each contractor to determine, procure, and pay for their own such permits.

END OF SECTION 01 35 23

SECTION 01 45 24 – TESTING AND INSPECTION REQUIREMENTS FOR SCHOOL CONSTRUCTION

PART 1 - GENERAL

1.01 SUMMARY

- A. Regulatory Requirements:
 - 1. Part 1, Title 24, Section 4-335, California Code of Regulations: Testing required by the Division of the State Architect (DSA).
 - 2. Part 2, Title 24, California Code of Regulations (2015 IBC and 2016 CBC): Inspections, testing and approvals required by individual sections therein.
- B. Selection of the material required to be tested shall be by the laboratory or the Owner's representative and not by the Contractor.
- C. Minimum test and inspections required: See Structural Tests and Inspections, Division of the State Architect form DSA 103 (2016 CBC).
- D. Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice from said representative that such testing and inspection will not be required shall not be incorporated in the job.
- E. Selection and Payment of Testing Laboratory:
 - 1. Owner will employ and pay for services of an independent Testing Laboratory approved by the Architect, DSA, and the Structural Engineer to perform inspection and testing in accordance with Part 1, Title 24, Section 4-335, California Code of Regulations.
 - 2. Contractor shall pay for mileage and travel time for inspection services, required travel more than 300 miles from this project to test products purchased by Contractor. Testing Laboratory shall forward all billings and records of such costs to the Owner for approval. Such costs, if determined by the Owner to be attributable to the Contractor under this provision, will be deducted from Contractors final payment (or any funds due and payable) by change order.
 - 3. When materials tested fail to meet requirements herein specified, they shall be promptly corrected or removed and replaced and retested. Costs involved in retesting will be paid by the Owner and deducted from Contractors final payment (or any funds due and payable) by change order.
- F. Laboratory Responsibilities:
 - 1. Laboratory shall be licensed to conduct testing and inspection operations in California. It shall be supervised by a State Licensed Civil Engineer who shall certify all reports.
 - 2. Perform specified inspection, sampling and testing of Products in accordance with standards specified herein.
 - 3. Ascertain compliance of materials and mixes with requirements of Contract Documents.
 - 4. Promptly notify Architect, Project Inspector and Contractor by letter of observed irregularities of non-conformance of Work or Products.
 - 5. Immediately upon Testing Laboratory determination of a test failure, the laboratory shall telephone the results of test to Architect. On the same day laboratory shall send written test results to those named on the distribution list below.

G. Laboratory Reports:

1. After each inspection and test, the testing facility shall promptly (no later than 14 days after test is complete) submit one copy of laboratory report to the following.
 - a. Owner
 - b. Architect
 - c. Project Inspector
 - d. General Contractor
 - e. Structural Engineer
 - f. Mechanical and Electrical Engineers (Related Tests and Inspections)
 - g. Division of the State Architect
2. Test reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of Titles 21 and 24 and with the approved specifications. Test reports shall show the specified design strength. They shall also state definitely whether or not the material or materials tested comply with requirements.
3. Submit a report verifying that tests and inspections herein specified and otherwise required have been completed and material and workmanship complies with the contract documents. Such verification reports shall be submitted at any time that work on the project is suspended, covering the tests up to that time, and at the completion of the project, covering all tests.

H. Limits on Testing Laboratory Authority

1. Laboratory may not release, revoke, alter or enlarge on requirements of Contract Documents.
2. Laboratory may not approve or accept any portion of the Work.
3. Laboratory may not assume any duties of the Contractor.
4. Laboratory has no authority to stop work.
5. Laboratory shall not interpret code in relation to the design of the building.

I. Contractor Responsibility

1. Deliver to laboratory at designated location, adequate samples of materials proposed to be used which require testing.
2. Cooperate with laboratory personnel, Owner's Representatives, Project Inspector and the Architect, and provide access to the work including weekends and after hours and to manufacturer's facilities.
3. Provide incidental labor and materials and facilities to provide at all times, safe access to Work to be tested, to obtain and handle samples at the site or at source of products to be tested, to facilitate tests and inspections, storage and curing of test samples.
4. Notify Construction Manager, Project Inspector and laboratory 24 hours prior to expected time and operations requiring inspection and testing services. Also notify Owner in advance of manufacturer of materials to allow testing at source of supply for materials which require testing and inspection.
5. Inspecting and Testing performed exclusively for the Contractor's convenience shall be the sole responsibility of the Contractor.

J. Inspection by the Owner

1. The Owner and his representative shall at all times have access for the purpose of inspection to all parts of the work and to the shops therein the work is in preparation, and the Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

2. The Owner shall have the right to reject materials and workmanship which are defective or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected material shall be removed from the premises without cost to owner the Owner. If the Contractor fails to correct such rejected work within a reasonable time, fixed by written notice, the Owner will correct same and charge the expense to the Contractor by Change Order.
3. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the same, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the Contractor by change order.

K. Inspector - Owners:

1. An Inspector employed by the Owner and approved by the Division of the State Architect in accordance with the requirements of State of California Code of Regulations, Title 24 Part 1 will be assigned to the continuous inspection of the work. His duties are specifically defined in Section 4-342 Part I, Title 24 CCR.
2. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. He shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep him fully informed respecting the progress and manner of the work and character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

L. Inspector -- Owner -- FIELD OFFICE: See General Conditions.

PART 2 - PRODUCTS (Not Applicable)

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 45 24

SECTION 01 50 00 – CONSTRUCTION FACILITIES

PART 1 - GENERAL

1.01 SECTION INCLUDES

- A. Temporary Utilities: Electricity, lighting, heat, ventilation, telephone service, water service and sanitary facilities.
- B. Temporary Controls: Barriers, enclosures and fencing, water, dust, noise & pollution control, parking and traffic control, and protection of the Work.
- C. Construction Facilities: Access roads, progress cleaning, field offices, sheds and removal.
- D. Operational Requirements: Security, project ID/signage and documentation.

1.02 RELATED SECTIONS

- A. Section 01 77 19 - Contract Closeout Procedures.

1.03 TEMPORARY ELECTRICITY

- A. Temporary power will be provided by Electrical Contractor within 50' of buildings.
- B. Any temporary power requirements beyond the 50' provided will be the responsibility of the Contractor requiring the same.
- C. All welding will be done with self contained gas powered units.
- D. Provide generator power for your operations until temporary power is available.

1.04 TEMPORARY LIGHTING

- A. Each Contractor shall be responsible to provide and maintain all temporary lighting as required to safely access and perform their scope of work.
- B. Provide and maintain adequate lighting for construction operations for own work.
- C. Provide adequate lighting for security of construction operations and storage areas for own work.
- D. Provide and maintain at ALL times, temporary lighting and exit/path devices in corridor areas as required by applicable codes.

1.05 TEMPORARY HEAT

- A. Provide temporary heat devices as required to maintain specified conditions for construction operations.
- B. Use of permanent equipment for temporary heating is prohibited without prior approval by Architect.
- C. Unless specified elsewhere, maintain minimum 50°F at interior construction areas.

1.06 TEMPORARY VENTILATION

- A. Ventilate enclosed areas to assist cure of materials to dissipate humidity and to prevent accumulation of dust, fumes, vapors or gases. Where necessary to comply with item B., provide ducted ventilation system.
- B. Locate ventilation discharge point at an approved location, away from walkways, HVAC intakes, windows of occupied areas, and other similar locations.
- C. Utilize temporary fan units as required to exhaust noxious fumes directly to the outside of the building.

1.07 TELEPHONE

- A. Provide, maintain and pay for own telephone service and associated office equipment to own field office as required. No public telephone will be provided.

1.08 TEMPORARY WATER SERVICE

- A. Plumbing Contractor will provide and maintain for suitable water source for construction operations.
- B. Contractor is responsible for distribution, including but not limited to water trucks, hoses, piping, etc. from water source to area of work, as required for Work.

1.09 TEMPORARY SANITARY FACILITIES

- A. Contractor shall provide and maintain required temporary chemical type toilet facilities and enclosures.

1.10 BARRIERS AND BARRICADES

- A. Exteriors
 - 1. Provide barriers to protect adjacent properties from damage from construction operations and demolition. When regulated by Codes, such legal requirements for protection shall be considered as minimum requirements. Provide protective measures in excess of such minimum requirements as specified or required.
 - 2. Provide barricades around excavations.
 - 3. Provide protection for all plant life designated to remain.
 - a. Replace damaged plant life with approved equivalent.
 - b. Erect tree protection within 3 days of mobilization. Enclose trees designated to remain with 2 x 4 wood frame. Install frame minimum 6 feet from trunk diameter, all sides. Provide 4 x 4 post supports, minimum 3 feet high, embedded 3 feet, at 3 foot on center maximum. Wrap frame with snow type fencing in bright iridescent color visible at night.
 - c. Protect non-owned vehicular traffic, stored materials and structures from damage.
- B. Interior
 - 1. Where required to permit Owners ongoing operations, provide barriers as specified.

- a. Construct barriers as metal framed/fire-resistive gypsum board fire resistive corridor construction, with self-closing, latching door assembly. Provide temporary partition and door assembly fire resistivity rating equal to the assembly being replaced. Close joints and seal edges at intersections with existing surfaces.
 - b. Use of sheet plastic dust barriers in place of rated assemblies is prohibited.
2. Protect existing surfaces, equipment and furnishings from damage from construction operations and demolition. Where necessary, remove and store in separate area.
 3. Where demolition or construction operations generate fine dust or airborne particulates, provide fire retardant drop cloths, screening or other approved barriers to prevent dust inhalation into existing cabinet interiors, equipment, drawers, and similar conditions.
 4. Provide contamination control mats at construction access locations to prevent tracking of construction dust and dirt into owner occupied portion of building.

1.11 FENCING

- A. A temporary fence with locked entrance gates will be provided to enclose the Work to deter unauthorized entry, vandalism and/or theft.
 1. The fence will be a 6 foot high commercial grade chain link with vehicular and pedestrian gates and locks.
 2. Any Contractor requiring fencing/barricades above and beyond the fencing shown on the plan sheet, for the execution of their work, shall furnish, install and maintain same as required by local authorities and state safety ordinances and as necessary for the protection of the public.

1.12 DUST CONTROL

- A. Conduct earthwork operations in a manner to prevent windblown dust and dirt from interfering with the progress of the Work, owners's activities and the existing occupied structures in the areas immediately adjacent as well as adjacent properties.
- B. Periodically water construction areas as required to minimize accumulation of dust and dirt.
- C. Water spray or cover with tarpaulins truck loads of soil to additionally minimize generation of dust and dirt from construction operations.
- D. Prevent dust and dirt from accumulating on walks, roadways, parking areas and from washing into sewer and storm drain lines.

1.13 POLLUTION CONTROL

- A. Provide methods, means and facilities to prevent contamination of soil, water and atmosphere from discharge of noxious, toxic substances and pollutants produced by construction operations.
- B. Burning of refuse, debris or other materials will not be permitted on the Site.
- C. Comply with regulatory requirements and anti-pollution ordinances during the course of construction and disposal operations.

1.14 PROTECTION OF INSTALLED WORK

- A. Protect installed work and provide special protection where specified in individual specification sections.

- B. Provide temporary and removable protection for installed Products. Control activity in immediate work areas to minimize damage.
- C. Provide protective coverings at walls, projections, jambs, sills, and soffits of openings.

1.15 PARKING AND TRAFFIC CONTROL

- A. Parking Criteria
 - 1. Space is limited. Coordinate location and number of parking spaces required with architect.
- B. Traffic Control
 - 1. Traffic Maintenance: Prior to the start of own work, determine the routing of construction vehicles, and the safeguards and procedures necessary to carry out the work. Obtain the Construction Manager's approval of the onsite traffic routes and for any removal, temporary relocation and reinstallation of traffic control signage. Obtain traffic control approval by local jurisdiction for street work. In addition:
 - a. Be responsible for controlling construction traffic within and adjacent to the site for own work.
 - b. Provide entrances, lifts and safeguards required or necessary to the progress of the work, and effectively control such traffic to provide minimum hazard to the work and all persons.
 - c. Route construction equipment, trucks, and similar vehicles via existing public streets to and from the site as approved by the governing authorities.
 - d. Obtain and pay for permits and inspections made necessary by use of public street, sidewalks, curbs, and paving. Post guarantees and bonds that may be required, and repair and make good any damages thereto acceptable to the authorities having jurisdiction.
 - e. Construct and maintain temporary walks for pedestrians. Keep streets adjacent to the site open to vehicular and pedestrian traffic.
 - f. Maintain constant access for police, fire and ambulance service.
 - g. Provide and maintain for proper control of traffic and safety of all concerned. Provide all necessary barricades, suitable and sufficient lights, reflectors, and danger signals.
 - h. Provide warning and closure signs, directional and detour signs, and whatever additional measures are necessary.
 - i. Indicate on a 24-hour basis restricted and dangerous conditions existing on or adjacent to the site. Illuminate barricades, danger signals, warning signs and obstructions at night. Keep warning lights burning from sunset until sunrise.

1.16 ACCESS ROADS

- A. Provide and maintain access to fire lanes and fire hydrants at all times, free of obstructions. Coordinate location, locking device and dimension of gates with fire department having jurisdiction.
- B. Designated existing on-site roads may be used for construction traffic.
- C. Do not permit delivery trucks to block, park or wait on public streets.

1.17 PROGRESS CLEANING

- A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.
- B. Each applicable Contractor shall remove debris and rubbish from pipes chases, plenums, attics, crawl spaces, and other closed or remote spaces, prior to enclosing the space.
- C. Each applicable Contractor shall broom and vacuum clean interior areas prior to start of surface finishing, and continue cleaning to eliminate dust.
- D. Remove waste materials, debris, and rubbish from interior spaces daily and from site weekly and dispose of off-site.
- E. Maintain all public streets free of dust, mud, and debris as required by jurisdictional authority.

1.18 TEMPORARY FACILITIES AND SHEDS

- A. Locate temporary facility and shed, as required, where directed by architect and maintain in a safe and sanitary condition at all times until completion of the Contract.
- B. Contractor shall cooperate with owner and sub- contractors to coordinate space requirements for Contractor's equipment, job office, operation, and material storage. Contractor shall move equipment, trailers, and material storage at the request of the owner with no additional compensation.
- C. Field offices shall remain the property of the Contractor and shall be removed from the site upon completion of the work.
- D. Furnish, install and maintain tool cribs, sheds and storage units for the Contractors use as necessary for the proper execution of the work.
 - 1. Provide all necessary barricades, warning devices and enclosures required to protect and direct visitors and staff around tool and equipment located in passageways and corridors.
 - 2. Return all small tools and secure in locked compartments or cribs at close of workday.
 - 3. Safe-off or lock all equipment and large tools. Disable from malicious or accidental start-up and operation.
- E. Requirements of regulatory agencies: Comply with requirements or regulatory agencies having jurisdiction. Obtain and apply for permits required by governing authorities.

1.19 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

- A. Remove temporary utilities, equipment, facilities, and materials for own work, prior to Final Application for Payment.
- B. Clean and repair damage caused by installation or use of temporary work.
- C. Restore existing facilities used during construction to original condition. Restore permanent facilities used during construction to specified condition.

1.20 SECURITY

- A. Provide security and facilities as necessary to protect work and staff from vandalism, unauthorized entry, theft, damage, or assault.
- B. Within a 48-hour period, replace or repair, to Architects satisfaction, all surfaces or items damaged by graffiti during course of construction.
- C. Where Owner has given approval to take fire detection system off-line, return system to active status at completion of work or end of each work period.
 - 1. Fire Safety During Construction: Comply with provisions of Article 87, California Fire Code, CCR, including but not limited to, access roads, fire extinguisher and fire watch regulations.
 - 2. Where security or fire detection systems are disabled for any reason, including where owner has given approval for such system shut-down, provide fire watch or security guard service as directed by Owner and at no additional cost to the Owner.
- D. All sub-contractor staff and suppliers shall notify Contractor when on site, and sign in and out as directed by Contractor - Notify Contractor when work is completed or shut-down for that work period.
- E. No smoking or use of tobacco products is permitted on school property.
- F. Loud radio or other music judged disruptive, offensive or obscene by the Owner is not permitted. Immediately cease all such music.

1.21 DOCUMENTATION OF EXISTING IMPROVEMENTS

- A. Use of explosives is not allowed.
- B. Prior to beginning any alterations, including grading, paving, landscape, etc, prepare a record of existing improvements affected by the work of this contract, including but not limited to the following.
 - 1. Off-site street and frontage improvements, identifying all evidence of existing settlement, cracking and other signs of damage, distress or failure.
 - 2. Condition of adjacent properties, including fencing, retaining walls, pools, paving, and structures. Clearly identify all evidence of existing settlement, cracking, alignment and other signs of damage, distress or failure.
 - 3. Condition of landscaping, including canopy overhang, shrubbery and grass/groundcover. Clearly identify all evidence of existing trunk damage, grass compaction, crushed and broken shrubs and other signs of distress or failure.
- C. Format
 - 1. Prepare record documentation using VHS color video and any other means of documentation necessary to describe existing condition.
 - 2. Prepare VHS color video at such scale and detail as required to document existing damage occurred prior to beginning work. If the record documents do not clearly show damage as a pre-existent condition, Contractor shall be responsible for repair or replacement of such damaged improvements.
 - 3. Obtain Owner's Inspector of Record certification that documents were prepared prior to beginning construction.

IMPERIAL COMMUNITY COLLEGE DISTRICT
IMPERIAL VALLEY COLLEGE
RELOCATABLE CLASSROOM SITE IMPROVEMENTS
PART 2 - PRODUCTS (Not Applicable)

MARCH 2021

PART 3 - EXECUTION (Not Applicable)

END OF SECTION 01 50 00

SECTION 01 74 00 CLEANING AND WASTE MANAGEMENT

PART 1 – GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, and Division One apply to this section.
- B. Maintain project site, surrounding areas, and public properties free from accumulations of waste, debris, and rubbish caused by operations.
- C. At completion of work, remove waste materials, rubbish, tools, equipment, machinery and surplus materials, and clean sight-exposed surfaces. Leave project site clean and ready for occupancy.

1.02 GENERAL

- A. Conduct cleaning and disposal operation in accordance with legal requirements.
 - 1. Do not dump or bury rubbish and waste materials on project site.
 - 2. Do not dispose of volatile wastes in storm or sanitary drains.
- B. Hazards Control:
 - 1. Store volatile wastes and hazardous materials (i.e. paint, oils, etc.) in covered metal containers, and remove from premises daily.
 - 2. Prevent accumulation of wastes which create hazardous conditions.
 - 3. Provide adequate ventilation during use of volatile or noxious substances.

1.03 MATERIALS

- A. Use only cleaning materials recommended by manufacturer of surface to be cleaned.
- B. Use cleaning materials only on surfaces recommended by cleaning material manufacturer.

1.04 PROGRESS CLEANING DURING CONSTRUCTION

- A. Execute cleaning daily to ensure project site, Owner's premises, adjacent and public properties are maintained free from accumulations of waste materials, debris and rubbish.
- B. Provide on project dump site, containers for collection of waste materials, debris, and rubbish.
- C. Remove waste materials, debris and rubbish from Owner's premises and legally dispose of off Owner's property.
- D. Vacuum clean interior areas when ready to receive finish painting, and continue vacuum cleaning on an as-needed basis until building is ready for substantial completion or occupancy.
- E. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not fall on wet, newly painted surfaces.

1.05 FINAL CLEANING

- A. Employ experienced workers or professional cleaners for final cleaning.

- B. In preparation for substantial completion or occupancy, conduct final inspection of sight-exposed interior and exterior surfaces, and of accessible concealed spaces.
- C. Clean glass and surfaces exposed to view. Remove temporary labels, stains, and foreign substances.
- D. Repair, patch, and touch-up marred surfaces to specified finish, and to match adjacent surfaces.
- E. Broom-clean paved surfaces.
- F. Polish transparent and glossy surfaces.
- G. Vacuum carpeted and soft surfaces.
- H. Wax and polish resilient floor surfaces.
- I. Wash and polish ceramic surfaces.
- J. Clean machinery and equipment.
- K. Clean plumbing fixtures to a sanitary condition. Use non-corrosive, non-abrasive cleaning materials.
- L. Replace filters of operating equipment.
- M. Clean and polish light fixtures.
- N. Clean and polish hardware and metal surfaces.
- O. Clean walls and ceilings of dust, dirt, stains, hand marks, paint spots, plaster drops, and like defects.
- P. Clean construction site. Sweep paved areas and rake clean landscaped surfaces.
- Q. Clean out and flush drains from construction debris. Flood-test prior to occupancy.
- R. Remove waste and surplus materials, rubbish, and construction facilities from the site. Do not use Owner's waste removal system or any system belonging to owners of adjacent properties.
- S. Keep project clean until it is occupied by the Owner.

PART 2 – PRODUCTS – Not Used

PART 3 – EXECUTION – Not Used

END OF SECTION 01 74 00

SECTION 01 77 19 CONTRACT CLOSEOUT PROCEDURES

PART 1 – GENERAL

1.01 SUMMARY

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 01 Specification Sections, apply to this section.
- B. This section includes administrative and procedural requirements for contract closeout, including but not limited to the following:
 - 1. Inspection procedures.
 - 2. Operation and maintenance manuals.
 - 3. Warranties.
 - 4. Instruction of Owner's personnel.
- C. Related Sections include the following:
 - 1. Divisions 02 through 33, for specific closeout and special cleaning requirements for products of those sections.

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for determining date of substantial completion, complete the following. List items below that are incomplete in request.
 - 1. Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the work is not complete.
 - 2. Advise Owner of pending insurance changeover requirements.
 - 3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Obtain and submit releases permitting Owner unrestricted use of the work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 5. Prepare and submit Project Record Documents, operation and maintenance manuals.
 - 6. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
 - 7. Complete startup testing of systems.
 - 8. Submit test/adjust/balance records.
 - 9. Terminate and remove temporary facilities from project site, along with mockups, construction tools, and similar elements.
 - 10. Complete final cleaning requirements, including touchup painting.
- B. Inspection: Submit a written request for inspection for substantial completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, which must be completed or corrected before certificate will be issued.
 - 1. Reinspection: Request reinspection when the work identified in previous inspections as incomplete is completed or corrected.
 - 2. If a reinspection identifies work that remains uncompleted, the Contractor shall be responsible for the cost of additional inspections by the Architect. The Architect will submit a time and

material invoice to the Owner, who will deduct the amount from the balance due to the Contractor.

3. Results of completed inspection will form the basis of requirements for final completion.

1.03 FINAL COMPLETION

- A. Preliminary Procedures: Before requesting final inspection for determining date of Final Completion, complete the following:

1. Submit a final Application for Payment according to Section 01 29 76.
2. Submit certified copy of Architect's substantial completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Revise paragraph and subparagraph below to comply with office policy and project requirements.

- B. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify contractor of construction that must be completed or corrected before certificate will be issued.

1. Reinspection: Request reinspection when the work identified in previous inspections as incomplete is completed or corrected.
2. If a reinspection identifies work that remains uncompleted, the Contractor shall be responsible for the cost of additional inspections by the Architect. The Architect will submit a time and material invoice to the Owner, who will deduct the amount from the balance due to the Contractor.

1.04 OPERATION AND MAINTENANCE MANUALS

- A. Assemble a complete set of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual specification sections and as follows:

1. Operation Data:
 - a. Emergency instructions and procedures.
 - b. System, subsystem, and equipment descriptions, including operating standards.
 - c. Operating procedures, including startup, shutdown, seasonal, and weekend operations.
 - d. Description of controls and sequence of operations.
 - e. Piping diagrams.
2. Maintenance Data:
 - a. Manufacturer's information, including list of spare parts.
 - b. Name, address, and telephone number of installer or supplier.
 - c. Maintenance procedures.
 - d. Maintenance and service schedules for preventive and routine maintenance.
 - e. Maintenance record forms.
 - f. Sources of spare parts and maintenance materials.
 - g. Copies of maintenance service agreements.
 - h. Copies of warranties and bonds.

- B. Organize operation and maintenance manuals into suitable sets of manageable size. Bind and index data in heavy duty, 3-ring, vinyl covered, loose leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," project name, and subject matter of contents.

1.05 WARRANTIES

- A. Submittal Time: Submit written warranties to the Architect for designated portions of the work where commencement of warranties, other than date of substantial completion, is indicated.
- B. Organize warranty documents into an orderly sequence based on the table of contents of the project manual.
 - 1. Bind warranties and bonds in heavy duty, 3-ring, vinyl covered, loose leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2 by 11 inch (115 by 280 mm) paper.
 - 2. Provide heavy paper dividers with plastic covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of installer.
 - 3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES", project name, and name of Contractor.
- C. Provide additional copies of each warranty to include in operation and maintenance manuals.

PART 2 – PRODUCTS – Not Used

PART 3 - EXECUTION

3.01 DEMONSTRATION AND TRAINING

- A. Instruction: Instruct Owner's personnel to adjust, operate, and maintain systems, subsystems, and equipment not part of a system.
 - 1. Provide instructors experienced in operation and maintenance procedures.
 - 2. Provide instruction at mutually agreed upon times. For equipment that requires seasonal operation, provide similar instruction at the start of each season.
 - 3. Schedule training with Owner with at least 14 days advanced notice.
- B. Program Structure: Develop an instruction program that includes individual training modules for each system and equipment not part of a system, as required by individual specification sections. For each training module, develop a learning objective and teaching outline. Include instruction for the following:
 - 1. System design and operational philosophy.
 - 2. Review of documentation.
 - 3. Operations, Adjustments and Troubleshooting.
 - 4. Maintenance and Repairs.

END OF SECTION 01 77 19

SECTION 26 05 00 – COMMON WORK RESULTS FOR ELECTRICAL

PART 1 - GENERAL

1.01 SUMMARY

- A. Scope Of Work: The work under this division includes furnishing all labor, material, and equipment necessary for the installation and placing into operation of the electrical systems as indicated on the drawings. The work includes, but is not necessarily limited to, furnishing and installing the following:
 - 1. Provide new power from existing switchboard to existing relocatable sub-panels, including all conduit, wiring, breakers at required for a complete system.
 - 2. Empty conduit systems as indicated on the drawings.
- B. This division of the specification outlines the provisions of the contract work to be performed under this division. 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. In addition, work in this division is governed by the provisions of the bidding requirements, contract forms, general conditions, supplementary conditions, and all sections under general requirements.
- C. 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.
- D. Where the word 'provide' or 'provision' is 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.
- E. 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.

1.02 DEFINITIONS

- A. Concealed: Hidden from sight, as in trenches, chases, hollow construction, or above furred spaces, hung ceilings B 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.
- B. 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'.
- C. Finish Space: Any space ordinarily visible, including exterior areas.

1.03 SUBMITTALS

- A. Shop Drawings:
 - 1. Submit shop drawings and all data in accordance with Section 01 33 00 for all equipment provided under this division.
 - 2. Shop drawings submittals processed are not change orders: the purpose of shop drawings submittals by the contractor is to demonstrate to the Architect that the Contractor understands the design concept. He 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, the design drawings and specifications shall control and shall be followed.

- B. 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.
- C. Index all submittals and reference to these specifications. All submittal items shall be assembled and submitted in a single complete binder. Partial submittals will not be reviewed.
- D. Project Closeout: Prior to completion of project, compile a complete equipment maintenance manual for all equipment supplied under sections of this division, as described below.
 - 1. Equipment Lists and Maintenance Manuals:
 - a. 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:
 - 2. Name, model, and manufacturer
 - 3. Complete parts drawings and lists
 - 4. Local supply for parts and replacement and telephone number.
 - 5. 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.
 - 6. 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.

1.04 QUALITY ASSURANCE

- A. 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.
 - 1. National Electrical Code
 - 2. National Fire Protection Association
 - 3. Underwriters' Laboratories, Inc. (UL)
 - 4. Certified Ballast Manufacturers' Association (CBM)
 - 5. National Electrical Manufacturers' Association (NEMA)
 - 6. Institute of Electrical & Electronics Engineers (IEEE)
 - 7. American Society for Testing & Materials (ASTM)
 - 8. National Board of Fire Underwriters (NBFU)
 - 9. National Board of Standards (NBS)
 - 10. American National Standards Institute (ANSI)
 - 11. Insulated Power Cable Engineers Association (IPECS)
 - 12. Electrical Testing Laboratories (ETL)

13. National Electrical Safety Code (NESC)
14. California Electrical Code Title 24, Part 3
15. California Building Code
16. Americans with Disability Act (ADA)

- B. 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.
- C. Owner shall pay all permit fees and inspections required by any public authority having jurisdiction. Contractor shall coordinate work and arrange inspections with any public authority having jurisdiction.
- D. Installation procedures methods and conditions shall comply with the latest requirements of the Federal Occupational Safety and Health Act (OSHA).
- E. 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.

1.05 DRAWINGS AND SPECIFICATIONS

- A. Drawings and specifications are intended to complement each other. Where a conflict exists between the requirements of the drawings and/or the specifications, request clarification.
- B. The Architect shall interpret the drawings and the specifications, and his decision as to the true intent and meaning thereof and the quality, quantity, and sufficiency of the materials and workmanship furnished there under shall be accepted as final and conclusive.
- C. In case of conflicts not clarified prior to Bidding deadline, use the most costly alternative (better quality, greater quantity, or larger size) in preparing the Bid. A clarification will be issued to the successful Bidder as soon as feasible after the Award and if appropriate, a deductive change order will be issued.
- D. All provisions shall be deemed mandatory except as expressly indicated as optional by the word "may" or "option".

1.06 EXAMINATION OF PREMISES

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

1.07 WORK AND MATERIALS

- A. Unless otherwise specified, all materials must be new and of the best quality. Perform all labor in a thorough and workmanlike manner, to the satisfaction of the Architect.
- B. 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.

1.08 SUBSTITUTIONS

- A. Substitutions will be allowed only in strict conformance with the General Conditions of the Contract and Division.

1. Whenever in specifications any materials, process, or article is indicated or specified by grade, patent, or proprietary name or by name of manufacturer such specification shall be deemed to be used for the purpose of facilitating description of material, process, or article desired and shall be substantially equal or better in every respect to that so indicated or specified. If material, process, or article offered by Contractor is not, in opinion of architect, substantially equal or better in every respect to that specified, then Contractor shall furnish material, process or article specified. Burden of proof as to equality of any material, process, or article shall rest with Contractor. Contractor shall submit request together with substantiating data for substitution of an "or equal" item within thirty-five (35) days after award of contract. Provision authorizing submission of "or-equal" justification data shall not in any way authorize an extension of time for performance of this contract.

1.09 EQUIPMENT PURCHASES

- A. 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.
- B. Provide all materials of similar class or service by one manufacturer.

1.10 COOPERATIVE WORK

- A. 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.
- B. 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.

1.11 VERIFICATION OF DIMENSIONS

- A. 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 properly fitting equipment and materials together and to the structure in spaces provided.
- B. 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 clean, and maintain proper clearances.

1.12 CLEANUP

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

PART 3 - EXECUTION

3.01 CUTTING AND PATCHING

- A. 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 without the consent of the Architect and DSA.

3.02 CONCRETE

- A. Where used for structures to be provided under the contract such as bases, etc., concrete work, and associated reinforcing shall be as specified under architectural. See architectural drawings for details.
- B. See other sections for additional requirements for underground vaults, cable ducts, etc.

3.03 PAINTING

- A. Paint all unfinished metal with one coat of rust-inhibiting primer. (Galvanized and factory painted equipment shall be considered as having a sub-base finish.)
- B. Finished painting is specified Under "Finishes".
- C. Furnish all connections to electrical services furnished under other sections except as otherwise specifically designated. Provide all necessary connections, etc., required to properly connect all services and equipment.
- D. General: Painting requirements of this section are supplementary to other Painting Sections.
- E. Switchboards, panels, terminal cabinets, equipment enclosures, wireways, boxes, conduit, etc.: Standard gray or galvanized manufacturers' finish unless otherwise noted herein.
- F. Exceptions in public areas:
 - 1. Flush panels and cabinets: Fronts shall have factory applied primer and field applied oil base semi-gloss enamel finish coat (except metal plated parts) to match adjacent wall surfaces.
 - 2. Surface panels, cabinets and wireways: Same as "1. Flush Panels" above except also paint the enclosure (can) using the same paint as is on adjacent surface in lieu of semi-gloss paint. Apply etching compound (galvanized surfaces) and undercoater prior to finish coat.
 - 3. Surface and flush boxes: Paint to match adjacent surfaces as described in "2. Surface panels" above.
 - 4. Exposed conduit: Paint to match adjacent surfaces as described in "2. Surface panels" above.
 - 5. Ferrous metal miscellaneous parts (except stainless steel): Galvanized in accordance with ASTM A123 or A153.
 - 6. Lighting fixtures in public areas: Standard manufacturers' finish except as modified by the LIGHTING section, including Fixture Schedule. Exception: Paint the trims of recessed fixtures to match adjacent wall or ceiling surface if so directed by Owner's representative.
 - 7. Wiring devices, device plates and floor boxes in public areas: As specified in WIRING DEVICES and DEVICE PLATES Sections.

3.04 UTILITY SERVICES

- A. Upon notification of award of contract, notify the serving power, telephone utilities of the following:

1. Name and address of Contractor.
2. Estimated times of construction start, completion and required service connections.
3. Project service voltage, phase load, and service size.

3.05 TEMPORARY LIGHTING AND POWER

- A. Contractor shall provide on-site generation, labor, materials and/or any required utility fees associated with the installation and maintenance of a temporary power source for Contractor's equipment or field offices during the period of construction.
- B. Building and site shall be sufficiently illuminated so that construction work can be safely performed. Lights shall be controlled by switches located with consideration for safety, security, and convenience.

3.06 RECORD DRAWINGS

- A. The Electrical Division shall maintain record drawings as specified in Section 01 78 39.
- B. Drawings shall show locations of all concealed and exposed conduit runs, giving the number and size of conduit wires. Underground ducts shall be shown with cross section elevations. Drawing changes shall not be identified only with referencing COR's and RFI's, the drawings shall reflect all the actual changes made.
- C. Two sets of reproducible as-built drawings shall be delivered to the Architect. See Section 01 78 39 for additional requirements.

3.07 EXCAVATION AND BACKFILL

- A. 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. Remove all excess excavated materials from the site, or as otherwise directed by the Architect.
- B. 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.
- C. Trenching and backfilling shall be done as per Section 31 23 33. No stones or coarse lumps shall be laid directly on conduit or conduits.
- D. Provide pumps and drainage of all open trenches for purposes of installing electrical duct and wiring.

3.08 ACCESSIBILITY

- A. Install all control devices or other specialties requiring reading, adjustment, inspection, repairs, removal, or replacement conveniently and accessibly throughout the finished building.
- B. All required access doors or panels in walls and ceilings are to be furnished and installed as part of the work under this section.
- C. Provide doors which pierce a fire separation with same fire ratings as the separations.

- D. Refer to 'Finish Schedule' for types of walls and ceilings in each area and the architectural drawings for rated wall construction.
- E. Coordinate work of the various sections to locate specialties requiring accessibility with others to avoid unnecessary duplication of access doors.

3.09 FLASHING

- A. Flash and counterflash all conduits penetrating roofing membrane.

3.10 IDENTIFICATION OF EQUIPMENT

- A. All electrical equipment shall be labeled, tagged, stamped, or otherwise identified in accordance with the following schedules:
- B. General:
 - 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.
 - 2. All auxiliary systems, including communications, shall be labeled to indicate function.
 - 3. All labels, tags, and stamps shall use the owner room designation and room numbering system.
 - 4. Provide nameplates for safety switches, switchboards, breakers mounted in switchboards, relay cabinets, signal terminal cabinets, individually mounted enclosed breakers, panelboards, starters, time clocks, remote control switches and similar items. Nameplates shall be laminated black-white-black backlit or phenolic plastic with ¼-inch high lettering engraved through the outer covering except where specifically described otherwise. Affix with self-tapping machine screws (no rivets or glue). The screws shall not project beyond the backside face of enclosure doors or panels.
- C. Conduits and outlet boxes for all special systems including emergency power, fire alarm, and communications systems shall be color coded for identification throughout. Conduits shall be spray painted with the system color code at 3-foot intervals. Outlet and junction boxes shall be spray painted with the system color code on the exterior of the box, except boxes which are flush mounted in walls, ceilings, or floors shall be painted on the inside of the box. System color codes shall be as follows:

1. Emergency Power Systems	Orange
2. Fire Alarm System	Red
3. Nurse Call System	Blue
4. Music/Paging System	Yellow
5. Intercom System	Pink
6. Telephone System	White
7. Data System	Gray
8. SMATV/Radio Program System	Brown
9. Miscellaneous Signaling Systems	Violet
- D. Lighting and Local Panelboards Transformers:
 - 1. Panel identification shall be with white and black micarta nameplates. Emergency power distribution panels shall be identified with red and white micarta nameplates. Letters shall be no less than 3/8" high.
 - 2. Circuit directory shall be 2-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.
 - 3. The circuit directory shall reference the building number and room number as designated by the school directory. Circuit directories which reference the building number and room number as designated on drawings are not acceptable.

- E. Distribution Switchboards and Feeders Sections, Motor Control Centers, Automatic Transfer Switches:
 - 1. Identification shall be with 1" H 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. Emergency power distribution panels shall be identified with red micarta nameplates and white lettering. Letters shall be no less than 3/8" high.
 - 2. Circuit breakers and switches shall be identified by number and name with 3/8" H 1-1/2" laminated micarta nameplates with 3/16" high letters mounted adjacent to or on circuit breaker or switch.
- F. Disconnect Switches, Motor Starters and Transformers:
 - 1. Identification shall be with white micarta laminated labels and 3/8" high black lettering.
 - 2. Emergency equipment shall be identified with red labels and 3/8" high white lettering.

3.11 CONSTRUCTION FACILITIES

- A. 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.
- B. Temporary power and lighting for construction purposes shall be provided under this section. Refer to 'temporary facilities' for description of work.

3.12 GUARANTEE

- A. 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 proving 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.

3.13 PATENTS

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

3.14 MECHANICAL / ELECTRICAL COORDINATION REQUIREMENTS

- A. All electrical work performed for this project shall conform to the National Electrical Code, to Local Building Codes and in conformance with Division 16 of these specifications whether provided under the Mechanical or the Electrical sections of the specifications. Where the mechanical contractor is required to provide electrical work, he shall arrange for the work to be done by a licensed electrical contractor using qualified electricians. The Mechanical Contractor shall be solely and completely responsible for the correct functioning of all mechanical equipment regardless of who provided the electrical work.
- B. The Electrical Contractor shall provide the following for mechanical equipment:
 - 1. All power wiring.
 - 2. Electrical disconnects as shown on the electrical drawings.
- C. All power wiring and conduit to equipment furnished under Mechanical Division shall be provided under Electrical Division. Control wiring, whether line voltage or low voltage, shall be provided under the division which furnishes the equipment.

- D. Conduit for wiring for all HVAC and plumbing control shall be furnished and installed under Electrical Division.
- E. 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.
- F. 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 under the Electrical Division.
- G. Electrical Division shall make all final connections of power wiring to equipment furnished under this division.
- H. Wiring diagrams complete with all connection details shall be furnished under each respective section.

3.15 EQUIPMENT ROUGH-IN

- A. 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. The exact rough-in locations for manufactured equipment must be determined from large scale certified drawings. 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 drawings.

3.16 OWNER-FURNISHED AND OTHER EQUIPMENT

- A. 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.

3.17 INSERTS, ANCHORS, AND MOUNTING SLEEVES

- A. Inserts and anchors must be:
 - 1. Furnished and installed for support of work under this Division.
 - 2. Adjustable concrete hanger inserts installed in new concrete work shall be as manufactured by Grinnell or approved equal.
 - 3. Installed in location as approved by the Architect. Expandable lead type anchors installed in existing concrete with minimum surface damage, as manufactured by Ackerman-Johnson, Pierce, Diamond, or Hilti.
 - 4. Toggle Bolts, or "Molly-Anchors" where installed in concrete block walls.
 - 5. Complete with 3/16" or heavier steel back-up plate where used to support heavy items. Thru-bolts for back-up plate shall be concealed from view, except as otherwise indicated. Refer to drawings for details of supports at post-tension concrete slab.
 - 6. 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.
- B. Furnish and install all sleeves as required for the installation of all work under all sections of this division. Sleeves through floors, roof, and walls shall be as described in conduit section.

3.18 RUSTPROOFING

- A. Rust proofing must be applied to all ferrous metals as follows:
 - 1. Hot-dipped galvanized shall be applied after forming of angle-iron, bolts, anchors, etc.
 - 2. Hot-dipped galvanized shall be applied after fabrication for junction boxes and pull boxes cast in concrete.

3.19 GENERAL WIRING

- A. 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.
- B. In those isolated instances in which construction conditions will not permit staggered outlet boxes, provide "Flamesafe" FSD 1077 fire stopping pads or approved equal, over the outlet box.
- C. 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.
- D. Provide proper size and type of feeds from proper sources for all such items indicated, checking drawings of all trades to ensure inclusion of all items.

3.20 SEPARATE CONDUIT SYSTEMS

- A. 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, emergency system, sound system, control system, fire alarm system, etc.
- B. 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.

3.21 SPECIAL CONDUIT REQUIREMENTS

- A. The fire alarm system shall be in conduit at all areas.
- B. Conduit for all low voltage systems, including fire alarm and clock and bell located above suspended ceiling shall be installed below gypsum board on bottom chord of truss, exposed.
- C. Provide a pull chord in all spare conduit and where conductors are installed by others.

END OF SECTION 26 05 00

SECTION 26 05 13 – POWER CONDUCTORS

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, Division One, and Section 26 05 00 Common Work Results for Electrical apply to this section.
- B. Scope of Work: The work under this section includes furnishing all labor, materials, and equipment and performing all operations in connection with Conductors, as indicated on the drawings, specified herein, or reasonably required to complete the work. The work includes, but is not limited to the following:
 - 1. Furnishing and installing wire and cable for branch circuits and feeders.

1.02 SUBMITTALS

- A. Submit manufacturer's data for the following items:
 - 1. 600 volt cables

PART 2 - PRODUCTS

2.01 WIRE AND CABLE RATED 120 VOLT TO 600 VOLT

- A. All wire and cable shall be new, 600 volt insulated copper, of types specified below for different application.
 - 1. Conductor Material: Copper
 - 2. All conductor sizes shall be designated by American Wire Gauge (AWG) or Thousand Circular Mills. (kcmil).
 - 3. Wire used as feeders to switchboards, panelboards, motor control centers or other major electrical components shall be type XHHW-2.
 - 4. All underground conductors shall be Type XHHW-2.
 - 5. Wire and cable larger than #6 AWG shall be type XHHW-2
 - 6. Wire #6 AWG and smaller shall be type THHN.
 - 7. Conductors for branch circuit lighting, receptacle, power and miscellaneous systems shall be a minimum of No. 12 AWG.
 - 8. 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.
 - 9. Wire indicated to be larger than No. 12 must be increased the entire length of the circuit.
 - 10. Wire sizes No. 14 through No. 10 shall be solid. No. 8 and larger shall be stranded.
- B. All wire and cable shall bear the UL label and shall be brought to the job in unbroken packages.
- C. Wire insulation shall be color as specified herein.

2.02 WIRE AND CABLE FOR SYSTEMS BELOW 120 VOLTS

- A. All low voltage and communications systems cable shall be plenum rated.

PART 3 - EXECUTION

3.01 SYSTEMS 600 VOLT OR BELOW

- A. 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.
- B. All connections and joints in wires shall be made as noted below:
- C. Connections to outlets: Wire formed around binding post of screw.
- D. No. 8 wire and larger - Burndy "Quick-Lug" type QDA, or approved equal, round flange, solderless lug.
- E. Fixture Connections: Circuit wiring connections to fixture wire shall be made with pressure type solderless connectors, Buchanan, Scotchlock, Wing Nut, or approved equal.
- F. Joints in Wire: No. 6 wire and larger, Burndy or approved equal.
- G. No. 8 wire and smaller - Buchanan, Scotchlock, Wing Nut, or equal pressure type solderless connectors.
- H. Uninsulated solderless connectors shall be insulated as follows: Tape and covering of rubber tape, equal in thickness in the insulation. This shall be followed with an outer covering of vinyl tape in two layers.
- I. All wiring throughout shall be color-coded as follows:

	<u>480-Volt System</u>	<u>208-Volt System</u>
A Phase	Brown	Black
B Phase	Orange	Red
C Phase	Yellow	Blue
Neutral	Grey	White
Ground	Green	Green

- J. 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.
- K. 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.
- L. At all terminations of control wiring, the wiring shall have a numbered T & B or Brady plastic wire marker.
- M. 120 volt control wiring may be installed with the power conductors when insulated at the same voltage level as the power conductors. All other control and instrumentation wiring must be installed in a separate conduit.

- N. 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.
- O. Wire and cables when installed in underground pull boxes shall not be spliced. All wire and cable in underground pull boxes shall be continuous.
- P. Wire and cable when installed in underground pull boxes shall be neatly strapped / looped together and anchored to side walls of junction box. The wire and cable shall be neatly strapped to the side walls of junction boxes to keep the floor of the junction box open.

END OF SECTION 26 05 13

SECTION 26 05 26 - GROUNDING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, Division One, and Section 26 05 00 Common Work Results for Electrical apply to this section.
- B. The scope of work under this section includes furnishing all labor, materials, and equipment and performing all operations in connection with Grounding, as indicated on the drawings, specified herein, or reasonably required to complete the work. The work includes, but is not limited to the following:
 - 1. Furnish and install grounding and grounding conductors.

PART 2 – PRODUCTS (Not Applicable)

PART 3 - EXECUTION

3.01 GROUNDING

- A. All panelboard cabinets, equipment, enclosures, and complete conduit system shall be grounded securely in accordance with pertinent sections of Article 250 of CEC. 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 Article 250 CEC. All ground connections shall have clean contact surfaces. Install all grounding conductors in conduit and make connections readily accessible for inspection. Furnish and install grounding electrodes as described on the drawings.
- B. 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 grounds bus in the panelboard to the conduit grounding bushings.
- C. Except for connections which access for periodic testing is required, make grounding connections which are buried or otherwise inaccessible by exothermite type process.
- D. Equipment Grounding Conductors:
 - 1. Provide copper THWN insulated equipment grounding conductors in all raceways.
 - 2. The grounding conductors shall be provided whether scheduled or shown on the drawings or not, and, if necessary, the conduit size shall be increased to accommodate them. These grounding conductors shall be connected to the ground terminals on the device or enclosure at each end of the installation and shall be interconnected with the other ground terminals and conductors to form a continuous wired grounding system throughout the electrical wiring system.
- E. Ground Rods: 3/4" diameter × 8-foot copper clad steel. Drive full length into earth with the top 3-inch minimum below grade or underside of slab. Where ground rods cannot be driven vertically to the desired depth below grade, they shall be driven at an angle away from or parallel to the exterior wall. When driven parallel to the wall, the angle shall not exceed 45°. The rod shall penetrate to a depth of permanent ground moisture. When ground rods cannot be driven because of bedrock at less

than 4 feet below grade level, a counterpoise ground electrode shall be used in place of rods. The counterpoise system shall consist of not less than 50 feet of No. 2 AWG bare tinned copper wire, buried to a depth of at least 18" below grade, for each ground rod shown. The wires shall be run in a straight line. Each pad-mounted transformer and vacuum interrupting sectionalizing switch shall be grounded using the methods indicated herein.

- F. Connections: Connection to inaccessible ground rods below ground shall be made using exothermic welding devices. Above ground and accessible connections shall be made using exothermic devices. Multiple bolt silicon bronze connectors, Burndy or O.Z. Electric; or exothermic welded, Burndy, Erico Cadweld products, or equal.
- G. Test each grounding electrode for resistance at the connection point before connecting any wires. Resistance at the grounding electrode shall not exceed the following:
 - 1. Service Equipment, 25 ohms
 - 2. Interior Electrical Systems, 25 ohms
 - 3. Exterior Transformers, 10 ohms
 - 4. Junction Boxes and Manholes, 10 ohms
- H. If the above values are not achieved with the installed system, notify the Owner's representative.
- I. Each ground electrode shall be tested using a ground resistance meter, or other suitable instrument, in conformance with the manufacturer's directions. Submit a report listing as a minimum the date of testing, name of tester, instrument used, location and type of ground electrode, and resistance in ohms. Submit within five (5) days after testing is completed.

END OF SECTION 26 05 26

SECTION 31 23 00 EXCAVATION AND FILL

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, and Division 01 apply to this section.
- B. Scope of work: The work under this section includes furnishing all labor, materials, and equipment and performing all operations in connection with Excavation and Fill, as indicated on the drawings, specified herein, or reasonably required to complete the work. The work includes, but is not limited to the following:
 - 1. Excavate native soil.
 - 2. Moisture condition existing native soil.
 - 3. Import and compact engineered fill for structures
 - 4. Import and compact engineered fill for concrete hardscape

1.02 DEFINITIONS

- A. Definitions in this section include the following:
 - 1. Backfill: Soil materials used to fill an excavation.
 - 2. Borrow: Satisfactory soil imported from off-site for use as fill or backfill.
 - 3. Excavation: Removal of material encountered above subgrade elevations.
 - 4. Fill: Soil materials used to raise existing grades.
 - 5. Subgrade: Surface or elevation remaining after completing excavation, or top surface of a fill or backfill immediately below subbase, drainage fill, or topsoil materials.
 - 6. Utilities include on-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.03 PROJECT CONDITIONS

- A. Soils Report: None for this project.
- B. It shall be the responsibility of the Contractor to examine the site of the work and to make all investigation necessary, both surface and subsurface, to determine the character of materials to be encountered and all other existing conditions affecting the work.
- C. The School District shall obtain and pay for the services of a Soils Engineer, who shall be responsible for the review and testing of all compaction. Contractor shall be responsible to notify Soils Engineer for testing of each phase of compaction.
- D. Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted in writing by Architect and then only after arranging to provide temporary utility services according to requirements indicated.

PART 2 - PRODUCTS

2.01 GENERAL

- A. Import materials required for fill or backfill shall be provided by the contractor from areas outside the site at contractor's expense. Import materials shall conform to the requirements herein specified and

as required by the soils report. All import materials shall be tested and approved by geotechnical engineer prior to being hauled to the site.

- B. All imported fill soils shall be non-expansive (Expansion Index less than 10) granular soils meeting the USCS classifications or SM, SP-SM, or SW-SM with a maximum rock size of 3 inches and 5 to 20% passing the No. 200 sieve and a minimum sand equivalent of 20.

PART 3 - EXECUTION

3.01 PREPARATION

- A. Clearing and Grubbing: All debris or vegetation such as grass, trees, or weeds on the site at the time of construction shall be removed from the construction area. Any root ball should be completely excavated. Organic striplings should be hauled from the site and not be incorporated into any engineered fills. Any trash, construction debris, concrete slabs, old pavement, landfill and buried obstructions such as old foundations and utility lines shall be located by contractor and removed under observation by the geotechnical engineer before site grading. All excavations resulting from site clearing shall be dish-shaped to the lowest depth of disturbance and backfilled with engineered fill as described below under continuous observation by the geotechnical engineer's representative.
- B. Building Pad Preparation: The existing surface soils within the building pad shall be removed and replaced with non-expansive compacted fill to a minimum depth of 3 inches below the existing grade. Removal and replacement shall extend at least 2 feet beyond building footprint. After removal the bottom of the excavation shall be scarified to a depth of 3 inches; moisture conditioned to 5 to 10% above optimum moisture content, and recompacted to 85 to 90% of ASTM D1557 maximum density. Imported fill soil shall be placed to the elevation provided on the drawings. The imported fill shall be placed in lifts no greater than 8 inches in loose thickness and compacted to a minimum of 95% of ASTM D1557 maximum dry density. The moisture content of the imported fill shall be within 2% of optimum moisture. The moisture content of the imported fill shall be maintained within 2% of optimum moisture at time of compaction.
- C. Concrete Hardscape Preparation: The existing surface soils within the concrete hardscape are shall be removed and replaced with non-expansive compacted fill to a minimum depth of 9 inches below bottom of concrete hardscape. Removal and replacement shall extend at least 1 foot beyond edge of concrete hardscape. After removal the bottom of the excavation shall be scarified to a depth of 8 inches; moisture conditioned to 5 to 10% above optimum moisture content, and recompacted to 85 to 90% of ASTM D1557 maximum density. Imported fill soil shall be placed in the excavation. The imported fill shall be placed in two lifts and compacted to a minimum of 95% of ASTM D1557 maximum dry density. The moisture content of the imported fill shall be within 2% of optimum moisture. The moisture content of the imported fill shall be maintained within 2% of optimum moisture at time of compaction.
- D. Moisture Control and Drainage: The moisture condition of the buildings pad should be maintained during trenching and utility installation until concrete is placed or shall be rewetted before initiating delayed construction. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- E. Utility Trench Backfill: All conduit trenches within the building pad and site concrete shall be backfilled with imported fill material and compacted as required for building pad preparation.
- F. Contractor may encounter existing electrical / signals conduits within the building pad area. Contractor shall be responsible to verify exact location and depth prior to excavation. Contractor shall protect during excavation, moisture conditioning of native soil and placement of imported fill.

- G. Finish Grading: Place native top soil removed from excavation uniformly graded to a smooth surface adjacent to building or concrete hardscape and slope to existing site concrete or native soil elevation.
- H. Testing Agency: Owner will engage a qualified independent geotechnical engineering testing agency to perform field quality-control testing. All site preparation and fill placement shall be observed and tested.
 - 1. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earthwork only after test results for previously completed work comply with requirements.
 - 2. When testing agency reports that subgrades, fills, or backfills have not achieved degree of compaction specified, scarify and moisten or aerate, or remove and replace soil to depth required; recompact and retest until specified compaction is obtained.
 - 3. The cost of retesting deficient materials shall be deducted from progress payments to the contractor.
- I. Disposal: Remove surplus satisfactory soil and waste material, including unsatisfactory soil, trash, and debris, and legally dispose of it off Owner's property.
- J. Unknown Obstacles: Any underground utility service, unnatural condition or obstacle encountered during excavation is unknown to the Owner. Construction shall stop immediately in the vicinity of the encounter until identification is positive and authorization to proceed again is granted by the Owner.

END OF SECTION 31 23 00

SECTION 31 23 33 – TRENCHING AND BACKFILLING

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, and Division One apply to this section.
- B. Scope of Work: The work under this section includes furnishing all labor, materials, and equipment and performing all operations in connection with Trenching and Backfilling, as indicated on the drawings, specified herein, or reasonably required to complete the work. The work includes but is not limited to the following:
 - 1. Excavation, backfill and compaction for utilities.
- C. Related Section:
 - 1. Section 33 11 16: Site Water Distribution Piping.
 - 2. Section 33 31 00: Sanitary Sewerage Piping.
 - 3. Section 33 51 13: Natural Gas Piping.

1.02 GENERAL PROVISIONS

- A. Contractor is responsible for the accuracy of all layout work and grades. Erect sheeting, shoring and bracing as necessary for protection of persons, improvements, and excavations. Keep excavation free from water and other fluids until backfilling is completed.

PART 2 - PRODUCTS

2.01 MATERIALS

- A. Backfill material shall be non-expansive granular soils that meet the USCS classifications of SM, SP-SM, or SW-SM, with a maximum rock size of 3 inches, and 5 to 20% passing the No. 200 sieve and a minimum sand equivalent of 20.
- B. Select bedding sand shall be Class A screened fill sand with a maximum particle size of 1-1/2 inches, not to exceed 18 percent, free of expansive materials, debris, and organic matter.

PART 3 - EXECUTION

3.01 TRENCHING

- A. Layout: Lay out route of each underground utility prior to trenching. Review drawings and coordinate with adjacent underground work to avoid conflicts.
- B. Clearances: Maintain required horizontal and vertical depth clearances from structural footings or utility trenches running parallel to footings. Maintain area of footing bearing prism and in event that the utility cannot be relocated or its depth changed, proceed as directed by Architect. Where required, lowering of structural footings to maintain proper clearances for underground utilities trenching shall be accomplished as directed.

- C. Excavate trenches for utilities to required lines, grades and elevations indicated on drawings and as specified. Hand trim changes in direction and bottoms of trenches. Provide shoring in trenches over 5 feet in depth and also in trenches where unstable soil conditions are encountered.
- D. Pipe Trench Dimensions: Following requirements are considered minimal unless drawings indicate otherwise in order to provide adequate pipe clearances and bedding. Provide trenches wider than specified minimum where required to properly install particular type of piping. In event that utility company regulations, code requirements, or pipe manufacturer's recommendations differ from these provisions, most restrictive requirements shall take precedence. Pipe burial depth is from finish grade or pavement surface to top of pipe. Trench width shall be measured at top of pipe.
1. Pipe Burial Depths:

Sewer and Drainage:	24" + pipe O.D. + 3" bed
Gas:	30" + pipe O.D. + 4" bed
Water (Domestic)	
PVC:	30" + pipe O.D. + 4" bed
 2. Trench Width:

Sewer & Drainage:	12" min., 18" max + pipe O.D. for 4" to 18" dia. pipe
Gas:	8" + pipe O.D.
Water (Domestic):	8" + pipe O.D.
- E. Common Trench Requirements:
1. Copper piping or metal gas piping shall not be installed in a common trench with any other dissimilar.
 2. Multiple parallel lines of piping in a common trench shall be separated a minimum of 12 inches, both horizontally and vertically, between individual pipes.
 3. Domestic water piping shall not run parallel in a common trench with sewer or drainage lines.
 4. Electrical power and communications conduit, etc. shall not be run in a common trench with sewer, drainage, water or gas piping.
- F. Additional provisions for Underground Piping within Building Areas: Refer to applicable specification sections of Division 15 and as indicated on drawings.
- G. Requirements for Underground Electrical and Communications Conduit, Ducts, etc.: Refer to applicable specification sections of Division 16 and as indicated on drawings.

3.02 BEDDING AND BACKFILLING OF TRENCHING

- A. Bedding: Lay and bed pipe in compacted select bedding sand of thickness specified above, and backfill with same material to a height of 8" above top of pipe. Place in 8" layers and compact to a minimum relative density of 90 percent. Compact in a manner that will not displace or damage pipe.
1. Excavate under bell portions of the piping for uniform bearing.
 2. Conduits and ducts which are laid in a single layer, parallel and in same horizontal plane and which are not concrete encased, shall have bedding as specified above. Select sand bedding for multi-layered banks of unencased conduit shall be water settled but not flooded to fill voids between conduits with sand.
- B. Backfilling: Trenches above top of bedding, and concrete encased utilities, shall be backfilled with select backfill material at optimum moisture content, placed in 6 to 8 inch layers and compacted to a minimum relative density of 90 percent. Trench backfill in pavement or other areas where

compaction greater than 90 percent is required shall be compacted in accordance with those requirements to specified depth.

- C. Do not backfill until installation has been approved. Promptly install pipe after trenching has been done to keep excavation open as short a time as possible.
- D. Underground utility materials requiring special bedding and backfilling methods shall be installed as recommended in conjunction with these materials or as indicated on drawings.

3.03 PROTECTION OF WORK FROM FLOODING

- A. Construct all temporary ditches and berms and supply and maintain adequate pumps, piping, and other equipment necessary to protect work, existing structures, and equipment, and to other property located on premises or adjacent thereto, from damage by flooding due to rain or subsurface water. Utility lines shall not be laid in trenches which contain water or that are muddy.

3.04 SITE CLEANUP

- A. All excess and unsuitable excavated material shall be removed from site.

3.05 FIELD QUALITY CONTROL

- A. Obtain Soils Engineer's approval for excavation, fill materials, method of placing and compaction. Soils Engineer will perform tests to evaluate compliance with specifications.

END OF SECTION 31 23 33

SECTION 32 13 00 SITEWORK CONCRETE

PART 1 - GENERAL

1.01 SUMMARY

- A. Provisions of General Conditions, Supplementary Conditions, and Division 01 apply to this Section.
- B. Scope of work: The work under this section includes furnishing all labor, materials, and equipment, and performing all operations in connection with Sitework Concrete, as indicated on the Drawings, specified herein, or reasonably required to complete the work. The work includes, but is not limited to the following.
 - 1. Provide concrete at level landings at bottom of ramps.
 - 2. Provide sidewalks
- C. Related Sections:
 - 1. Section 32 13 73 Concrete Paving Joint Sealants

1.02 REFERENCES

- A. ASTM A185 – Steel Welded Wire Fabric, Plain, for Concrete Reinforcement.
- B. ASTM A615 – Deformed and Plain Billet-Steel Bars for Concrete Reinforcement.
- C. ASTM C33 – Concrete Aggregates.
- D. ASTM C94 – Ready-mixed Concrete.
- E. ASTM C150 – Portland Cement.
- F. ASTM C171 – Sheet Materials for Curing Concrete.
- G. ASTM C979 – Pigments for Integrally Colored Concrete.
- H. ASTM D1751 – Preformed Expansion Joint Fillers for Concrete, Paving and Structural Construction.
- I. ASTM C309 – Liquid Membrane-Forming Compounds for Curing Concrete.
- J. Chapter 19A, California Building Code.

1.03 SUBMITTALS

- A. Submit under provisions of Section 01 33 00, Submittal Procedures.
- B. Layout Drawings: Provide layout drawing showing location of each type of pavement and construction, and dimensioned locations of expansion and control joints. Do not deviate from location of expansion joints and control joints shown on the drawings.
- C. Design Mixtures: Provide design mix for each concrete mixture. Design mix shall include data substantiating the reliability of the proposed mix. Submit alternate design mixtures when characteristics of materials, project conditions, weather, test results, or other circumstances warrant adjustments.
 - 1. Each design mixture shall be stamped and signed by a registered professional engineer licensed in the state of California.
 - 2. Indicate amounts of mixing water to be withheld for later addition at project site.
- D. Product Data
 - 1. Expansion material
 - 2. Curing materials

E. Site Samples

1. Prepare samples indicating slab construction and finish, at the site, cast in the directed locations and orientations. Prepare a minimum 8 foot square sample of each texture and finish required for the project. Include a transverse expansion joint, control joints and edging. Where paving adjoins other material such as pavers, include one edge of sample constructed of the other materials.
2. Approved samples may be part of permanent construction if the sample meets all project requirements and is approved.

1.04 QUALITY ASSURANCE

- A. Sitework Concrete work subject to the provisions of Section 01 45 24, Testing and Inspection Requirements, at the option of the Architect.
- B. Maintain one copy of all records on site.
- C. Acquire cement and aggregate from same source for all work.
- D. Conform to Section 1905A.13, California Building Code, when concreting during hot weather.
- E. Conform to Section 1905A.12, California Building Code, when concreting during cold weather. No pouring permitted below 40 degrees Fahrenheit.

1.05 PROJECT RECORD DOCUMENTS

- A. Accurately record actual locations of embedded sleeves, utilities and components which are concealed from view.

PART 2 - PRODUCTS

2.01 CONCRETE MATERIALS

- A. Cement: ASTM C150 – Type V Portland Type, one manufacturing plant only.
- B. Aggregates: ASTM C33, single source for all materials.
- C. Water: Clean, fresh and potable

2.02 ACCESSORIES

- A. Expansion joints:
 1. Expansion Joint Filler – ASTM D1751: Close cell bituminous saturated fiberboard, ½ inch thick; FIBER EXPANSION JOINT manufactured by The Burke Co., Montebello, CA, or approved equal.
 2. Joint Devices: Integral extruded polystyrene plastic; ½ inch thick, with removable top strip exposing sealant trough; JOINT CAPS, manufactured by The Burke Company, or equal.
 3. Sealant: Polyurethane two-component type, self leveling, for level surface application, UREXPAN NR-200, manufactured by the Pecora Corp., Harleysville PA, or equal. Color shall be selected by the Architect from manufacturer's standard list of colors.
 4. Sealant Primer: As recommended by Sealant Manufacturer.

2.03 CONCRETE MIX

- A. Mix and deliver concrete in accordance with Section 1905A, California Building Code.
 - 1. Deliver concrete in transit mixers only. Mix concrete for 10 minutes minimum at a peripheral drum speed of approximately 200 feet per minute. Mix at jobsite minimum 3 minutes. Discharge loads in less than 1-1/2 hours or under 300 revolutions of the drum, whichever comes first, after water is first added.
 - 2. Design Mix: Conform to 1905A.2 – 1905A.6, California Building Code.
 - 3. A registered civil engineer with experience in concrete mix design shall select the relative amounts of ingredients to be used as basic proportions of the concrete mixes proposed for use under this provision.
 - 4. Selection of Concrete Proportions: Concrete proportions shall be determined in accordance with the provisions of ACI 318, Section 5.2.
 - 5. Quantities of Materials: Provide Weighmaster's Certificate for each load of concrete.
 - 6. Do not exceed 0.45 water-cement ratio, by weight.
 - 7. Concrete shall be mixed by transit mixers only.
- B. Required Strength: Minimum 4,500 psi for sitework concrete.

2.04 REINFORCEMENT

- A. Reinforcing Steel: ASTM A615; 40 ksi yield grade; deformed billet steel bars, uncoated finish.
- B. Welded Steel Wire Fabric: Plain type, ASTM A185; in flat sheets; uncoated finish, 6 x 6 inch, No. 10 gage.
- C. Tie Wire: Annealed steel, minimum 16 gage size.
- D. Dowels: ASTM A615; 40 ksi yield grade, deformed steel, uncoated finish.
- E. Fiber Reinforced Concrete
 - 1. FIBERMESH 150: ASTM C 1116/C 1116M, Type III Fiber Reinforced Concrete. Manufactured by PROPOX CONCRETE SYSTEMS. 100% virgin homopolymer polypropylene multifilament fibers containing no reprocessed olefin materials. Provide 1.0 – 1.5 lbs. per cubic yard.
 - 2. FIBERMESH 650: ASTM C 1116/C 1116M, Type III Fiber Reinforced Concrete. Manufactured by PROPOX CONCRETE SYSTEMS. Alloy polymer macro-synthetic fiber featuring e3 patented technology manufactured to an optimum gradation and highly oriented to allow greater surface area contact within the concrete resulting in increased interfacial bonding and flexural toughness efficiency. Provide a minimum of 3.0 lbs. per cubic yard

2.05 CURING MATERIALS

- A. Polyethylene Film ASTM C171; 8 mil thick, clear, manufactured from virgin resin with no scrap or additives. POLYETHYLENE, No. 227, manufactured by The Burke Co., Montebello, CA, or equal.
- B. Water: Potable and not detrimental to concrete.
- C. Curing Compound: ASTM C309; wax resin base, WHITE PIGMENTED CURING COMPOUND, by The Burke Co., Montebello, CA, or equal.

PART 3 - EXECUTION

3.01 EXAMINATION

- A. Verify site concerns.
- B. Verify requirements for concrete cover over reinforcement.
- C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely and will not cause hardship in placing concrete.

3.02 PREPARATION

- A. Prepare previously placed concrete by cleaning with steel brush and applying bonding agent in accordance with manufacturer's instructions.
- B. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout. Clean substrate of dust, debris, moisture, and other substances detrimental to roofing installation according to roofing system manufacturer's written instructions. Remove sharp projections.

3.03 PLACING CONCRETE (GENERAL)

- A. Convey and deposit concrete in accordance with Section 1905A, California Building Code. Remove loose dirt from excavations.
- B. Notify Job Inspector minimum 24 hours prior to commencement of operations.
- C. Ensure reinforcement, inserts, embedded parts, formed joint fillers, joint devices and accessories are not disturbed during concrete placement.
- D. Ensure sub-base or base materials have been compacted or otherwise treated.
- E. Install joint fillers, primer and sealant in accordance with manufacturer's instructions.
- F. Place concrete continuously between predetermined expansion joints.
- G. Do not interrupt successive placement; do not permit cold joints to occur. Avoid segregation of materials. Perform tamping and vibrating so as to produce a dense, smooth application free of rock pockets and voids. Do not use vibrators to move concrete horizontally.
- H. Do not allow concrete to fall free from any height which will cause materials to segregate. Maximum height of free fall permitted in any case: 5 feet.
- I. Defective Installation: Repair and clean at Contractor's expense all concrete damaged or discolored during construction. Where concrete requires repair before acceptance, the repair shall be made by removing and replacing entire section between joints and not by refinishing the damaged portion.
- J. Proper curing of concrete surfaces is the responsibility of the Contractor. Concrete failing to meet specified strength shall be removed and replaced.

3.04 ON-SITE CONCRETE SIDEWALKS AND RAMPS

- A. Forms, Wood: Free from warp, with smooth and straight upper edges, surfaced one side, minimum thickness 1-1/2 inches adequate to resist springing or deflection from placing concrete.
- B. Forms, Metal: Gage sufficient to provide equivalent rigidity and strength.

- C. Reinforcement: Unless indicated otherwise on the drawings, provide welded steel wire fabric, 6 inches by 6 inches, No. 6 gage at mid-height of sidewalks and ramps. Interrupt reinforcement at expansion joints.
- D. Concrete Placement: Dampen subgrade to retain moisture in concrete mix. Tamp and spade to consolidate concrete for entire length of pour. Strike off upper surface to specified grades.
- E. Expansion Joint: Locate joint filler as shown on drawings or at maximum 60 feet centers and where slabs join vertical surfaces. Install vertically, full depth of concrete leaving plastic cap at ½ inch depth at top for sealant application.
 - 1. Provide ½ inch diameter greased steel dowels, 12 inches long at expansion joints with one end of dowel lubricated to allow for longitudinal movement. Spacing: 16 inches on center maximum, 6 inches from edges.
 - 2. Remove plastic caps. Prime both sides of joint and apply self-leveling sealant. Provide smooth concave surface.
- F. Control Joints – Saw Cut: After floating and finishing, saw cut concrete to a depth of: depth of concrete/4. Curved or non-aligned joints not acceptable. Sealant application not required. Space joints 12 ft maximum oc both ways or as patterned on the drawings.
- G. Finish:
 - 1. Screed concrete to required grade, float to a smooth, flat, uniform surface. Edge all headers to ¼ inch radius. Edge expansion joints to ¼ inch radius. Steel trowel to hard surface.
 - 2. Grades less than 6 percent: After final troweling, apply a medium hard broom finish transverse to centerline or direction of traffic.
 - 3. Grades 6 percent or more: Apply slip resistant heavy broom finish and remark as necessary after final finish to assure neat uniform edges, joints and score lines.
 - 4. Walkway grades in excess of five percent shall conform to Section 1133B.7, California Building Code.
- H. Curing: Cure surfaces utilizing one of the following methods:
 - 1. Spraying: Spray water over slab areas and maintain wet for 7 days.
 - 2. Spread polyethylene film over slab areas, lapping edges and sides, minimum 6 inches and sealing with pressure sensitive tape; cover with plywood or otherwise protect film from damage; maintain in place for 7 days.
 - 3. Apply liquid curing compound at rate of 200 sf per gallon, using power sprayer equipped with agitator. Do not apply liquid curing compound to surfaces scheduled to receive paving units of any kind.

END OF SECTION 09 68 16