VERDUGO WOODLANDS ELEMENTARY SCHOOL

DRIVE APRON IMPROVEMENTS ON NORTH

VERDUGO ROAD

Prepared by Architecture 9 PLLLP

Architecture 9 PLLLP

SPECIFICATIONS

Project:	Verdugo Woodlands Elementary School Drive Apron Improvments
District:	Glendale Unified School District 223 North Jackson Street Glendale, California 91206
Architect:	Architecture 9 PLLLP 8816 Foothill Boulevard #103-224 Rancho Cucamonga, California 91730

Steven M. Gelsinger C-28546
Architect

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GLENDALE UNIFIED SCHOOL DISTRICT

VERDUGO WOODLANDS ELEMENTARY SCHOOL
DRIVE APRON IMPROVEMENTS

APRIL 16, 2018

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Architecture 9 Drawings 1, 2, 3, 4, 5 AND 6 dated APRIL 16, 2018.

END OF SECTION

PART 1 - GENERAL

1.01 WORK OF THE CONTRACTOR:

A. Scope of Work: Contractor shall perform, within the time stipulated, the Contract, including all of its component parts, and everything required to be performed, and to provide and furnish any and all of the labor, materials, tools, expendable equipment, and all applicable taxes, and all utility and transportation services necessary to perform the Contract and complete, in a workmanlike manner, all of the Work required in connection with the following titled Project in strict conformity with the Contract Documents:

VERDUGO WOODLANDS ELEMENTARY SCHOOL DRIVE APRON IMPROVEMENTS

B. Phasing: Refer to Section 01 11 25 Phasing (if applicable) for Project Phasing Requirements, including milestones.

C. This school is on a traditional school year calendar, August through June. During the period of this contract, school events and educational requirements will limit or prevent access, and will affect Contractor work hours for a portion or all of the school building (s) pertinent to the contract. Contractor shall maintain schedule with full knowledge of these times and dates to be determined. A site-specific calendar will include currently known dates of limited access, or times of the school day that noise will have to be limited, or ceased. These shall include during the time of the project, but not be limited to:

1. No work after 6:00 p.m. on six (6) weekday evenings for back-to-school, open house, and other events per school year at each school site.
2. No work between 8:00 a.m. and 10:00 a.m. on five (5) student attendance weekdays for assembly events per school year.
3. NO NOISE/WORK will be allowed on an Elementary school site between 8:00 a.m. and 12:30 p.m. on twelve (12) student attendance weekdays for testing (four (4) consecutive weekdays, three times) per school year. Second shift work may be accommodated with the request pre-approved by the District Project Manager.
4. NO NOISE/WORK will be allowed on a Middle School or High School site between 8:00 a.m. and 1:30 p.m. on twenty (20) student attendance weekdays for testing (four (4) consecutive weekdays during the first semester; sixteen (16) consecutive weekdays during the second semester) per school year. Second shift work may be accommodated with the request pre-approved by the District Project Manager.

D. It shall be noted that there are students in the Early and Extended Education Learning Program in attendance on the Elementary school sites from 6:00 a.m. through 6:00 p.m. on a daily basis throughout the school year, and on each day that Classified Staff are assigned working hours (see specific EEELP calendar for each site, per each school year).

E. Work hours for the Project shall be from 7:00 a.m. until 10:00 p.m. Monday through Saturday, unless advance permission to deviate from these hours is obtained from the City of Glendale per Glendale Municipal Code, Title 8, Chapter 36, and this request is also approved in writing five working days beforehand by the District Project Manager.

F. Article 3 of the Bid General Conditions requires preparation of a Cost-loaded time logic schedule with a single critical path. If the Board approved lowest responsive and responsible bid Contractor and the Project Manager, on behalf of the District, cannot agree on the contract construction schedule and the project single critical path within fifteen (15) days after Notice to Proceed, the District may terminate the Contract, for convenience, as outlined in the Project General Conditions. In the event this is necessary, compensation to the General Contractor and all subcontractors or materialmen shall be limited to Mobilization costs only.

G. The liquidated damages shown in the Supplementary General Conditions shall apply to each phase of the phased construction plan, as defined by and within the plans and specifications.

H. No warranties or guarantees shall go into effect, for any trade, regardless of when completed in the sequence of the project erection, until one (1) day after the Board of Education has accepted the project at a noticed meeting. Attention: Bidders. This will require certain trades to bid for, and provide, a warranty of longer than one (1) year in length from the time of installation or furnishing of their materials to the project, depending upon the sequencing of their work within the overall schedule.

I. All project close-out/punchlist items, project record documents, submittals, and operations manuals and spare parts, warranties and guarantees and Contractor's Final Verified Report (DSA6) shall be reviewed and accepted prior to the Architect/District agreed upon authorization to file the Notice of Completion with the Los Angeles County Recorder.

J. In the event that any materials requiring Inspection (steel, concrete, masonry grout, etc.) are manufactured in an area located more than one hundred miles (100 miles) by air radius from the project site, all round-trip travel and all per diem costs incurred by the District on behalf of the Deputy Inspector who must perform on-site examination of the materials shall be borne 100% by the Contractor as an added expense. This charge

shall be subtracted from the monthly "Application for Payment" submitted to the District on behalf of the project.

K. In the event the General Contractor or any subcontractor or materialman (on or off site) voluntarily accelerates the schedule for their own purposes, and/or voluntarily performs work in excess of eight (8) hours per day, or on the weekends or holidays, the additional cost of the Inspectors' overtime premiums which are required to inspect the work during these hours shall be paid 100% by the Contractor. This charge shall also be subtracted from the monthly "Application for Payment" submitted to the District on behalf of the project.

L. In the event that the Contractor fails to complete all punch list items and turn over all "deliverables, warranties, As-builts, etc." within sixty (60) days after acceptance of completion by the Board of Education, the full salary costs of one (1) construction Project Manager (16 hours per week @ $120.00/hour) and one Inspector of record (actual hours spent @ $80.00/hour) shall be back charged to the Contractor, in addition to the liquidated damages, if any, imposed upon the Contractor for late performance. THIS PARAGRAPH WILL BE STRICTLY ENFORCED.

M. The submission of complete project record documents, as required by the specifications, is critical. A value of Thirty Thousand Dollars ($30,000.00) shall be assigned to these record documents within the Schedule of Values and will not be paid or released until the documents are approved by the Architect and turned over to the District's Administrator of Planning, Development and Facilities.

M. The intent of these contract documents is that the work of alteration, rehabilitation, or construction is to be accordance with Title 24, California Code of Regulations. Should any existing conditions such as deterioration or non complying construction be discovered which is not covered by the Contract Documents wherein the finished work will not comply with Title 24, California Code of Regulations, a change order, or a separate set of plans and specifications, detailing and specifying the required repair work shall be submitted to and approved by before proceeding with the repair work.

1.02 RELATED WORK BY DISTRICT:

A. General: All such work indicated in Contract Documents and/or specified herein.

B. Coordination:

1. Contractor shall schedule and coordinate Owner work with his work; give 5 days min. advance notice of all dates; verify that Owner work has been accomplished prior to beginning his work.

C. Owner Furnished Items or Products (IF ANY):
   1. Owner Responsibilities:
      a. Delivery of items or products to site.
      b. Schedule delivery date with supplier in accord with Contractor's schedule.
      c. Obtain installation drawings and instructions.
      d. Submit claims for transportation damages.
      e. Arrange guarantees, warranties.
      f. District will pay for permitting fees.
   2. Contractor's Responsibilities:
      a. Require permits.
      b. Schedule required delivery date for each product, and inform Owner.
      c. Promptly inspect delivered products, report damaged or defective items.
      d. Unload; handle at site, including uncrating and storage.
      e. Protect from exposure to elements, from damage.
      f. Repair or replace items damaged as result of Contractor's operations.
      g. Install, connect, finish products.

CI. The Contractor shall provide adequate storage within his fenced staging area, to store the equipment. The Contractor is solely responsible for the storage of this equipment within his staging area and all subsequent movement of this equipment. The Contractor shall be solely responsible for the maintenance and protection of all material.

CII. Bidders submitting under this Contract shall include the price for all necessary coordination with the District and the equipment manufacturer, as required for proper and complete coordination of project.

1.05 WORK BY OTHERS:

A. The District reserves the right to do other work in connection with the project or adjacent thereto by contract or otherwise, and Contractor shall at all times conduct the work so as to impose no hardship on District or others engaged in District's work nor to cause any unreasonably delay or hindrance thereto.

B. Where two or more Contractors are employed on related or adjacent work, each shall conduct their operation in such a manner as not to cause delay or additional expense to the other.

C. Contractor shall be responsible to others engaged in the related or adjacent work for all damage to work, to persons, or for loss by failure to finish the work within the specified time for completion. Contractor shall coordinate his work with the work of others so that no discrepancies shall result in the project.

PART 2 - PRODUCTS (NOT USED)

PART 3 - EXECUTION (NOT USED)

END OF SECTION

PART1 – GENERAL

1.01 SECTION INCLUDES

A. Procedures for preparation and submittal of applications for progress payments.

B. Documentation of changes in Contract Price and Contract Time.

C. Change procedures.

D. Correlation of Contractor submittals based on changes.

E. Procedures for preparation and submittal of application for final payment.

1.02 SCHEDULE OF VALUES

A. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Project Architect for approval.

B. Forms filled out by hand will not be accepted.

C. Submit Schedule of Values in duplicate within 15 days after date established in Notice to Proceed.

D. Format: Utilize the Table of Contents of this Project Manual. Identify each line item with number and title of the specification Section. Identify site mobilization and bonds and insurance.

E. Include in each line item, the amount of Allowances specified in this section.

F. Include separately from each line item, a direct proportional amount of Contractor's overhead and profit.

G. Revise schedule to list approved Change Orders, with each Application For Payment.

1.03 APPLICATIONS FOR PROGRESS PAYMENTS

A. Payment Period: Submit at intervals stipulated in the Agreement.

B. Form to be used shall be similar to: AIA G702 and Continuation Form G703.

C. Electronic media printout including equivalent information will be considered in lieu of standard form specified; submit sample to Project Architect for approval.

D. Forms filled out by hand will not be accepted.

E. For each item, provide a column for listing each of the following:
   1. Item Number.
   2. Description of work.
   3. Scheduled Values.
   4. Previous Applications.
   5. Work in Place under this Application.
   6. Authorized Change Orders.
   7. Total Completed to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

F. Execute certification by signature of authorized officer.

G. Use data from approved Schedule of Values. Provide dollar value in each column for each line item for portion of work performed.

H. List each authorized Change Order as a separate line item, listing Change Order number and dollar amount as for an original item of Work.

I. Submit three copies of each Application for Payment.

J. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 30 00.
   2. Construction progress schedule, revised and current as specified in Section 01 32 16.
   3. Current construction photographs specified in Section 01 30 00.
   4. Partial release of liens from major Subcontractors and vendors.

K. When Project Architect requires substantiating information, submit data justifying dollar amounts in question. Provide one copy of data with cover letter for each copy of submittal. Show application number and date, and line item by number and description.

1.04 MODIFICATION PROCEDURES

A. Submit name of the individual authorized to receive change documents and who will be responsible for informing others in Contractor's employ or subcontractors of changes to the Contract Documents.

B. For minor changes not involving an adjustment to the Contract Price or Contract Time, Project Architect will issue instructions directly to Contractor.

C. For other required changes, Project Architect will issue a document signed by Glendale Unified School District instructing Contractor to proceed with the change, for subsequent inclusion in a Change Order.
   1. The document will describe the required changes and will designate method of determining any change in Contract Price or Contract Time.
   2. Promptly execute the change.

D. For changes for which advance pricing is desired, Project Architect will issue a document that includes a detailed description of a proposed change with supplementary or revised drawings and specifications, a change in Contract Time for executing the change with a stipulation of any overtime work required and the period of time during which the requested price will be considered valid. Contractor shall prepare and submit a fixed price quotation within 15 calendar days.

E. Contractor may propose a change by submitting a request for change to Project Architect, describing the proposed change and its full effect on the Work, with a statement describing the reason for the change, and the effect on the Contract Price and Contract Time with full documentation and a statement describing the effect on Work by separate or other contractors. Document any requested substitutions in accordance with Section 01 60 00.

F. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.
   1. For change requested by Project Architect for work falling under a fixed price contract, the amount will be based on Contractor's price quotation.
   2. For change requested by Contractor, the amount will be based on the Contractor's request for a Change Order as approved by Project Architect.
   3. For change ordered by Project Architect without a quotation from Contractor, the amount will be determined by Project Architect based on the Contractor's substantiation of costs as specified for Time and Material work.

G. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide following data:
      a. Quantities of products, labor, and equipment.
      b. Taxes, insurance, and bonds.
      c. Overhead and profit.
      d. Justification for any change in Contract Time.
      e. Credit for deletions from Contract, similarly documented.

2. Support each claim for additional costs with additional information:
   a. Origin and date of claim.
   b. Dates and times work was performed, and by whom.
   c. Time records and wage rates paid.
   d. Invoices and receipts for products, equipment, and subcontracts, similarly documented.
3. For Time and Material work, submit itemized account and supporting data after completion of change, within time limits indicated in the Conditions of the Contract.

H. Execution of Change Orders: Project Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract.

I. After execution of Change Order, promptly revise Schedule of Values and Application for Payment forms to record each authorized Change Order as a separate line item and adjust the Contract Price.

J. Promptly revise progress schedules to reflect any change in Contract Time, revise sub-schedules to adjust times for other items of work affected by the change, and resubmit.

K. Promptly enter changes in Project Record Documents.

1.05 APPLICATION FOR FINAL PAYMENT

A. Prepare Application for Final Payment as specified for progress payments, identifying total adjusted Contract Price, previous payments, and sum remaining due.

B. Application for Final Payment will not be considered until the following have been accomplished:
   1. All closeout procedures specified in Section 01 70 00.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A PRODUCT LIST:

1. Within ten (10) working days after date of Contract, submit to the Architect five (5) copies of complete lists of all products which are proposed substitutions and those proposed as "or equal:" to products specified, and in accordance with Contract documents.
2. For products specified only by reference standards, select any product meeting standards, by any manufacturer.
3. For products specified by naming several products or manufacturers, select any products and manufacturer named.

1.02 SUBSTITUTIONS

A. Requests for substitutions shall be made only in writing on the "SUBSTITUTIONS REQUEST" form attached with all blanks completed except those reserved for the Design Consultant. All substitution requests shall be made by the Contractor.

B. In connection with the use of any substitute item approved by the Architect it shall be the Contractor's responsibility to see that such items meet all space requirements, and that any alterations to connecting items necessitated by use of the alternate items are properly made, at no increase in cost to the District.

C. In making request for substitutions, Bidder/Contractor represents that:

1. He has investigated the proposed products or method and determined that it is equal or better in all respects to that specified and that it fully complies with all requirements of the Contract Documents.
2. He will meet all contract obligations with regards to this substitution;
3. He will coordinate installation of accepted substitutions into the work, making all such changes and any required schedule adjustments, at no additional cost to the District, as may be required for the work to be completed in all respects;
4. He waives all claims for additional costs and additional time related to substitutions which consequently become apparent. He also agrees to hold the District and Architect harmless from claims for extra costs and time incurred by other subcontractors and suppliers, or additional services which may have to be performed by the Architect, for changes or extra work that may, at some time or date, be determined to be necessary in order for the work to function in the manner intended in the Contract Documents.
5. He shall provide the same warranty and guarantee, and perform any work required in accordance therewith, for the substitution that is applicable to the specified item for which the substitution is requested;

6. Material shall be installed, handled, store, adjusted, tested, and operated in accordance with the manufacturer's recommendation and as specified in the Contract Documents.
7. In all cases, new materials shall be used unless this provision is waived by written notice from the Architect or unless otherwise specified in the Contract Documents; and
8. All material and workmanship shall in every respect be in accordance with and in conformity with approved modern and accepted industry practices, and shall conform to all applicable codes, regulations, laws, ordinances, and Contract Documents.

1.03 DESIGN PROFESSIONAL OPTIONS

A. The Architect will be sole judge of acceptability of any proposed substitutions, and only approved substitutions that are accepted in writing may be used on contract work.

B. Each request for substitution approval shall include:
1. "Substitution Request" form with all required data completed, and accompanying specifications, etc., in triplicate.
2. Identity of product for which substitution is requested; include specifications page and paragraph number.
3. Identity of substitution; include complete product description, drawings, photographs, performance and test data, and any other information necessary for evaluation.
4. Quality and technical specification comparison of proposed substitution with specified products.
5. A description of changes required in other work because of substitution.
6. Effect on construction progress schedule.
7. Cost comparison of proposed substitution with specified product.
8. Any required license fees or royalties.
9. Availability of local maintenance service within a 50 mile air radius of the project.
10. Source of replacement material or spare parts; if necessary, within a 50 mile air radius of the project.

1.04 SUBSTITUTION REQUESTS DURING BIDDING PERIOD

No request for substitution approval will be considered unless written request in triplicate has been submitted on the "Substitution Request" form included herein, and has been received by the Architect at least ten (10) working days prior to bid opening date. The Architect will issue addenda prior to bid opening listing all <u>approved</u> substitutions, should there be any approved.

1.05 SUBSTITUTION REQUESTS AFTER CONTRACT AWARD

A. Approval will be granted <u>only</u> when:
1. Specified product cannot be delivered without project delay, or
2. Specified product has been discontinued, or,
3. Specified product has been replaced by superior product, or

4. Specified product cannot be guaranteed as specified, or
5. Specified product will not fit within designated space, or
6. Substitution otherwise determined by the District to be in its best interest.

B. The Contractor's request for substitution shall be accompanied by evidence documenting the reason for the substitution falls within one or more of the cases listed in A1 through A6 above.

C. A Change Order authorizing substitutions and revising Contract Sum where appropriate will be issued for approved substitutions.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

SUBSTITUTION REQUEST (in triplicate)

TO:_____

PROJECT:_____

SPECIFIED ITEM:

_____

SECTION	PAGE	PARAGRAPH	DESCRIPTION

The undersigned requests consideration for the following:

PROPOSED SUBSTITUTION: _____

STATE THE REASON(S) FOR PROPOSED SUBSTITUTION: (REASON MUST CONFORM TO ONE OR MORE CASES LISTED IN PARAGRAPH 1.05 A1 THROUGH 1.0A6.)

_____

_____

_____

Attached data includes product description, specifications, drawings, photographs, performance and test data adequate for evaluation of the request and applicable portions of the data are clearly identified.

Attached data also includes a description of changes to the Contract Documents which the proposed substitution will require for its proper installation.

The undersigned certifies that the following paragraphs, unless modified by attachments are correct:

1. The proposed substitution does not affect dimensions shown on drawings:
2 The undersigned will pay for changes to the building design, including Architect's and engineering design, detailing, and construction costs caused by the requested substitution.
3. The proposed substitution will have no adverse affect on other trades, the construction schedule or specified warranty requirements.
4. Maintenance and service parts will be locally available (<50 miles from project) for the proposed substitution.

The undersigned further states that the function, appearance, and quality of the proposed substitution are equivalent or superior to the specified item.

Submitted by:

Signature:_____

Firm: _____

Address: _____

_____

Date: _____

Telephone:_____

For use by the Architect:

☐ Accepted ☐ Accepted as noted

☐ Not Accepted ☐ Received too late

By: _____

Date: _____

Remarks: _____

_____

Attachments: _____

_____

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. Coordination of Work of Contract.

1.02 RELATED REQUIREMENTS

A. General Conditions

B. Section 013119 — Project Meetings

C. Section 013300 — Shop Drawings, Product Data and Samples

D. Section 012513 — Substitutions and Product Options

E. Section 017700 — Contract Closeout

1.03 SUBMITTALS

A. Coordination Drawings: Submit in accordance with Section 01340, as specified herein.

B. Work Plans: Submit as specified herein.

1.04 DESCRIPTION

A. Coordinate scheduling, work activities, submittals, including deferred approvals, District separate contracts and work of the various sections of Specifications in accordance with the Master Project Schedule.

B. Coordinate sequence of Work to accommodate District's separate contract and District's Occupancy as specified in Section 011100.

C. Set up control procedures so that the Master Project Schedule is adhered. Contractor's responsibility is to properly notify District's Project Manager of anticipated and actual time delays. Refer to General Conditions.

D. Coordinate the Work and do not delegate responsibility for coordination to any Subcontractor.

E. Anticipate the interrelationship of all Subcontractors, District separate contracts, and their relationship with the Work

F. Resolve differences or disputes between Subcontractors concerning coordination, OR interference of Work between SECTIONS.

1.05 NOT USED

1.06 NOT USED

1.07 COORDINATION

A. General: Work of the Contract includes coordination of the entire work of the Project, from beginning of construction activity through Project close-out and warranty periods.

B. Mechanical/Electrical Requirements of General Work: Comply with applicable requirements of Division 23 Sections for Mechanical Provisions within units of General Work, and comply with applicable requirements of Division 26 for Electrical provisions within units of General Work.

C. Service Connections: Except as otherwise indicated, final connection of mechanical services to general work is defined as being mechanical work, and final connection of electrical services to general work is defined as electrical work.

D. Coordination: The Project will require close cooperation and coordination with the school site administration, the Architectural team, District Project Manager, and Contractor and Subcontractors. The Contractor shall consider all such coordination in his work inclusive, but not limited to, scheduling and proper sequencing of the Work with subcontractors and the District school site calendar and times that work cannot be, or occupied areas of the project school site that cannot be undertaken, during the entire project. In particular, the coordination of work before District's substantial completion of each project phase, and ensuring the site administration, the Architectural team, Inspector, and District Project Manager are fully advised of his activities to complete the Work in accordance with the Master Project Schedule.

E. Coordination/Engineering Drawings:
   1. Contractor shall prepare and submit complete 1/4 " = 1'0" coordination drawings, Including plans, sections, details, etc., indicating the complete layout and all mechanical and electrical materials and equipment in all areas and within the ceiling spaces for new and existing conditions, including bottom of duct, pipe, conduit and elevations to allow District Architectural team to review with other Prime Trade Contractors' work that Contractor ensures will be coordinated properly.
   2. Mechanical, plumbing and electrical Prime Trade Contractors shall be responsible for providing all vertical sections through floors showing structural physical restraints, architectural restraints, plenum spaces and all other physical obstructions that may affect work.
   3. Electronic reproduction or photo reproduction of the project's Architectural, Structural, or MEP drawings will not be acceptable.

G. Mechanical, plumbing and electrical Prime Trade Contractors shall prepare a 1/4" sleeving layout indicating size and location of sleeves. Provide copies to applicable trades and District Architectural team.

H. Coordination/Engineering Drawings: These drawings are for the Contractor's and District's Representative's use during construction and shall not be construed as replacing any shop drawings, "as-built", or Record Drawings required elsewhere in these Contract Documents.

I. Debris Removal and Material Access: An area will be designated for debris removal and material access as agreed by the Contractor and Architectural team at the school site.

1.08 EQUIPMENT COORDINATION

A. Equipment Coordination: With respect to mechanical and electrical features of Contractor and/or District supplied equipment, complete data must be exchanged directly between the Contractor and those vendors and subcontractors involved as the progress of the Project requires. The person requesting the information shall advise when it will be required.

B. The Prime Trade Contractor's for casework and equipment are expressly required to provide large scale layout drawings for casework and equipment showing the required rough-in locations of all services (dimensioned from building features) service characteristics, and locations of studs where the location is critical to mounting or otherwise installing equipment and casework. Furnish sizes and spacing required for Mechanical and Electrical cutouts, and a complete brochure of fittings, sinks, outlets, or other information to provide complete data on the items and accessories being furnished.

C. In the event of incorrect, incomplete, delayed or improperly identified information, the entity causing the delay or error shall be responsible and pay for any modifications or replacements necessary to provide a correct, proper and new installation, including relocations required.

1.09 MEETINGS

A. In addition to progress meetings specified in Section 013119, attend coordination meetings and pre-installation conferences with requisite personnel to assure coordination of Work when scheduled with the Architectural, Engineer, Inspector, or Project Manager.

1.10 COORDINATION OF SUBMITTALS

A. Schedule and coordinate submittals as required and as specified in Section 013300.

B. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such materials and equipment.

C. Coordinate requests for substitutions to assure compatibility of space, of operating elements, and effect on work of other sections.

D. Prime Trade Contractors shall submit the following drawings for review and approval (if applicable):
   1. Fire Protection Drawings: Refer to Division 21.
   2. Fire Alarm System: Refer to Division 26.

1.11 COORDINATION OF SPACE

A. Mechanical, plumbing and electrical Prime Trade Contractors shall 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 practicable, 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.

C. Off-Site Fabrication: Off-site fabrication is encouraged as much as possible and deliveries scheduled so materials and equipment can be installed immediately after delivery. The Contractors shall alert and advise materialmen of the need to hold deliveries until they are notified the materials are required on the site.

1.12 ELECTRICAL COORDINATION

A. Provide supervision, communications, and coordination necessary to meet the requirements of electrical power connection as set forth by the designated power company (e.g. Glendale Water and Power; SoCal Edison).

B. Provide reasonable and convenient staging and access areas near buildings to permit the respective Utility or its vendors or subcontractors, to install, modify or remove equipment and other components of the electrical power system furnished and installed by the designated power company.

1.13 COORDINATION OF CONTRACT CLOSEOUT

A. Coordinate completion and cleanup of work of separate sections in preparation of District school site occupancy with approval of final cleanup by the Inspector and Project Manager.

B. After District occupancy of premises, coordinate access to site by various sections for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of District/school activities.

C. Assemble and coordinate closeout submittals specified in Section 017700.

1.14 NOT USED

1.15 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. The Drawings show, if applicable, existing above and below grade structures, drainage lines, storm drains, sewers, water, gas, electrical, hot water, and other utilities which are known to the District.

B. Locate all known existing installations before proceeding with construction operations which may cause damage to such installations. Existing installations shall be kept in service where possible and damage to them shall be repaired with no adjustment of Contract Sum. District archives as-built drawings, and Contractor shall be responsible to request to view any and all drawings for the areas that may be affected in the construction before the work begins.

C. If any unforeseen structures or utilities are encountered, request District's Architectural Team to provide direction on how to proceed with the Work.

D. If any structure or utility is damaged, take appropriate action to ensure the safety of persons and property and report the same to the District's Architectural Team, and begin immediate remediation of any safety-related condition.

PART 2 — PRODUCTS - NOT USED.

PART 3 — EXECUTION - NOT USED

END OF SECTION

PART 1-GENERAL

1.01 SUMMARY

A. Work Included in this Section:

1. The Contractor's participation in preconstruction conference, application for payment, and guarantees, bonds, service and maintenance contracts review meetings.
2. The Contractor's administration and participation in project weekly progress meetings, pre-installation conferences and other meetings, as necessary.

1.02 PRE-CONSTRUCTION CONFERENCE

A. Prior to commencement of Work, attend a pre-construction conference at time and a place selected by the School District to discuss procedures to be followed during the course of the work.

B. The purpose of the conference is to introduce the Project with the Architectural Team, the Inspector, the Construction/Project Managers, and the School's Representative key personnel, to review the contract provisions, project procedures, and other items pertaining to the Project; distribute documents including sample forms referenced in the Contract Documents; answer any questions related to construction contract administration; and establish schedule and procedures for future meetings. (This meeting is NOT to discuss any construction related specific specifications and drawings, nor address any requests for substitutions, etc.)

C. Attending shall be:

1. District Representatives from Planning, Development and Facilities, Facility and Support Operations, and/or the Business Office.
2. School Site Representatives, including the Construction Liaison
3. The Project Inspector of Record
4. The Architect of Record, and Architect's Construction Architect
5. The Engineering Consultants
6. The Contractor's Contracts Representative/Project Manager
7. The Contractor's on Site Representative/Superintendent
8. Representatives of the major subcontractors, as necessary

1.03 CONSTRUCTION PROGRESS MEETINGS

A. During the course of construction, progress meetings will be held to discuss and resolve field problems.

B. Meeting Schedule: At maximum one-week intervals or more often when required by the Architect/Inspector and/or Project Manager.

C. Meeting Location: As designated by the District's Project Manager, in conjunction with the School Site liaison.

D. Attending shall be:
1. The District's Representative from Planning, Development and Facilities, Facility and Support Operations, and/or the Business Office.
2. The Project Inspector of Record
3. The Architect's Construction Architect
4. The Engineering Consultants as appropriate to the Meeting Minute format, and as agreed upon by the Contractor and the Project Manager beforehand
5. The Contractor's On-Site Superintendent
6. The Contractor's Representative/Project Manager
7. Representatives of subcontractors/major suppliers as appropriate to a specific item of the Meeting Minute format, and at the time the specific item is reflected on the Meeting Minutes.
8. Others as appropriate to the Meeting Minute format and as agreed upon by the Contractor and the Project Manager beforehand.

NOTE: Representatives of the Contractor, subcontractors and suppliers attending Construction Progress Meetings shall be qualified and authorized to act on behalf of the entity each represents.

F. Suggested Agenda:
1. Review and approve minutes of previous meeting.
2. Review of work progress since previous meeting.
3. Review of upcoming work to take place in project schedule.
4. Discuss School Site concerns with regard to safety, paths of travel, and any upcoming events that may affect the work schedule.
5. Discuss field observations, problems, and decisions, affecting the work.
6. Review submittals schedule and status of submittals.
7. Review status of proposed substitutions, if any.
8. Review off-site fabrication and delivery schedules.
9. Review maintenance of progress schedule.
10. Agree on corrective measures to regain projected schedules, as necessary.
11. Review planned progress during succeeding work period.
12. Review coordination of projected progress.
13. Review maintenance of quality and work standards.
14. Review project safety of workers and practices.
15. Review any Inspector of Record Field Notices, or Deviations logs.
16. Other items relating to the Work.

G. The Architect, in coordination with the Project Manager, will make physical arrangements for project meetings, and the Architect shall prepare agenda, preside at meetings, record minutes, and distribute electronic draft copies of Minutes within three working days after Construction Project Meetings to the Project Manager, Inspector, conference participants and those affected by the decisions made at the conference. The Architect will record in the minutes significant discussions and agreements and disagreements.

1.04 PRE-INSTALLATION CONFERENCES

A. The Architect/Inspector may conduct a pre-installation conference at the site before each construction activity that the Architect/Inspector deems requires coordination with other construction or when required by the Construction documents.

B. Attendance will be required of parties directly affecting, or affected by, or involved in the installation, and its coordination or integration with other materials and installations that have preceded or will follow the particular item of work or activity under consideration. Parties attending the conference shall be qualified and authorized to act on behalf of entity each represents.

C. Conference Schedule: Schedule conference to assure a sufficient amount of time prior to the scheduled work or activity under consideration so that any concerns, problems or disagreements can be resolved without delaying the Project.

D. The Architect, on conjunction with the Inspector, will make physical arrangements for conferences, prepare the agenda, preside at conferences, record minutes, and distribute copies within two working days after a conference to the Project Manager, Inspector, conference participants and those affected by the decisions made at the conference. The Architect will record in the progress meeting minutes significant discussions and agreements and disagreements as takes place in pre-installation conferences.

E. Suggested Agenda: Review the progress of other construction activities and preparations for the particular activity under consideration, including requirements for:
   1. Contract Documents
   2. Options
   3. Related Change Orders
   4. Purchases
   5. Deliveries
   6. Shop Drawings, Product Data and quality control Samples
   7. Possible conflicts
   8. Compatibility problems

9. Time Schedules
10. Weather limitations
11. Manufacturer's recommendations
12. Compatibility of materials
13. Acceptability of substrates
14. Temporary facilities
15. Space and access limitations
16. Governing regulations
17. Safety
18. Inspection and testing requirements
19. Required performance results
20. Recording requirements
21. Protection

F. Do not proceed with the work or activity if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of work and reconvene the conference at the earliest feasible date.

1.05 OTHER REQUIRED MEETINGS

A. Project Closeout Meeting:
1. Thirty (30) days prior to the estimated substantial completion the project/phase, the Architect, Inspector, and Project will coordinate a meeting to review required construction maintenance manuals, guarantees, closeout submittals, bonds, and service contracts for materials and equipment; review and implement repair and replacement of defective items, and extend service and maintenance contracts, and schedule site training for all equipment.
2. Attending shall be:
a. The District's Representative of Planning, Development and Facilities, Facility and Support Operations, and/or Business Office
b. The Project Inspector
c. The Construction/Project Manager
d. The Engineering Consultants, as appropriate
e. The Contractor's on-site Superintendent
f. Subcontractors, as appropriate
g. Suppliers, as appropriate
h. Others, as appropriate

B. Guarantees, Bonds, and Service and Maintenance Review Meeting:
1. Eleven months following the date of Substantial Completion, the District Project Manager will convene a meeting for the purpose of reviewing the guarantees, bonds, and service and maintenance contracts for materials and equipment.

2. Attending shall be:
   a. The District's Representative
   b. The Architect
   c. The Engineering Consultants, as appropriate
   d. The Contractor's Representative
   e. Subcontractors and Suppliers, only as appropriate
   f. Others as appropriate

1.06 PRIME TRADE CONTRACTOR MEETINGS

A. Construction Progress Meetings:
   1. To be held at maximum one-week intervals or more often when required by the Architect/Inspector/Construction Project Manager.
   2. Meeting Location: Contractor Jobsite trailer
   3. All Prime Trade Contractors shall attend in order to review progress of work, and submit any questions or requests to the Contractor in order to ensure coordination of installations during the work schedule.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Procedures to be followed by Contractor upon discovery of any apparent conflicts, omissions, or errors in Contract Documents or upon having any question concerning interpretation.

1.02 PROCEDURES

A. Notification by Contractor:
   1. Submit all requests for clarification and additional information in writing to Project Architect using the Request for Information (RFI) form provided by Project Architect or a similar form approved by Project Architect.
   2. RFI received directly from a subcontractor will be returned unprocessed to the Contractor.
   3. Number RFIs sequentially. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI would be "001". The second RFI would be "002". The first resubmittal of RFI "002" would be "002a".
   4. Limit each RFI to one issue on one subject and to no more than five questions.
   5. Submit RFIs if one of the following conditions occur:
      a. Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.
      b. Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.
      c. Contractor discovers what appears to be an omission from the Contract Documents that cannot be reasonably inferred from the intent of the Contract Documents.
      d. RFIs will not be recognized or accepted if, in the opinion of Project Architect, one of the following conditions exist:
         1) Contractor submits the RFI as a request for substitution.
         2) Contractor submits the RFI as a submittal.
         3) Contractor submits the RFI under the pretense of a Contract Documents discrepancy or omission without thorough review of the Documents.
         4) Contractor submits the RFI in a manner that suggest that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.
         5) Contractor submits an RFI in an untimely manner without proper coordination and scheduling of work or related trades.
         6) Contractor submits and RFI that does not conform to Paragraph 1.02.A.4.

e. Ask for any clarification or request for information immediately upon discovery.
Submit RFIs in a reasonable time frame so as not to affect the project schedule while allowing the full response time described below.
f. RFIs shall carry the following information:
1) Applicable specification section, article, and paragraph numbers.
2) Drawing number and detail references as needed

B. Response Time:
1. Project Architect, whose decision will be final and conclusive, shall resolve such questions and issue instructions to Contractor within a reasonable time frame. In most cases, RFIs will receive a response within 7 calendar days. In some cases this time may need to be lengthened for complex issues, or shortened for emergency situations, as mutually agreed by all parties.
2. Should Contractor proceed with the work affected before receipt of a response from Project Architect, within the response time described above, any portion of the work which is not done in accordance with Project Architect's interpretations, clarifications, instructions, or decisions is subject to removal or replacement and Contractor shall be responsible for all resultant losses.
3. Additional Detailed Instructions:
a. Project Architect may furnish additional detailed, written instructions to further explain the work and such instructions shall be a part of Contract Documents. Should additional detailed instructions in the opinion of Contractor constitute work in excess of the scope of Contract, Contractor shall submit written notification thereof to Project Architect within seven calendar days following receipt of such instruction, and in any event prior to the commencement of work thereon. Project Architect will then consider such notice and if Project Architect considered it justified, Project Architect's instructions will be revised, or an extra work authorization will be issued.
b. Contractor has no claim for additional compensation or extension of the schedule because of any such additional instructions unless Contractor gives Project Architect written notice thereof within the time frame as specified above.

C. Prepare and maintain an RFI log. Update on a weekly basis. Log RFI number, brief description of content or subject discussed, date submitted, and date answered. Keep log current and furnish copy when so requested by the Project Architect.; when records are kept on line, keep RFI log accessible to all concerned.

D. Failure to Agree: In the event of failure to agree as to the scope of Contract requirements, Contractor shall follow procedures set forth in the disputes clause.

PART 2 – PRODUCTS - NOT USED.

PART 3 – EXECUTION - NOT USED.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Coordinate both the listing and timing of reports and other activities required by provisions of this and other Sections, so as to provide consistency and logical coordination between the reports. Maintain coordination and correlation between separate reports by updating at monthly or shorter time intervals. Make monthly distribution of the progress schedule and update to all parties involved in the work including the Architect, Inspector, and Project Manager, along with the Request/Application for Payment. In particular provide definition and coordination of the progress schedule, with phases, changes, schedule of values, funding sources and progress reports.

B. CPM Schedule: Secure critical time commitments for performing major elements of the work of no longer than 60-day increments. Within 30 days after the Notice to Proceed, submit a comprehensive CPM chart progress schedule indicating, by stage-coded symbols, milestones for each major specification section, category, or unit of work to be performed; include minor elements of work, which are, nevertheless, involved in overall sequencing of the work. Include dates for completion of each phase of work. Arrange schedule to show graphically the major sequences of work necessary for the completion of related elements of work. Arrange the schedule to allow for the Architect's review of submittals as well as procedure for certification of substantial completion. Prepare and maintain the schedule on a sheet of sufficient width (or a series of sheets) to show the required data clearly for the entire construction time. Prepare the schedule on sheets of stable transparency, or other reproducible material, to permit reproduction for the required distribution.

C. Daily Reports: Prepare a daily report, recording the following information concerning events at the site; make available to the Inspector for on-site review and submit duplicate copies to the Inspector and Architect upon request:
   1. List of Contractor personnel at the site
   2. List of Subcontractors at the site
   3. Accurate Count of personnel at the site by trade, and Subcontractor
   4. Material and Equipment Deliveries
   5. High/low temperatures, and general weather conditions.
   6. Accidents or injuries.
   7. Meetings and significant decisions.
   8. Unusual events.
   9. Stoppages, delays, shortages, losses.
   10. Emergency procedures, field orders.
   11. Orders/requests by governing authorities, signed.
   12. Services connected, disconnected.
   13. Equipment or system tests and start-ups.
   14. Partial completions, occupancies.
   15. Substantial completion requested.

16. Substantial completion authorized.
17. Requests for Inspections

D. Progress Reports: Contractor shall submit "Verified Reports", on prescribed form, of construction per requirements of Title 24, CCR.

PART 2 - PRODUCTS - NOT APPLICABLE

PART 3 - EXECUTION - NOT APPLICABLE

END OF SECTION

PART1 - GENERAL

1.01 SECTION INCLUDES

A. Procedures for submitting the following types of submittals.
   1. Shop Drawings.
   2. Product Data.
   3. Samples.
   4. Calculations.
   5. Certificates of Compliance.
   6. Manufacturer's Instructions.
   7. Deferred Approval.
   8. HPI submittals (if applicable).

B. Related Work Not Included in this Section:
   1. Specific section reference requiring submittal. Make submittals only where specifically required.
   2. Requirements of other types of submittals including but not necessarily limited to, test reports, operating instructions, maintenance data, and maintenance materials.
   3. Specific requirement for Commissioning Submittals, See the Commissioning Section in Division One for requirements.

1.02 GENERAL REQUIREMENTS

A. Submittals, except for deferred approvals, are not Contract Documents and do not become Contract Documents by virtue of their submission, review, and stamping by Project Architect.

1.03 SUBMISSION REQUIREMENTS

A. Make submittal promptly in accordance with the Submittal Schedule and in such sequence as to cause no delay in the Work or in the work of any separate contractor.

B. Make submittals to Project Architect or to an individual designated by Project Architect.

C. Contractor's failure to indicate approval on submittal prior to submission to Project Architect will result in their being returned to Contractor without being acted upon.

D. No delays in construction occasioned by Contractor's failure to submit material for approval in accordance with the Submittal Schedule will be excused.

E. Package each submittal appropriately for transmittal and handling.

F. Number and type of copies to be submitted, distributed, and returned will be as stated herein, unless otherwise specified in technical Specification Sections.

G. Submittal of information not required as a submittal, or covering work for which the submittal has been returned as "approved" or "approved as noted", will be returned without review.

H. Approval of a separate material, product, or component does not imply approval of assembly in which the item functions.

I. Incomplete submittals will be returned without review.

J. Submittal received from sources other than Contractor will be returned without action.

K. Submit complete submittals for each portion of the work; submit components of the work interrelated as a system at the same time.

L. When submittal acceptability is dependent on conditions, items, or materials included in separate subsequent submittals, the submittal will be returned without review.

M. Transmittal:
   1. Transmit each submittal with Project Architect accepted form containing the following information.
      a. Submittal number.
      b. Submittal date.
      c. Project name.
      d. Project Architect's Project Number.
      e. Project Architect's name.
      f. Contractor's name.
      g. Subcontractor's name and address.
      h. Applicable Specification Section, Article, and Paragraph number.
      i. Drawing number and detail references, as appropriate.
      j. Quantity and type of submittals.
      k. Listing of documents and components that comprise the submittal.
      l. Date submittal is requested back from Project Architect.
      m. Distribution record (for both transmittal and submittals).
      n. Notice of any deviations from the Contract Documents contained in the submittal. Supply on separate sheets of Contractor's letterhead.
      o. Contractor's certification that the information complies with Contract Document requirements.
      p. Signature of transmitter.
      q. Any other pertinent information, including HPI material buy-out forms and back-up documentation for HPI related materials.

r. Sequentially number transmittal forms. Mark revised or resubmitted submittals with original number and sequential alphabetic suffix.
s. Incomplete transmittal forms are unacceptable and the entire submittal will be returned to Contractor without review at Project Architect's discretion.

N. Submittal Identification: Place a permanent label or title block on each document or component of each submittal for identification. Mark each copy of each submittal identically. Include the following information in label or title block.
1. Submittal/transmittal number.
2. Project name.
3. Project number.
4. Contractor's name.
5. Subcontractor's name.
6. Completely identify Samples with manufacturer's name and model number, material name and source, or similar information.
7. Provide space for Contractor's and Project Architect's review stamps.

0. Resubmittals:
1. If a submittal is returned for correction or is not satisfactory and is disapproved by Project Architect, resubmit the corrected material in the same quantity, including reproducibles, as specified for the original submittals.
2. Make resubmittal within 14 calendar days after receipt by Contractor of the disapproved material.
3. If the same document is used for resubmittal, clear identify revised portions of the document by clouding.
4. Keep each resubmittal intact and do not add new drawings, materials, or information outside the scope of the original submittal, except to answer Project Architect's comments.

1.04 CONTRACTOR'S RESPONSIBILITIES

A. It shall be the responsibility of Contractor to obtain Project Architect's approval of required submittals prior to initiating work represented. It is imperative that Contractor allow a minimum of fifteen (15) calendar days for submittals that require the review of Architect and Engineer(s) of Record.

B. Maintain a log of submittals showing the submittal number, the name of the Subcontractor making the submittal (where applicable), date submitted, date received, and action by Project Architect. Submit current copy of submittal log each month with Application for Payment.

C. Provide the following where applicable:
   1. Field measurements.
   2. Field construction criteria.
   3. Catalog numbers and similar data.
   4. Relation to adjacent structure or materials.
   5. Field dimensions, clearly identified as such.
   6. Notes identifying deviations from the Contract documents.

D. Prior to sending submittals to Project Architect, Contractor is to review them for:
   1. Submittal completeness and accuracy including dimensions.
   2. Compliance with requirements of Contract Documents.
   3. Compatibility with other submittals, shop drawings, substitutions and work of other trades.
   4. Coordination with existing job conditions.
   5. Field verification of dimensions.

E. Apply Contractor's stamp to each document and component of each submittal certifying that review, verification of Products required, field dimensions, adjacent construction Work, and coordination of information, is in accordance with the requirements of Work and Contract Documents.
   1. Stamp all drawings with submittal number.
   2. Contractor to wet sign first page of bound sets including shop drawings.
   3. The person signing the stamp shall be one designated in writing by Contractor as having that authority.
   4. Signature shall be in original ink. Stamped signature is not acceptable.

F. Notify Project Architect in writing, at the time of submission, of deviations in submittals from the requirements of the Contract Documents.
   1. Contractor's responsibility for deviations in submittals shall not be relieved by Project Architect's review of the submittals, unless Project Architect gives written acceptance of specific deviations clearly identified by Contractor by clouding and the words "CONTRACT DEVIATION" and "SUBSTITUTION" in bold face print.
   2. When submittal is revised for resubmission, identify changes made since previous submittal.

G. Contractor's responsibility for errors and omissions in the submittals shall not be relieved by Project Architect's review.

H. Be responsible for the accuracy of the submittals and for the proper fitting, verification of dimension, construction of the work, furnishing of materials, and work required by the Contract Documents but not indicated on the submittals.

I. Submission of Shop Drawings, Product Data, Calculations, or other submittals in either original submission or when resubmitted with corrections, constitutes evidence that Contractor has checked all information, thereon, and that it accepts and is willing to perform the work as shown, in a workmanlike manner, and in accordance with the best standard practice.

J. Do not submit Shop Drawings, Product Data, or Samples for products that have not been specified unless such products have been formally reviewed as a substitute in accordance with Section 01 60 00- Product Requirements.

K. Do not allow copies of submittals without Project Architect's stamp indicating reviewed by Project Architect to be used in connection with the Work. Do not permit submittals marked "Rejected" or "Revise and Resubmit" to be used at the Project site, or elsewhere where work is in progress.

L. Do not proceed with fabrication or installation of materials, products or systems until final approved submittals are in the possession of the fabricator or installer as appropriate.

M. Prepare and distribute additional sets of reviewed submittals to subcontractors, manufacturers, fabricators, suppliers, erectors, installers, and others as required for performance of the Work. Instruct parties to promptly report inability to comply with requirements.

N. Maintain one set of each submittal at the project site, available for reference.

O. Maintain one set of reviewed submittals for Record Documents as described in Section 01 78 00 – Closeout Submittals.

1.05 ARCHITECT'S RESPONSIBILITIES

A. Project Architect will review submittals with reasonable promptness and in accordance with the Submittal Schedule.

B. Project Architect will only review submittals for general conformance to the design concept and Contract Documents.

C. Do not construe Project Architect's review of relieving Contractor of its responsibility for:
   1. Errors in details, dimensions or quantities.
   2. Departures from additional details or instructions previously furnished by Project Architect.
   3. Integrating and coordinating various trades and separate contracts.
   4. Any violation indicated on such submittals, of State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or public utilities having jurisdiction.

5. Quantity, fit, and dimensions.
6. Full compliance with the Contract Documents.

D. Project Architect shall reject the following submittals:
1. Which do not show evidence of being reviewed and approved by Contractor.
2. Which are incomplete or lack sufficient information.
3. Which are for products or materials that have not been specified unless such products and materials have been formally reviewed as substitutes in accordance with Substitution Section.
4. Withhold action on a submittal requiring coordination with other submittals until related submittals are received.
5. Return without reviewing submittals with multiple items and no clear indication as to which item is to be used in the Work.
6. Resubmittals that do not clearly indicate where revisions have been made to the provisions submittal.

E. Return without reviewing submittals with multiple items and no clear indication as to which item is to be used in the Work.

F. Project Architect will withhold action on a submittal requiring coordination with other submittals until related submittals are received.

G. Project Architect's review is only for items to be furnished by the submitting subcontractor or supplier and does not constitute approval of any assemblage of which the submitted item is a component or approval of construction sequence or method.

H. Project Architect will return without actions submittals not requested or required by Contract Documents or Project Architect.

I. Architect's Actions:
1. Where action and return is required, Project Architect will review Contractor's submittals, apply Project Architect's action stamp and indicate action, sign, and date.
2. The terms of Project Architect's action stamp have the following meaning:
a. "REVIEWED" -- indicates that Project Architect takes no specific exception to the information contained in the submittal; Contractor may proceed with that portion of the Work described in the submittal -- subject to compliance with all applicable requirements of the Contract Documents.

b. "REVIEWED AS NOTED"-- indicates that Project Architect approves the submittal for general design conformance with the specific exceptions noted; Contractor may proceed with that portion of the Work provided that the notations made by Project Architect are incorporated in the work-- and subject to compliance with all applicable requirements of the Contract Documents.
c. "REVISE AND RESUBMIT"-- indicates that Project Architect has noted nonconforming work on the submittal, and/or desires clarification on some aspects of the submittal; the Contractor must make revisions and resubmit. Contractor may not proceed with the work described in the submittal.
d. "REJECTED"-- indicates that Project Architect believes the submittal contains significant error or non conformance and is, therefore, rejected. A new submittal is required. Contractor may not proceed with that portion of the Work described by the submittal.
e. Where a submittal does not require Project Architect's action, the submittal will be returned, marked "Action Not Required" or "Not Reviewed".

J. Project Architect will retain one copy of each submittal for Project Architect's file and one copy for each major consultant who has reviewed the submittal, unless otherwise noted.

K. When appropriate Project Architect will return submittals to Contractor for distribution, or for resubmission.

1.06 SUBMITTALS

A. Shop Drawings:
1. Shop Drawings facilitate integration, coordination, and progress of the Work.
2. Shop Drawings include fabrication, erection, and installation drawings, setting diagrams, schedules, patterns, templates, and similar drawings.
3. Shop Drawings include specially-prepared technical data for this Project, including drawings, diagrams, performance curves, data sheets, schedules, templates, patterns, reports, calculations, instructions, measurements, and similar information not in standard printed form for general application to a range of similar projects. Shop Drawings shall be prepared by Contractor or through Contractor by way of a subcontractor, manufacturer, supplier, distributor, or other lower tier contractor, to illustrate a portion of the work.
4. Submit shop drawings when specified and to illustrate every custom fabricated item or assembly.

5. Preparation:
   a. Provide newly prepared information with graphic information at accurate scale, except as otherwise noted. Do not reproduce Contract Documents and do not copy standard information as basis of Shop Drawings. Standard information prepared without specific reference to the project is not considered Shop Drawings.
   b. Contractor may request electronic files versions of specific drawings from Project Architect to assist in the preparation of Shop Drawings. The Contract is to remove the Title Block including all references to Project Architect and their consultants. Contractor will be liable for information contained on Shop Drawings developed using electronic files provided by Project Architect. The format of electronic files will be AUTOCAD drawings
   c. Include plans, sections, and details complete with information for making connections with other work and any other information necessary to adequately describe the unit of Work.
   d. Identify materials, products, and finishes and, where applicable, use specification section numbers as reference.
   e. Identify details by reference to Contract Drawings drawing and detail, schedule, or room numbers shown or specified.
   f. Use same equipment, fixture, or item reference used in the Contract Documents.
   g. Identify applicable standards.
   h. Identify coordination requirements.
   i. Dimension drawings, except diagrams and schematic drawings, and indicate which are based on field measurement. Prepare dimensioned drawings to scale..
   j. Identify deviations from the Contract Documents by clouding and the words "CONTRACT DEVIATION" in boldface type or lettering.
   k. Shop Drawings shall be not less than 8-1/2 by 11 inches or more than 30 by 42 inches, unless approved in advance by Project Architect.
   l. Where coordination requirements necessitate scope of Shop Drawing to include more than one item, label Shop Drawing with specification section number of dominant trade involved. "Dominant" shall be defined as greatest quantity, greatest cost, or principal detail subject of drawing, whichever may be appropriate.
   m. Draw Shop Drawings at large scale, fully detailed and with all materials and stock or purchased components fully identified.
   n. Submission:
      1} For Shop Drawings presented on sheets larger than 11 inches by 17 inches, submit three opaque reproductions of each required shop drawing prepared for this project. Shop drawings can be no larger than 30 x 42 inches without prior of approval of Project Architect.

(a} Include on each drawing the drawing title, number, date, and revision numbers and dates, in addition to the information required in the paragraph entitled "Submittals Identification".
(b} Each drawing shall have clear space of approximately 4 by 10 inches to receive review stamps.
(c) One copy of reviewed Shop Drawings will be returned to Contractor.

2} For shop drawings presented on sheets 11 inches by 17 inches or less, conform to the format and quantity requirements for Product Data.

B. Coordination Drawings:
1. Prepare separate composite, detailed coordination drawings consisting of plans, elevations, and sections as required to clearly delineate and show relationship between utilities, mechanical, and electrical work.
2. Include and show due consideration for utilities, architectural elements, and structural elements (including excavations and shoring, utility vaults, manholes, and foundations for permanent and temporary construction) and identify potential interface trouble spots.
3. Individual drawings for single element will not be accepted or reviewed unless and until coordination drawings have been previously reviewed and accepted.
4. Purpose for coordination drawings is to determine, for mutual benefit of all concerned, precedence of trade work and allocation of available physical space for installation of trade work.
5. Coordination drawings are not to be construed to be shop drawings or as a replacement for shop drawings.
6. Generate and submit coordination drawings in timely manner and in support of Contract Schedule.

C. Product Data:
1. Product Data includes standard preprinted information on materials, products, equipment, and systems; not specially prepared for this Project, other than the designation of selections from among available choices printed therein.
2. Product Data permits Project Architect to determine which materials, products, and systems will be accepted in the project.
3. Where Product Data must be specially prepared because standard printed data is not suitable for use, submit as "Shop Drawings".
4. Preparation:
a. Collect required data into one coordinated submittal for each unit of work, element of construction or system.

b. Mark the manufacturer's brochures and catalog data to clearly indicate the items to be included as a part of the work. Product Data submitted with multiple items and no clear indication as to which item is to be used in the work will be returned to Contractor without being reviewed.
c. Mark all submittals indicating item, options, and finishes proposed, and referencing technical Specification Section and paragraph covering the work in question.
d. Use same equipment, fixture, or item reference used in the Contract Documents.
e. Include the following as appropriate:
    1) Manufacturer's standard printed recommendations for application, installation and use. Supplement standard information to provide additional information applicable to the Project.
    2) Physical dimensions and clearances required. Indicate field dimensions that have been checked and verified.
    3) Performance characteristics, limitations and capacities.
    4) Structural, mechanical and electrical engineering information.
    5) Conformance with applicable standards, codes, fire ratings and acoustical ratings.
    6) Test data.
    7) Appearance characteristics.
    8) Samples of color and finishes.
    9) Identify coordination requirements.
    10) Manufacturer's standard schematic drawings and diagrams:
        (a) Modify the drawings and other diagrams to delete information that is not applicable to the Work.
        (b) Supplement standard information to provide information specifically applicable to the Work.
    11) Identify deviations from the Contract Documents by clouding and the words "CONTRACT DEVIATION" in bold face print.
    12) Identify each document with information required in the paragraph entitled "Submittal Identification".
    13) Statements such as "as specified" will not suffice.
f. Submittal:
    1) Submit six copies of Product Data.
    2) Heat transfer or other impermanent reproduction method or fading type of reproduction will not be accepted.
    3) Three copies of reviewed Product Data will be returned to Contractor.

D. Samples:
   1. Samples include both fabricated and unfabricated physical examples of products, materials, products equipment, fixtures, devices, assemblies, or workmanship, physically identical to a portion of the Work, illustrating a portion of the Work or establishing standards for evaluating the appearance of the finished Work or both or (where indicated) for more detailed testing and analysis. Mock-ups are a special form of samples, which are too large or otherwise inconvenient for handling in specified manner for transmittal of sample submittals.
   2. Review of Samples shall permit Project Architect to physically verify conformance of materials, products, fixtures, devices, assemblies, or workmanship with Contract Documents either by inspection or testing, and to select textures, colors, or other characteristics as stipulated in the Contract Documents.
      a. Review of Samples will be only for characteristics or uses named in such review and shall not be taken to change or modify any contract requirement except as specifically authorized or requested by Project Architect.
      b. Samples shall set standards for items or characteristics of which Samples are representative.
      c. After a sample has been accepted, no change in brand, manufacturer, or quality will be permitted unless satisfactory written evidence is presented to, and accepted by, Project Architect that the manufacturer cannot make scheduled delivery of the accepted material, or that the material delivered has been rejected and substitution of suitable materials is an urgent necessity.
      d. Refer to technical Specification Sections for additional requirements of samples, if any, which are intended for examinations or testing for other characteristics.
      e. Format and Quantity of Samples
         1) Furnish samples in the sizes below, unless otherwise specified or unless the manufacturer has prepackaged samples of approximately the same size as specified:
            (a) Sample of equipment or device: Full size.
            (b) Sample of materials less than 2 by 3 inches: Attach to an 8-1/2 by 11 inch sheet.
            (c) Sample of materials exceeding 8-1/2 by 11 inches: Cut down to 8-1/2 by 11 inches as appropriate to indicate color, texture, and material variations unless directed by individual Section to submit larger size.
            (d) Sample of linear devices or materials, such as, conduit and handrails: 12-inch length or length to be supplied, if less than 12 inches.
            (e) Sample of non-solid materials, such as, sand and paint: Pint.
            (f) Color selection samples: 2 inches by 4 inches.
            (g) Sample panel: 4 feet by 4 feet.

(h) Sample installation: 100 square feet.
(i) Sizes of samples shall be of their respective standard unit, insofar as possible or practical, unless otherwise noted.
j) Refer to Section 09 90 00 – Paint for paint color sample requirements.

2) Samples showing range of variation: Where variations are unavoidable due to the nature of the materials, submit sets of samples of not less than three units showing the extremes and middle of the range.
3) Where. Samples are for selecting of color, pattern, texture, or similar characteristics from a range of standard choices, submit a full set of choices for the material or product.
4) Quantity, unless otherwise specified:
(a) Submit three samples, or three sets of samples showing range of variation, of each required item. Project Architect will retain one approved sample or set of samples and two will be returned to Contractor.
(b) Submit one sample panel. Include components listed in technical Specification Section or as directed.
(c) Submit one sample installation, where directed. (d) Submit one sample of non-solid materials.
5) Mount, display, or package samples in the manner specified to facilitate review of qualities indicated.
6) When a color, texture, or pattern is specified in naming a particular manufacturer and style, include one sample of that manufacturer and style, for comparison.
7) Identify each Sample with information required by the paragraph entitled "Submittal Identification". Also, include information with each Sample to show generic description, source or product name and manufacturer, limitations, and compliance with standards.
8) Refer to technical Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.

f. Requirements for Mock-Ups and Field Samples:
1) Mock-ups and similar field samples specified in technical Specifications Sections are recognized as a special type of Sample. Comply with requirements for "samples" to greatest extent possible, and process transmittal forms to provide a record of activity.
2) Erect at site in locations acceptable to Project Architect.
3) Construct each mock-up or field sample; include all items required in the finish work.
4) Mock-ups or field samples shall remain in place until the work it represents has been completed and accepted by Project Architect.

5) Note and preserve the notation of the area constituting the sample installation but remove the notation at the final clean up of the Project.

g. Quality Control Set of Samples:
   1) Maintain returned final set of Samples at project site, properly protected and in suitable condition and available for quality control comparisons by Project Architect and others.
   2) Quality control set shall serve as the basis for comparison for following work, and shall establish the standard of color, pattern, texture, workmanship, and other qualities as applicable when in conformance with the requirements of the Contract Documents.

h. Reusable Samples: Returned Samples that are intended or permitted to be incorporated in the Work are so indicated in other Specification Sections.

i. Incorporated Samples must be undamaged at the time of use and in complete conformance with all requirements of the Contract Documents.

E. Calculations:
1. Where calculations are required by the specifications, they shall be prepared by a registered California professional engineer who shall sign and stamp the submittal prior to submission to the Project Architect.
2. Submit five copies of required calculations for the record only. Project Architect nor its Consultants are not responsible for checking calculations.
3. Indicate all formulae and criteria used in the preparation of calculations.
4. Submit calculations on 8-1/2 by 11 inch sheets.
5. In addition to the information required by the "Submittal Information" Paragraph, include the name, address, license number, stamp and signature of the engineer.

F. Certificates of Compliance:
1. Certificates shall certify compliance with published specifications of trade, industry, or governmental organizations or specification of Project Architect and shall attest to Contractor's compliance with such specifications.
2. Where these specifications set standards by referencing published specification, submittal of certification may not be required; however, if inspection or performance at the job site after delivery and until Glendale Unified School District's final acceptance creates doubt regarding compliance, Project Architect reserves the right to receive such certification or, in event compliance cannot be certified, demand removal of questionable Work and its replacement with certifiable Work.
3. When specified in technical Specification Sections, submit manufacturers' certificate to Project Architect for review, in quantities specified for Product Data.

4. Follow same procedure as for Product Data. Where feasible, or where required by technical Specification Sections, indicate compliance with the specified standard by means of a label on the container, or on an inconspicuous place on the product.
5. Indicate how material or product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.
6. Certificates may be recent or previous test results on material or product, but must be acceptable to Project Architect.
7. Each certificate shall be signed by an official authorized to certify in behalf of the Contractor, supplier or manufacturer and shall contain the name and address of the Contractor, the project name and location, and the quantity and date or dates of shipment or delivery to which the certificates apply. Certification shall not be construed as relieving Contractor from furnishing materials and products conforming to Contract Documents.

G. Manufacturer's Instructions:
1. When specified in technical Specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.
2. Identify conflicts between manufacturers' instructions and Contract Documents.
3. Installation of the items will not be allowed to proceed until the information is received. Failure to furnish the information can be cause for rejection of the material.

H. Deferred Approval:
1. Data such as manufacturer's detailed drawings, specifications, calculations and the like, submitted to obtain deferred approvals from the Governing approvals are in addition to, and are different from Product Data and Shop Drawings. Together with details of anchorage to structure or to building components, approved drawings and specifications will become additional Contract Documents, the same as if added by Change Order involving no change in either contract amount or in contract time.
2. Scheduling: Submit as soon as possible after award of contract. Complete, accurate, and timely submittal will minimize total time in deferred approval process.
3. Submittal:
   a. Refer to list of deferred approval items for specific requirements.
   b. For each deferred approval item, furnish a structural analysis including calculations by a structural engineer registered in State of California.

c. Together with structural analysis, submit detailed drawings, specifications, and certified pertinent properties of nonstructural elements used in construction and in anchorage of each item.
d. Route each deferred approval item submitted through Contractor, to Project Architect, to Contractor for correction. Any corrections and comments noted by Project Architect must be addressed and incorporated into the document prior to approval. Provide space on each sheet of drawings and on covers of specifications, structural analysis, calculations, lists of properties and the like to accommodate review and approval stamps and signatures by each of the above parties.

I. HPI Submittals (if applicable):
1. Indicate design review, submittal review, commissioning coordination, system verification/start-up checklists, field inspection, and functional testing as part of overall Project timeline.
2. See Section 01 35 71 - HPI Verified Requirements for specific HPI requirements.
3. Product Data:
a. For products having recycled content, documentation indicating percentages by weight of postconsumer and pre-consumer recycled content.
b. For adhesives and sealants used inside building enclosure indicating VOC content of each product used.
c. For paints and coatings used inside the building envelope indicating chemical composition and VOC content of each product used.
d. Indicate VOC content in g/L calculated according to California Air Resources Board (GARB) regulations dated June, 2008.
e. Other products as listed under Credit EQ2.2 Low-Emitting Materials
f. Provide documentation that products are either identified on CHPS Low-Emitting Materials Product List or by third party certification program listing low-emitting materials/products meeting "State of California DHS Standard Practice for the Testing of Volatile Organic Compounds" testing requirements as identified on CHPS website.

J. Manufacturer's instructions: Prepare written or published information that documents manufacturer's recommendations, guidelines, and procedures for installing or operating a product or equipment. Include name of product and name, address, and telephone number of manufacturer. Include the following, as applicable:
1. Preparation of substrates.
2. Required substrate tolerances.
3. Sequence of installation or erection.
4. Required installation tolerances.
5. Required adjustments.
6. Recommendations for cleaning and protection.

K. Manufacturer's field reports: Prepare written information documenting factory-authorized service representative's tests and inspections. Include the following, as applicable:
   1. Name, address, and telephone number of factory-authorized service representative making report.
      a. Statement on condition of substrates and their acceptability for installation of product.
      b. Statement that products at Project site comply with requirements.
      c. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
      d. Results of operational and other tests and a statement of whether observed performance complies with requirements.
      e. Statement whether conditions, products, and installation will affect warranty.
   2. Other required items indicated in individual Specification Sections.

4-

PART 2 -PRODUCTS - Not Used.

PART 3 – EXECUTION - Not Used.

END OF SECTION

PART 1 - GENERAL

1.01 SECTIION INCLUDES:

A. Regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.02 REQUIREMENTS OF REGULATORY AGENCIES:

All pertaining statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction of the Work are hereby incorporated into these Contract Documents the same as if repeated in full herein and such are intended where any reference is made in either the singular or plural to Code or Building Code unless otherwise specified including, without limitation, those in the list below. Contractor shall make available at the site such copies of the listed documents applicable to the Work as the Architect or Owner may request including mentioned portions of the California Administrative Code (CAC).

A. With respect to the Division of the State of Architect and State Fire Marshal, most-recent adopted Edition.

B. Building Standards Administrative Code, Part 1, Title 24 C.C.R.. latest Edition.

C. California Building Code (CBC), Part 2, Title 24, C.C.R. (International Building Code with California Amendments) Latest Editions.

D. California Electrical Code (CEC), Part 3, Title 24, C.C.R. (National Electrical Code and California Amendments) Latest Editions

E. California Mechanical Code (CMC), Part 4, Title 24 C.C.R. (Uniform Mechanical Code and California Amendments) Latest Editions

F. California Plumbing Code (CPC), Part 5, Title 24 C.C.R. (Uniform Plumbing Code and California Amendments) Latest Editions

G. California Fire Code, Part 9, Title 24 C.C.R. (International Fire Code and California Amendments) Latest Editions.

H. California Referenced Standards, Part 12, Title 24, C.C.R., Latest Edition

I. California Energy Code, Part 6, title 24, C.C.R., Latest Edition

J. Title 19 C.C.R. Public Safety, State Fire Marshal Regulations, Latest Editions and Amendments

K. State and Local Public Health Codes, Latest Editions and Amendments

L. Other statutes, ordinances, laws, regulations, rules, orders, and codes specified in other Sections of the Specifications or bearing on the Work.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. Testing and inspection services to meet requirements of the California Building Code (CBC), Title 24, Parts 1 and 2, as indicated on the Drawings.

B. Tests of materials are required by a certified testing agency as set forth in Section 4-335 of the California Building Standards Administrative Code.

1.2 RELATED SECTIONS

Provisions of the General Conditions, Supplemental Conditions and Division 01 apply to this Specification. Specifications that are referenced or related may include:

A. Section 01 31 13: Project Coordination

B. Section 01 33 13: Submittals

C. Section 01 32 16: Construction Schedule

D. Section 01 50 00: Construction Facilities and Temporary Controls

E. Section 01 73 29: Cutting and Patching

F. Section 01 77 00: Project Closeout

G. Section 01 78 00: Closeout Submittals

PART 2 - PRODUCTS (Not used)

PART 3 - EXECUTION

3.1 TESTS

A. OWNER will select and provide an independent certified testing agency (the agency) to conduct tests, sampling, and testing of materials. Selection of material to be tested shall be by the agency and not by CONTRACTOR.

B. Any material shipped from the source of supply prior to having satisfactorily passed such testing and inspection, or prior to the receipt of notice from IOR such testing and inspection is not required, shall not be incorporated into the Work.

C. OWNER will select, and directly reimburse, the agency for costs of all required tests and inspections; however, the agency may be reimbursed by CONTRACTOR for such costs as specified or noted in related sections of the Contract Documents.

D. The independent testing agency is not authorized to release, revoke, alter, or enlarge requirements of the Contract Documents or approve or accept any portion of the Work.

E. The agency shall not perform any duties of CONTRACTOR.

F. CONTRACTOR shall provide an insulated curing box with the capacity for twenty (20) concrete cylinders and will relocate said box and cylinders as rapidly as required in order to provide for progress of the Work.

3.2 TEST REPORTS

A. Test reports shall include all tests performed, regardless of whether such tests indicate the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations, when and as required, shall also be reported. Reports shall indicate the material (or materials) was sampled and tested in accordance with requirements of CBC, Title 24, Parts 1 and 2, as indicated on the Drawings. Test reports shall indicate specified design strength and specifically state whether or not the material (or materials) tested comply with the specified requirements.

1. The test reports shall incorporate all requirements of Title 24 Part 1, Section 4-335(d).

3.3 VERIFICATION OF TEST REPORTS

A. Each testing agency shall submit to the Division of the State Architect, in duplicate, a verified report covering all tests required to be performed by that agency during the progress of the Work. Such report, covering all required tests, shall be furnished prior to Substantial Completion and/or, when construction on the Work is suspended, covering all tests up to the time of Work suspension.

1. The test reports shall incorporate all requirements of Title 24 Part 1, Section 4-335(e).

3.4 INSPECTION BY OWNER

A. OWNER, and its representatives, shall have access, for purposes of inspection, at all times to all parts of the Work and to all shops wherein the Work is in preparation. CONTRACTOR shall, at all times, maintain proper facilities and provide safe access for such inspection.

B. OAR shall have the right to reject materials and/or workmanship deemed defective Work and to require correction. Defective workmanship shall be corrected in a satisfactory manner and defective materials shall be removed from the premises and legally disposed of without charge to OWNER. If CONTRACTOR does not correct such defective Work within a reasonable time, fixed by written notice and in accordance with the terms and conditions of the Contract Documents, OWNER may correct such defective Work and proceed in accordance with related Articles of the Contract Documents.

C. CONTRACTOR is responsible for compliance to all applicable local, state, and federal regulations regarding codes, regulations, ordinances, restrictions, and requirements.

3.5 INSPECTOR OF RECORD

A. An approved and certified Inspector of Record (IOR) shall be employed by OWNER in accordance with requirements of Title 24 of the California Code of Regulations with their duties specifically defined therein. Additional certified inspectors may be employed and assigned to the Work by OWNER in accordance with the requirements of California Building Standards Administrative Code with their duties as specifically defined in Section 4-333(b).

B. Inspection of Work shall not relieve CONTRACTOR from any obligation to fulfill all terms and conditions of the Contract Documents.

C. CONTRACTOR shall be responsible for scheduling times of inspection, tests, sample taking, and similar activities of the Work.

3.6 TESTS AND INSPECTIONS

The following tests and inspections do not limit inspection of the Work but are required by other agencies, or are required in related Sections of the Contract Documents.

A. Excavations, Foundations and Retaining Walls - CBC, Chapter 18A:
   1. Inspection:
      a. Excavation, Filling and Compaction 1701A.5.13

B. Concrete - CBC, Chapter 19A:
   1. Materials:

a. Test of Materials	1903A.1; 1916A.1 – ACI 318
b. Portland Cement Tests	1903A.3; 1916A.1 – ASTM C 150
c. Concrete Aggregate	1903A.5 – ACI 318
d. Reinforcing Bars	1903A.7; 1916A.2 – ACI 318
e. Structural Steel, Steel Pipe or Tubing	ACI 318 Sec. 3.5.6
f. Admixtures	ACI 318 Sec. 3.6

2. Quality:

a. Proportions of Concrete	1905A.1; 1905A.2; 1905A.3; 1905A.4; 1905A.5; 1905A.6; 1905A.7 1904A.
b. Mixing and Placing	1905A.1.1; 1905A.2; 1905A.3, 1905A.4
c. Concrete Testing	1905A – ACI 318
d. Insulating Concrete Tests	1701A.5.9

3. Inspection:

a. Project Site Inspection	1704A
b. Batch Plant or Weigh-master Inspection	1704A.4.2; 1704A.4.3
c. Reinforcing Bar Welding Inspection	1704A.3.1.3

C. Aluminum - CBC, Chapter 20A:

1. Aluminum	2002.1
2. Inspection:	2003.1

D. Masonry - CBC, Chapter 21A:

1. Materials:

a. Masonry Units	2103A.1,2,3,4,5,6,7
b. Portland Cement	2103A.10.7
c. Mortar & Grout Aggregates	2103A.12
d. Reinforcing Bars	2103A.13

2. Quality:

a. Portland Cement Tests	2105A.1, 2105A.2
b. Mortar & Grout Tests	2105A.5
c. Masonry Prism Tests	2105A.3
d. Masonry Core Tests	2105A.4
e. Reinforcing Bars	2103A.13

3. Inspection:

a. Reinforced Masonry	1704A.5;1704A.5.3,
b. Reinforcing Bar Welding Inspection	1704A.3.1

E. Steel - CBC, Chapters 17A & 22A:

1. Materials:

a. Structural Steel & Cold Formed Steel	2202A.1; 2205A
b. Material Identification	2203.A

2. Inspection and Tests:

a. Test of Structural Steel Table 1704A.3.	1704A.3; 2212.A
b. Tests of High Strength Bolts,	1704A.3.3; 2212.A.1

c.	Tests of End Welded Studs	1704A.3.1: 2212A.2
d.	Shop Fabrication Inspection	1704A.3.2.1
e.	Welding Inspection	1704A.3.1
f.	High Strength Bolt Inspection	1704A.3.3
h.	Spray applied fire resistance materials	1701A
i.	Non-Destructive Items	1703A
j.	End-Welded Studs Inspection	2212A.2

F. Exterior Wall Coverings - CBC, Chapter 14A, 25A:

1. Materials:

a.	Portland Cement Plaster	2510

2. Inspection:

a.	Veneer Inspection	1405A.4

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. General requirements for reference standards pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.02 REFERENCE AND STANDARD TYPE SPECIFICATIONS:

Specifying by reference to a reference and standard type specification document or to another portion of the Contract Documents shall be the same as if the referenced document or portion of the Contract Documents referred to were exactly repeated at the place where such reference is made. In case of a conflict between the requirements of regulatory agencies and the referenced and standard type specification documents, Contractor shall conform to the most restrictive requirement if such conformance is legal.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 DESCRIPTION

A. All inspection and testing required to establish compliance with Contract Documents and Title 24 CCR requirements, except as may be otherwise specified, shall be made by an independent professional testing agency or firm selected and paid by the Owner/District (or as otherwise noted). All work prior to the call out of the inspection services shall be approved by the Inspector of Record as ready for the inspection services.

B. The cost of most services for testing and inspection in compliance with Contract Documents requirements will be paid by the Owner. If initial tests indicate non-compliance with Contract Document requirements, any non-compliance testing shall be performed by the same inspection service and back charged to the General Contractor. Schedule portions of the work requiring testing and inspection services so that the time of the agency on the work is as continuous and brief as possible. Should an inspection service be called out without proper pre-inspection and approval by the Inspector of Record, and the Contractor causes the inspection service to be on site for longer than the minimum call-out costs, or the Contractor causes the inspection service to make a return call to the site for the same inspection, the additional costs shall be back-charged to the Contractor.

C. Concrete Coring Procedures: Prior to the start of any concrete coring, the Contractor shall submit a detailed coring plan, indicating the size and precise locations of the cores, for approval by the Architectural Team/Structural Engineer. Proposed coring locations must be marked in the field and verified by the District IOR. The project Architectural Team/Structural Engineer may also request to perform a field inspection if deemed necessary. The Contractor SHALL arrange for and bear the costs of all Pachometer tests of the areas to be cored.

1.02 CONTRACTOR'S RESPONSIBILITY

A. Coordination: The Contractor shall initiate and coordinate testing and inspections required by the Contract Documents and public authorities having jurisdiction over the work through the Architect and/or Inspector of Record.

B. Access: Furnish free and safe access to the various parts of the work and assist testing and inspection personnel in the performance of their duties at no additional cost to the Owner.

C. Data: Furnish records, drawings, certificates, and similar data as may be required by the testing and inspection personnel to assure compliance with the Contract Documents.

D. Notification: Provide the Architect and/or Inspector of Record and Testing Laboratory with at least 72 hours advance notification of required testing.

E. Defective work: Remove and replace any work found defective or not complying with Contract Document requirements at no additional costs to the Owner (shall apply to 1, 2, and 3 immediately below). Where testing personnel take cores or cut-outs to verify compliance, repair prior to acceptance and as approved by the District IOR.
   1. Concrete: If test cylinders for concrete fail to meet design stresses, make core and load tests as may be directed by the Design Professional; make core tests in accordance with an ASTM C42 or most recent update and load tests in accordance with ACI 318 or most recent update. Correct all deficiencies found in forms, reinforcing steel and embedded items.
   2. Structural Steel: Should any weld or structural connection fail to meet design stresses, provide sonic or x-ray examination of all structural connections as directed by the Architect/engineer. Replace or repair all defective connections as directed.
   3. Roofing membrane work: Should roofing membrane, including associated flashing and jointing, indicate non-compliance with Contract Document requirements, provide corrective work as directed.

F. Lead Levels in Water: The domestic water piping system shall be protected during tie-ins or other construction activities that have the potential to elevate the lead levels in the water. The water in the domestic water piping shall be tested prior to the start of work and the lead levels documented. Testing shall also be performed upon the completion of all work and any lead contamination, above the levels documented prior to the start of work shall be the Contractors responsibility to reduce the levels to the pre-project levels.
   1. If the domestic water system is contaminated as a result of construction activities, the Contractor shall decontaminate the domestic water system. The procedures shall comply with applicable regulatory requirements.

1.03 TESTING LABORATORY RESPONSIBILITY

A. Taking Specimens: Specimens and samples for testing, unless otherwise provided in the Contract Documents, will be taken by the testing personnel. Sampling equipment and personnel will be provided by the testing laboratory. Deliveries of specimens and samples of the testing laboratory will be performed by the testing laboratory.
   1. When the testing laboratory is ready to test, but is prevented from testing or taking specimens due to incompleteness of the work or other scheduling lapses, all extra charges for testing attributable to the delay may be back-charged to the Contractor and shall not be borne by the Owner.

B. Test Reports: Reports shall include all tests made, regardless of whether such tests indicate that material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Reports shall state which requirements with which the material or materials were sampled and tested. Test reports shall show the indicated or specified design strength(s) and state definitely whether or not the materials tested comply with the specification requirements.

Report distribution shall be made as follows:

Owner's Rep	1 copy, and 1 electronic pdf
Architect	1 copy, and 1 electronic pdf
Structural Engineer	1 copy
Contractor	2 copies

C. The inspection agency shall cooperate with the Contractor so as to cause no delay in the progress of the work, but shall be directly responsible to the Owner for his actions. The inspection agency shall have no authority to direct the work of the Contractor.

D. Submittals: Promptly submit copies of reports of inspections and tests, mill analysis, concrete mix designs and certifications per applicable sections of the specification.
   1. Comply with requirements of each technical specification section and DSA requirements.
   2. Reports shall include all tests made, regardless of whether such test 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 samples and tested in accordance with the requirements of the Title 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. Testing Agency is not authorized to:
      a. Release, revoke, alter, or enlarge on, requirements of Contract Documents.
      b. Perform any duties of the Contractor.

1.04 REQUIRED INSPECTIONS & TESTS

The following are inspection services and tests required of but not limited to the Inspection and Testing Agency.

A. Sitework inspections & tests: Perform the following services as required to assure compliance with requirements of Division 2 of the technical specifications.

Compaction & bearing: Test and verify bearing capacity of all load bearing earth, test compaction fills for compliance with required densities.

B. Concrete work inspections & tests: Perform the following services as required to assure compliance with requirements of Division 3 of the technical specifications.
   1. Cast-in-place concrete: Make slump tests for each batch delivered or at least 1 test per hour during continuous pours in accordance with requirements of ASTM C143; check and verify batch consistency. Inspect forms and verify sizes and conditions. Inspect reinforcing and verify its proper placement. Furnish continuous inspection during replacement, repair and patching operations, and curing of concrete. Make cure, and test at least 3 test cylinders of each strength, of concrete for each 50 cubic yards (38.23 m3) placed or for each day's pour, whichever is greater. Report exact mix tested, minimum size aggregate, location of pour in the work, cylinder identification, data of receipt of cylinder in laboratory, slump data, cement brand and type, admixtures used, dates and records offset cylinders, names of inspectors and laboratory personnel, and evaluation or analysis of cause, in case of test failure, and recommendations of remedial action.
   2. Cure specimens under laboratory conditions except when there is possibility of surrounding air temperature falling at project below 40F. In this case, additional specimens will be required to be cured under job conditions. For all test unless otherwise directed, break 1 cylinder at 7 days, 2 at 28 days.
   3. If 7 day tests appear to be marginal or fall below normal requirements, concrete shall be tested with an approved impact hammer. Should these readings verify low test cylinders, procedure of work beyond this point will be Contractor's responsibility until decision is reached as to removal of substandard concrete at each of 28 day period.

C. Metal work inspection & tests: Perform the following services as required to assure compliance with requirements of Division 5 of the technical specifications.
   1. Structural steel fabrication: Furnish visual inspection of all shop fabricated parts including joists and joist girders. This inspection may be done in shop or in field after delivery. Furnish inspection and testing of shop welds in accordance with requirements for welding specification hereinafter. Check shapes, sizes, classes, and types of steel. Verify conformance of structural steel materials with requirements of Contract Documents. Test end welded studs, replace studs damaged by test.
   2. Structural steel field inspection & tests: Check location and fit of all anchorage and inserts. Verify adjustments to fit inaccuracies. Furnish visual inspection of erection of all structural steel components of the work. Furnish inspection and testing of all field welding in accordance with requirements for welding in accordance with requirements for bolting specific hereinafter. Inspect and test all bolted connections in accordance with requirements for welding specified hereinafter.

Inspect for compliance with AISC Code of Standard Practice with requirements of the Contract Documents; other duties and responsibilities as may be noted on drawing.

3. Welding requirements: Furnish visual inspection of all field fillet welding. Furnish inspection of fillet welds in accordance with requirements of AWS D1.1 (Rev. I): allow for inspection of a minimum of 15% of fillet welds by magnetic particle or dry penetrant methods
4. Bolting requirements: Furnish visual inspection of structural joints where ASTM A325 bolts are used; verify the applicable requirements of AISC specifications are met.

D. Thermal and moisture protection work testing & inspection: Perform services as required to assure compliance with requirements of Division 7 of the technical specification.

E. Roofing: Check deck surfaces prior to application of roofing materials and verify that substrate is in satisfactory conditions to receive roofing. Furnish continuous inspection during application of roofing, including application of vapor barriers, insulation and roofing. Inspect all sheet metal flashings, counterflashing and reglets for satisfactory and waterproof installation.

F. Wood: Check framing lumber moisture content prior to framing.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES:
A. Tests and inspections.

1.02 RELATED SECTIONS:
A. Work to be tested or inspected: Respective Sections.

1.03 TESTS AND INSPECTIONS; GENERAL:
A. General:
1. See General Conditions and Supplementary General Conditions.
2. Inspection: Per Title 24, 108 & 1701.

B. Contractor: Shall furnish labor, materials, and equipment and perform all operations required to take and prepare test samples, and required to permit inspection of all work.

C. Contractor responsibility: Each contractor responsible for the construction of a main wind- or seismic-force-resisting system, designated seismic system or a wind- or seismic-resisting component listed in the statement of special inspections shall submit a written statement of responsibility to the *building official* and the owner prior to the commencement of work on the system or component. The contractor's statement of responsibility shall contain acknowledgment of awareness of the special requirements contained in the statement of *special inspection*, per Section 1709A.1 2010 CBC.

D. Payment of Tests & Inspections Costs:
1. District: District will pay all costs for required testing and inspection of both on-site and off-site work; except where specifically noted otherwise.
2. Costs to be reimbursed to District by Contractor:
a. Cost of testing materials, which fail to meet requirements of Contract Documents.
b. Overtime Costs: Whenever Contractor elects to work during hours other than normal work week and laboratory inspection is required, District will pay normal cost of laboratory inspection and Contractor shall pay that portion of laboratory inspection cost due to "overtime".
c. Where specifically noted.

1.04 TESTING AGENCY:
A. All tests shall be made by a well-established, independent Testing Laboratory(s) selected by District and satisfactory to the Architect and the Division of the State Architect.

1.05 RESULTS:

A. Test Reports:

1. Testing Laboratory to report results of all tests in writing.
2. Reports shall state that:
   a. Tests were made under responsible charge of a Testing Engineer, licensed to practice Civil/Structural Engineering, State of California.
   b. Material(s) were tested per requirements of Contract Documents and Division of the State Architect.
   c. Material(s) PASSED or FAILED TO PASS requirements.

3. Report (s), Distribution:

Architect	1 hard copy;1 electronic pdf
Inspector	1 hard copy
Contractor	1 hard copy
District	1 electronic pdf

B. Certificate: Each time work on this project is suspended and upon completion of the work, the Testing Laboratory shall furnish a notarized certificate in duplicate to the Division of the State Architect stating:

1. Tests for the work were made per requirements of Contract Documents and Division of State Architect.
2. All such tests and reports made for the work were reported.
3. A list of all tests performed.

1.06 REQUIRED TESTS AND INSPECTIONS (CRC, 1998):

A. General: Tests and inspections are referenced to Specification Divisions and Sections.

B. Excavation, Foundations and Retaining Walls – CBC, Chapter 18A:

1. Inspection:
   a. Earth Fill.

C. Division 3, CONCRETE – CBC Chapter 19A:

1. General Requirements: Apply to all Division 3 work.
   a. Concrete "Design Mixes":
      1) By District designated Testing Laboratory, per Section 1904A and Section 905A.5 through 1905.A.1, Title 24, by Method B or C.
      2) District will pay cost of one direct-pour mix and/or one pump mix for each specified concrete strength in each aggregate type.
   b. Batch Plant Inspection: Continuous inspection by Testing Laboratory for all "structural concrete", per Title 24, Section1929A.4. The Contractor shall notify the Laboratory 24 hours in advance of the time concrete is to be mixed, and shall promptly notify the Laboratory of postponement or cancellation of mixing. The Contractor shall reimburse the District for costs incurred resulting from failure to give adequate notification of postponement or cancellation.

c. Cement:
   1) Testing: Where not accompanied by a D.S.A. acceptable manufacturer's mill analysis and test certificates, test per Section 1903A.2 and 1929A.1, Title 24.
   2) Contractor to reimburse District for testing costs.
d. Concrete Consistency: Measure consistency by the "Standard Method of Test for Slump of Portland Cement Concrete", ASTM C-143. The District Inspector shall make this test twice each day or partial day's run of the mixer.
e. Aggregate: Test in accordance with ASTM 33 and ASTM Method C227. Tests shall be less than one year old.
f. Concrete Test Cylinders: District's Inspector to make and cure per UBC Standard 19-10.
g. Concrete Testing:
   1) Test per Section 1905A.6, Title 24.
   2) Make one test at 7 days, and one test at 28 days; except, do not make 28-day test when 7-day test meets final design strength.
   3) Where concrete does not meet design strength, take core samples; and test per Section 1905A.6.4, ASTM C42 and as follows:
      a) The cores shall be taken at representative places throughout the structure as designated by the Structural Engineer and shall be at least 4" in diameter.
      b) In general, sufficient cores shall be taken so that knowledge will be had for all pours made. At least three cores shall be taken for each 4000 square feet of building. Not less than three cores shall be taken from each building.
      c) Where cores have been cut from the work, the Contractor shall fill the void with drypack and patch the finish to match the adjacent existing surfaces.
h. Inspection:
   1) General: Conform to Title 24, Section 1701A.
   2) Steel Reinforcement: By District's Inspector for proper size and location, prior to placing concrete.
   3) Concrete: Continuous inspection of all concrete placements by District's Inspector. Keep a "placing record" of pours per Title 24, Section 1905A.7.

2. Cast-In-Place Concrete:
   a. Test all structural concrete.
   b. Two (2) molded cylinders for testing for each truck load and for each grade of concrete. Not less than one test/day/each grade of concrete.
   c. Slump test each truck load of concrete delivered to the job site.

D. Division 3, STEEL REINFORCEMENT:
   1. Testing:
      a. Conform to Title 24, Section 1903A.5.3 and 1929A.2.

b. Test for conformity with UBC Standard 19-4 (Which is based on ASTM A615).
c. Tests:
1) Where identifiable by manufacturer's heat number and mill analysis report: one tension and one bend test/each 10 tons or fraction thereof for #5 and larger bars.
2) When not identifiable: one tension and one bend test/each 2 ½ tons, or fraction thereof, for all bar sizes.

2. Inspection: See Paragraphs C and D above. Welding shall conform to Title 24, Section 1929A.12.

E. Division 4, MASONRY – CBC Chapter 21A:

1. Materials:

a. Masonry Units	2102A.2, (4,5,6)
b. Portland Cement	2102A.2.2 (2,3), 2103A2.
c. Mortar and Grout Aggregates	2102A.2.1; 2103A.4.3, A4
d. Reinforcing Bars	2102 A.2.10; 1903 A5, 1929 A.2

2. Quality:

a. Portland Cement Tests	1903 A.2; 1929 A.1
b. Mortar and Grout Tests	2105 A.1, 2105 A.3.4.2
c. Masonry Core Tests	2105 A3.1
d. Reinforcing Bars	1929 A.2

3. Inspection:

a. Reinforced Masonry	2105 A7
b. Reinforcing Bar Welding Inspection	1929 A.12, 1903 A.10

F. Division 5, METALS:

1. Testing; Structural Steel:
a. General:
1) Conform to Title 24, Section 2231A.
2) Contractor to obtain manufacturer's certified mill analysis and test report for each heat.
3) Identification: Conform to Title 24, Section 2203A.
4) Testing Lab to verify steel identification, per ASTM A6, at fabricator's shop.
b. Tests:
1) Where not accompanied by acceptable identification, test material.
2) Contractor to reimburse District for testing costs.
3) Structural Steel; Title 24, Section 2231A.1.

2. Field Testing; Wedge-Type Expansion Anchor Bolts:
a. Conform to Title 24, and D.S.A. requirements. Inspector shall witness all tests.
b. All tests to be made with suitable, properly calibrated devices.
c. Tension test 50% of the anchor bolts for pull-out using twice the bolts allowable capacity.
d. If any bolt fails, all adjacent bolts must be tested.

3. Inspectors, General: All Inspectors shall be specially qualified and approved by for the particular type of work they are inspecting.
4. Inspection, Welding:
   a. Conform to Title 24, Section 2231A.5. Keep a systematic record of all welds.
   b. AWS certified Welding Inspector from Testing Lab approved shall inspect all shop and field welding for structural steel.
   c. Welding Inspector shall check qualifications and ability of all welders to perform satisfactory work.
      1) Inspector shall spend first fabrication day in shop observing specific techniques, welds, and welders to be used on the work.
   d. Welding Inspector shall check and approve the type and capacity of all welding equipment, which shall conform to manufacturers' recommendations.
5. Testing, Welds: By Testing Lab.
   a. Ultra Sonic Tests: Perform for all full penetration welds of 1/4" or greater.
   b. Other Tests: As noted or required.
6. Inspection, Shop Fabrication: Conform to Title 24, Section 2231A.4 by specially qualified Inspector from Testing Lab.
7. Certificates: Testing Lab and its Inspectors shall certify that all material, equipment, fabrication, installation, welding, procedures, and work observed and/or tested by them is satisfactory and conforms to requirements of Contract Documents and Division of State Architect; and that they have used all means necessary to determine quality of welds.

G. Wood – CBC, Chapter 23A:

1.	Materials:	
	a. Lumber and Plywood Grading	2305A
	b. Glue – Laminated Members	2312A.3, 2312A.6
2.	Inspection:	
	a. Glue-Laminated Fabrication	2327A.1
	b. Timber Connectors	2327A.2
	c. Manufactured Trusses	2327A.3

H. Exterior Wall Coverings – CBC, Chapter 14A:

1.	Materials:	
	a. Portland Cement Plaster	Chapter 25A
2.	Inspection:	
	a. Veneer Inspection	1405A

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. The Contractor shall ensure that all employees, visitors, subcontractors, subcontractor employees, and suppliers, while on the worksite, comply with the requirements of OSHA, these requirements, and the safety precautions contained in the several Specification Sections.

B. The Contractor shall promptly and fully comply with and execute, without separate charge thereof to the District, shall enforce compliance with the provisions of the Williams Steiger Occupational Safety Health Act of 1970 (Public Law 91-596 with most recent updates and amendments) with particular attention paid, but not limited to, Title 29-Labor, Chapter XVII - Occupational Safety and Health Administration, Department of Labor Part 1926 - (Safety and Health Regulations for Construction), and part 1910 - (Occupational Safety and Health Standards), as printed, respectively, in the June 24, 1974, and June 27, 1974, Federal Register, and latest adopted amendments and changes thereto.

1.02 PRELIMINARY WORK

A. Prior to the start of and during the course of the work (above and below ground) the Contractor shall make a thorough survey of the entire worksite to determine all potential hazards. Workmen shall be made aware of those hazards and shall be instructed in procedures and the use of equipment for their protection. The Contractor shall verify the location and condition ("live" or "dead") of all utilities on and near the worksite and take precautions to protect his employees, subcontractors, material men, the general public, and the property.

1.03 IMMINENT DANGER

A. The District may stop those operations which create an imminent danger to employees (as defined by OSHA), to the public and to property.

B. The Contractor shall be wholly responsible for any accident (including death) occurring at any time during the progress of the work and until the final acceptance of the work by the District which may happen to any of his employees/workmen or those of any Subcontractor employed on the building, the property, or for any damage or injuries (including death) which his work and operations may cause to the work being constructed, or to existing buildings, or to any tenants and occupants of the property, or of the adjoining properties, or to the public, or to any public or private property.

1.04 COOPERATION:

A. The Contractor shall cooperate with the safety representatives of the District, District's Insurance Managers and the District's Insurance Company in any and all inquiries before, during, and after the project.

1.05 SAFETY RESPONSIBILITIES:

A. Contractor's Superintendent shall:

1. Ensure compliance with these requirements, OSHA requirements and other safety requirements, and provide and implement an Injury and Illness Prevention Program (IIPP) at the project site.
2. Provide, supervise, and support a Contractor's Project Safety Supervisor and enable him/her to execute effectively their duties and responsibilities.
3. Authorize immediate action to correct substandard safety conditions.
4. Review and act to ensure compliance with safety procedures with his supervisors, subcontractors and suppliers.
5. Take an active part in all supervisory safety meetings.
6. Cooperate with safety representatives of the District, District Insurance Managers, and the District's insurance company.
7. Ensure that all security and temporary fencing has been secured to prevent any movement or causal action that could contribute to any hazardous or unsafe condition, or which ultimately may cause harm.

B. Contractor's Project Safety Supervisor shall:

1. Make thorough daily safety inspections of the worksite and immediately act to eliminate unsafe acts and unsafe conditions, and record all suggestions make and corrective action taken.
2. Investigate worksite accidents and recommend immediate corrective action.
3. **Weekly safety meetings shall be conducted and documented in the daily report of activity by the contractor. Weekly safety meeting notes shall be recorded, noting the contractors and trades on site, the topics that were discussed and the attendance by contractor name, workmen name and trade, in attendance on the project that day.**
4. Review safety meetings reports submitted by job foremen and act to ensure that meaningful weekly safety meetings are held by the job foremen.
5. Attend foremen "tool box" safety meetings and evaluate effectiveness.
6. Assist in the preparation of accident investigation and reporting procedures.
7. Implement training programs for supervisors and employees as they apply to their specific responsibilities.
8. Be responsible for the control, availability, and use of safety equipment, including employee personal protective equipment.
9. Coordinate his activities with those of the District's Inspector and/or Project Manager, and immediately implement their safety suggestions.
10. Coordinate public relations aspects of the Contractor's safety program.

C. Contractor's Job Foreman shall:

1. Instruct workmen regarding safe work practices and work methods at the time workmen are given work assignments.

2. Furnish and enforce the use of personal protective equipment and suitable tools that are equipped with all the manufacturer's supplied safety features, and have not been altered in any way, for the job.
3. Continuously check to see that no unsafe practices and conditions are allowed to exist on this portion of the work.
4. Set a good example for his personnel.
5. Make a complete investigation of accidents to determine facts necessary to take corrective action to prevent a recurrence, and record the facts in a written report to accompany the daily report as set forth in the IIPP.
6. Promptly supply information for, or complete, an Accident Report and Investigation Form as directed by the Contractor Safety Supervisor and Contractor's Superintendent/Project Manager.
7. Hold weekly "tool box" safety meetings with his personnel to:
   a. Discuss observed unsafe work practices and unsafe conditions.
   b. Review the accident experience of his crew and discuss correction of the accident causes.
   c. Encourage safety suggestions from his crew and report those suggestions to the Safety Supervisor.
8. Ensure that first aid is promptly administered to an injured employee.
9. Report immediately, to Contractor's Superintendent/Project Manager, or Safety Supervisor, any injuries, or violations of job safety and security.

D. Subcontractor's Job Superintendent shall:
1. Plan and execute his work so as to comply with the Construction Safety Program.
2. Furnish and enforce the use of personal protective equipment.
3. Attend supervisory personnel safety meetings schedule by the Contractor.
4. Schedule and attend weekly "tool box" safety meetings to be held by job foremen for all employees.
5. Report to the Contractor's Project Safety Supervisor or Contractor's Superintendent all observed unsafe conditions, unsafe practices, and violations of job security.
6. Cooperate with the District's safety representative.

1.06 CONTRACTOR'S SAFETY SUPERVISOR:

A. Contractor shall designate a full-time employee as Contractor Project Safety Supervisor.

B. Qualifications must be approved by the District. Supervisor shall:
1. Have heavy construction experience of not less than three (3) years, one of which must have been in a supervisory capacity.
2. Be familiar with job safety laws and regulations.
3. Have accident prevention experience.

C. Duties: Project Safety Supervisor shall conduct regular inspections of the work, shall ensure compliance with job safety requirements, shall maintain the Contractor's safety program IIPP on site and available for review by the

District's Inspector and/or Project Manager and shall enforce safe practices, use of safety equipment and personal protective equipment, and other such activities as may be required by OSHA, the safety requirements, and the safety precautions contained in the several Specification Sections.

D. If the Project Safety Supervisor is not effective in executing the duties assigned him, the District may request, in writing, that the Contractor furnish a new Project Safety Supervisor.

E. If the Contractor desires to replace the Project Safety Supervisor, he shall so notify the District and the District's Insurance Managers, in writing and shall submit the name, experience and qualifications of the proposed Project Safety Supervisor for approval.

1.07 REQUEST FOR VARIANCES

A. Request for variances to deviate from OSHA requirements must follow the current established procedures by that Agency.

1.08 FAILURE TO COMPLY

A. If the Contractor fails to comply with the requirements of OSHA, the safety requirements, and the safety precautions contained in the Specifications Sections, or to provide an on-site IIPP, the District may modify or stop the work and portions thereof, until such failure is remedied. Willful and repeated failure to comply could result in the shutdown of the work, and portions thereof. No part of the time lost due to any such modification of operations or stop orders shall be made the subject of a claim for extension of time or for increased costs of damage by the Contractor.

PART 2 - PRODUCTS - (NOT USED)

PART 3 - EXECUTION - (NOT USED)

END OF SECTION

PART 1-GENERAL

The District will provide a Project Inspector, or Inspector of Record (IOR) for this project.

Contractor shall submit an Inspection Request Form to the Project Inspector (IOR) at least 48 hours prior to the time the inspection is needed, and on the form required. Contractor shall not cover any work requiring inspection until the Project Inspector (IOR) has inspected and approved the subject work.

For work not in conformance with the Contract Documents, the Project Inspector (IOR) shall submit to the Contractor a Deviation/Nonconforming Notice.

PART 2- PRODUCTS - NOT USED

PART 3 – EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES:

A. Temporary utilities, construction facilities and project sign(s) which are to be provided and maintained by the Contractor.

B. Dust and noise control.

C. General temporary items including staging area for material delivery and safety and security lighting.

1.02 TEMPORARY UTILITIES:

A. Water (if required):

1. Arrange for water with District Construction/Project Manager and install all necessary water lines, connections and metering devices for project, and upon completion of the work, remove such temporary facilities.
2. District will pay for all water needed for construction. Water conservation techniques are to be observed by all workmen. Contractor is to provide and maintain all water conveyance equipment, hoses, nozzles, hose bib connections, free from leaks, and equip all hoses with positive closing, hand-squeeze-type operating nozzles - - it is not permitted to operate a hose without a positive closing nozzle.
3. Provide suitable drainage system, subject to the approval of the Architect/Engineer and as indicated on the approved SWPPP, to carry construction waste water from site to an approved disposal location.

B. Electricity (if required):

1. District will pay for all electricity needed for construction. Contractor is to arrange for and install all necessary temporary poles, wiring and metering devices and, upon completion of the work, remove such temporary facilities. Electricity conservation best management practices shall be observed by all workmen, and any unnecessary lighting, or electrical discharge shall be turned off at the end of each shift. Only safety lighting is allowed after each shift is concluded.
2. Furnish and install area distribution boxes, so located that the individual trades may use 100 foot maximum length extension cords to obtain adequate power and work task lighting, at points where required for the work, for inspection and for safety.
3. Provide all electricity needed for construction including connections for construction equipment requiring power.
4. Lighting in the construction work area shall be sufficient to allow safe travel for workmen and the Architectural team during normal working hours of the project, and shall be shut down to conserve energy after normal construction working hours.

C. Use all means necessary to maintain temporary facilities and controls in proper and safe condition throughout progress of the work.

D. Make required connections to existing utility systems with minimum disruption to services in the existing utility systems. When disruption of the existing service is required, do not proceed without the Architect and/or Inspector's approval with at least 72 hours written request and approval. When required, provide alternate temporary service, should it be necessary as deemed by the Architect and/or Inspector, or Project Manager.

1.03 CONTRACTOR'S FACILITIES:

Contractor shall provide temporary ~~offices,~~ storage sheds, fencing, barricades, signage, hoists, scaffolds, railings and other facilities as required and specified. Installation and maintenance of such items shall be the responsibility of the Contractor.

A. Sanitary Facilities:
   1. The Contractor shall provide temporary toilet facilities which may consist of portable chemical toilets, and hand washing equipment. Number of toilets shall be based on number of workers with a minimum of 1 toilet facility per 10 workers. Placement of temporary toilet facilities shall be agreed upon at the site with the District Construction/Project Manager.
   2. Toilet facilities shall be kept supplied with toilet paper, and kept in a clean and sanitary condition until completion of the work, and then be removed from the work site. Upon removal, that portion of the site shall be properly cleaned and graded/repaired.

B. Contractor's Security Barricade:
   1. The Contractor shall erect the temporary security barricades for the purpose of defining construction lay-down areas, staging area and work zones. Temporary security barricades shall be provided on school site at exterior locations, and at building interiors, as necessary to provide a clear, obvious separation between school users and construction personnel. New or used material may be used.
   2. Unless otherwise indicated or specified, barricade shall be constructed of 6'-0" high chain link fence material with T-post condition at bottom for stability, shall have top rails, and 6 gauge minimum wire support at the bottom, BLACK screen material securely attached to the chain link material. Space posts not to exceed 10 feet on centers. Posts shall be of the following nominal pipe dimensions: terminal, corner, and gate posts 2-1/2", line posts 2", with diagonal supports at each corner. Chain link fabric shall be not less than 13 gauge, 2" mesh, and in one width. Posts, fabric and accessories shall be galvanized. Some fencing may require terminal posts to be sunk in the ground, or with appropriately placed concrete footings, and/or may require sandbags for ballast, as determined by the Inspector and/or Project Manager.

3. Chain link fencing shall be free from barbs, icicles or other projections resulting from the galvanizing process, and shall be knuckle-knuckle. Fence fabric having such defects will be rejected even though it has been erected.
4. Gates shall be fabricated of steel pipe with welded corners, and horizontal and diagonal bracing as required to prevent flexing. Fabric to be attached to the frame at 12 inch centers. Provide all gate hardware of a strength and quality to perform satisfactorily until the barricade is removed upon completion of the work. Provide locks sufficient to secure the area, and that can be opened with one hand (e.g. combination locks).
5. At the completion of the work, remove barricade and concrete post footings from the site; backfill and compact fence footing holes by patching with like materials. Existing surface paving that is cut into or removed shall be patched and sealed to match the surrounding areas with like materials, and in the same finishes.
6. Contractor shall maintain all fencing and gates in good order on a daily basis, including the masking of graffiti as deemed necessary by the Inspector, and/or Project Manager, and shall secure the project fencing and gates at the end of every work day.

C. Other Enclosures:
1. Provide temporary weather-tight enclosures at openings in exterior walls to create acceptable working conditions, and/or to allow for temporary heating and for necessary security.
2. Provide protective barriers that shall be at least 4' in height, and extend to protect all areas at tree drip lines, around plants and other improvements designated to remain, as determined by the Inspector and/or Project Manager and related specification sections.

D. Storage Yards and Storage Containers:
1. The Contractor shall fence and maintain storage yards in an orderly manner.
2. Provide steel storage containers, lockable, free from graffiti, and in good condition for materials and equipment that cannot be stored offsite or in a bonded and agreed-upon warehouse.
3. Exact location, size and access of storage yards and steel storage containers shall be approved by the District Construction/Project Manager.
4. Remove storage yards and containers as rapidly as progress of the work will permit.

1.04 REQUIRED SIGNS AT GATES

A. Contractor shall post at the work site signs not greater than twenty-five feet (25') apart at all gates stating "Authorized Personnel Only – Construction Area" and "No Parking – Fire Lane," as determined by the contract specifications and drawings, and/or as designated by the Inspector and/or Project Manager.

1.05 HARD HAT SIGN:

A. Contractor shall post a sign at each gate and/or entry to any area of construction, identifying the job site as a “hard hat area”. No person without a hard hat shall be allowed in the sections of the project under construction. This shall be the responsibility of the Contractor's Project Safety Inspector to enforce.

1.06 DUST AND NOISE CONTROL:

A. Throughout the entire construction period, Contractor shall maintain dust control by use of water or other environmental controls as may be approved by the Architect, Inspector, and/or Project Manager.

B. Noise Control: Muffle all equipment to a maximum of 85 Dba at 5’ from equipment. Noise control is to be kept to a minimum to perform the operations of construction. NO Radios or projected sound will be allowed on the job site.

1.07 GENERAL ITEMS:

A. Staging areas for delivery of materials and equipment will be at locations designated by the drawings and specifications, and/or as approved by the Architect, Inspector, and/or Project Manager.

B. Safety and Security Lighting: Provide 5 foot candles outside.

C. Noise Control: Muffle all equipment to a maximum of 85 Dba at 5’ from equipment.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1-GENERAL

1.01 REQUIREMENTS INCLUDED

A. Protection for Products, including District - Provided Products, After Installation.

B. Protection of Existing Utilities and Interference.

1.02 EXISTING UTILITIES

A. The known existing utilities are shown on the drawings in their approximate location and the Prime Trade Contractor shall exercise care in avoiding damage to these facilities as the Prime Trade Contractor will be held responsible for their repair if damaged. Hand excavation shall be utilized when digging in close proximity to existing utilities. The District's Architectural Team does not guarantee that all utilities or obstructions are shown or that the locations indicated are accurate.

B. No work shall be performed on energized electrical equipment unless scheduled with the District Inspector of Record. The District Inspector of Record reserves the right to specify specific conditions for all work involving energized high voltage electrical equipment, and its scheduled modification proposal.

C. If interferences occur at locations other than the general locations shown on the plans, and such utilities are damaged before their locations have been established, or create an interference, the Prime Trade Contractor shall notify the District's Construction/Project Manager and a method for correcting said interference shall be supplied by the District's Engineering representatives. Payment for additional work due to interferences not shown on the plans shall be in accordance with the General Conditions.

D. Drawings showing location of equipment, piping, etc., are diagrammatic and job conditions will not always permit their installation in location shown. When this situation occurs, bring to the District Architect's, and/or Inspector's attention immediately to determine relocation in joint conference.

E. Information shown relative to existing power and signal service is based upon available records and data but shall be regarded as approximate only. Minor deviations found necessary to conform to actual locations and conditions shall be made without extra cost to the District.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.01 PROTECTION AFTER INSTALLATION

A. Adequately protect all installed equipment and materials until completion and acceptance by the Architect, Inspector, and Project Manager.

B. Protect installed products and control traffic in immediate area to prevent damage in subsequent operations.

C. Provide protective coverings at walls, projections, corners, and jambs, sills, and stiff openings in and adjacent to traffic areas.

D. Cover walls and floors of elevator cabs, and jambs of cab doors, when elevators are used by construction personnel. Protect elevator area until final acceptance.

E. Protect finished floors and stairs from dirt, wear, and damage:
   1. Secure heavy sheet goods or similar protective materials in place, in areas subject to construction foot traffic, and/or material deliveries.
   2. Lay planking or similar rigid materials in place, in areas subject to movement of heavy objects over existing surfaces.
   3. Lay planking or similar rigid materials in place in areas where storage of products will occur.

F. Protect waterproofed and roofed surfaces:
   1. Restrict use of surfaces for traffic of any kind, and for storage of products.
   2. When an activity is mandatory, obtain recommendations for protection of surface from manufacturer. Install protection and remove on completion of activity. Restrict use of adjacent unprotected areas.

G. Restrict traffic of any kind across planted lawn and landscape areas through the use of temporary barricades, fencing, signage, and until final acceptance and maintenance period.

H. Care shall be exercised to prevent damage to adjacent facilities including walks, curbs, and gutters, etc. Where equipment will pass over these obstructions, suitable planking and protection shall be placed, and damaged facilities, due to the Contractor(s) operations, shall be removed and replaced at the Prime Trade Contractor's expense.

I. Prime Trade Contractor shall be responsible for overloading of any part or parts of structures beyond their safe calculated carrying capacities by placing of materials, equipment, tools machinery or any other item thereon.

J. All existing improvements and facilities shall be protected from damage of any type resulting from the operations, equipment or workers of the Contractor(s) during the time the project.

K. All damaged work shall be replaced, repaired and restored to its original condition with no additional cost to the District.

L. Where existing utilities are damaged or disrupted on account of any act, omission, neglect or misconduct by the Contractors in the manner or method of executing the work, or due to non-execution of work, such damage shall be immediately repaired to maintain operation regardless of the time of occurrence with no cost to the District.

M. Provide temporary construction necessary for protection of the building and their parts. Close buildings as soon as possible as protection from the weather and vandalism. Protect existing buildings and controlled temperature areas from excessive temperature variances below 68 degrees Fahrenheit, and above 76 degrees Fahrenheit, and from any damage.

N. Protect doors, millwork and mill counters and cases and hardware from damage, including abrading and scratching of finishes.

O. Protect doors and frames and hardware from mechanical damage and damage to finish coatings.

P. Remove protective coatings, wrappings, temporary coverings, etc., as required to leave work in condition for painting and finishing, final cleaning, etc.

Q. Protect all exterior work, including existing asphalt paving, concrete flatwork, common sidewalk, and City curb, gutter, and aprons. Protect all existing and newly placed landscaping and irrigation systems.

R. Repair or replace all damaged work promptly as directed by District Construction/Project Manager, District IOR, or District Architect at no cost to the District.

END OF SECTION

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED:

A. Security Program.

B. Entry Control.

C. Personnel Identification.

D. Miscellaneous Restrictions

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 SECURITY PROGRAM

A. Protect work, existing premises, and School operations from theft, vandalism and unauthorized entry.

B. Security of the job area shall be strictly maintained. The Prime Trade Contractor shall be responsible for keeping areas involved in the work locked and secure at all times when work is not in progress, and no Contractor representative is on site.

3.02 ENTRY CONTROL

A. Restrict entrance of persons and vehicles into Project site and existing facilities under construction. Allow entrance only to authorized persons with proper identification, and appropriate footwear, and hard hats, as determined by the Contractor Project Safety Inspector, and/or District Inspector.

B. Prime Trade Contractor shall control entrance of own persons and vehicles related to construction operations in accordance with the conditions during work, and not allow intrusion by others.

3.03 BADGES AND ESCORT REQUIREMENTS

A. All personnel shall wear badges distinguishing personnel requiring an escort (YELLOW badges) to areas of the campus outside of the work area from those not requiring an escort (GREEN badges).

B. Personnel without fingerprint and acceptable background check on file with the District shall require an escort to any area outside of the work area.

C. The Contract and Pre-Construction meeting wording lays out the appropriate procedures for Contractor and Subcontractor personnel in working on the school site.

END OF SECTION

PART 1-GENERAL

1.01 SECTION INCLUDES

A. The Environmental Mitigation requirement for this project is recorded in this specification section 01564. The measures mitigations may include, but are not limited to, procedures and standards to control:
   1. Dust
   2. Noise
   3. Fumes
   4. Timing of work activities
   5. Erosion
   6. Archaeological resources found during excavation
   7. Preservation of trees
   8. Demolition process and materials.

1.02 EXECUTION

A. The Contractor shall comply with the mitigation below in terms of what is to be controlled, acceptable methods, and standards (e.g. equipment must be muffled and noise levels may not exceed specified decibel levels).

B. The Contractor shall provide documentation of having met the mitigation requirements as described below to the Inspector and/or Project Manager within five (5) working days of the Notice to Proceed and at each phase of the project.

C. To reduce dust emissions and noise during construction by implementing the following:
   1. Exposed surfaces should be watered twice daily.
   2. Stockpiles of excavated materials should be covered.
   3. Trucks carrying excavated materials from the site should be covered and should have their tires and undercarriages washed prior to exiting the site.
   4. Streets affected by fugitive sand and dust are to be swept regularly by Prime Trade Contractors responsible for tracking of mud and/or sand to these streets.
   5. Uncovered soil should be bound (by grass or similar groundcover) as soon as is reasonably possible.
   6. Excavation should not be conducted when surface winds exceed 11 mph.
   7. Unnecessary idling of construction vehicles and equipment should be avoided adjacent to areas of instruction, or adjacent to fresh air ductwork, or where noise will affect the areas of instruction.
   8. Limit construction activities to a schedule that minimizes disruption as much as possible to area residences surrounding the project site property boundaries.
   9. Schedule activities with the highest noise potential for the times when disruption of any instruction, or area of residences surrounding the project site will be at a minimum.

10. Require contractors to employ the lowest-decibel level equipment, or employ alternative equipment or to muffle/control noise from available equipment to the maximum extent possible.
11. Perform noisy operations (e.g., mixing concrete, hydraulic/mechanical demolition) off-site or on portions of the site furthest from noise sensitive receptors whenever possible, and in consult with the Inspector and/or Project Manager.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. General product requirements.

B. Re-use of existing products.

C. Transportation, handling, storage and protection.

D. Product option requirements.

E. Substitution limitations and procedures.

F. Maintenance materials, including extra materials, spare parts, tools, and software.

1.02 SUBMITTALS

A. Proposed Products List: Submit list tabulated by Section Number of major products proposed for use, with name of manufacturer, trade name, and model number of each product. Indicate which products are being proposed as substitutions.
   1. Submit within 15 days after date of Notice to Proceed.
   2. For products specified only by reference standards, list applicable reference standards.

B. Product Data Submittals: Submit manufacturer's standard published data. Mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information specific to this Project.

C. Shop Drawing Submittals: Prepared specifically for this Project; indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

D. Sample Submittals: Illustrate functional and aesthetic characteristics of the product, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.
   1. For selection from standard finishes, submit samples of the full range of the manufacturer's standard colors, textures, and patterns.

PART 2 - PRODUCTS

2.01 EXISTING PRODUCTS

A. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the District, or otherwise indicated as to remain the property of the School District, become the property of the Contractor; remove from site.

B. Overall Project Requirement: Use reused products for at least 50 percent of all products used on project as required by The California Green Building Standards Code, Section 5.408.3.
   1. This provision is applicable to LEED Credits MR 3.1 and 3.2; show quantity on LEED report.

2.02 NEW PRODUCTS

A. Provide new products unless specifically required or permitted by the Contract Documents.

B. Do not use products having any of the following characteristics:
   1. Made using or containing CFC's or HCFC's.
   2. Made of wood from newly cut old growth timber.

C. Where all other criteria are met, Contractor shall give preference to products that:
   1. Are extracted, harvested, and/or manufactured closer to the location of the project.
   2. Have longer documented life span under normal use.
   3. Result in less construction waste.
   4. Are made of vegetable materials that are rapidly renewable.

2.03 PRODUCT OPTIONS

A. Products Specified by Reference Standards or by Description Only: Use any product meeting those standards or description.

B. Products Specified by Naming One or More Manufacturers: Use a product of one of the manufacturers named and meeting specifications, no options or substitutions allowed.

C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

2.04 MAINTENANCE MATERIALS

A. Furnish extra materials, spare parts, tools, and software of types and in quantities specified in individual specification sections.

B. Deliver to the School District; obtain receipt prior to final payment.

PART 3 - EXECUTION

3.01 SUBSTITUTION PROCEDURES

A. Project Architect will consider requests for substitutions only within 15 days after date of Agreement.

B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.

C. Document each request with complete data substantiating compliance of proposed substitution with Contract Documents.

D. A request for substitution constitutes a representation that the submitter:
   1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
   2. Will provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work that may be required for the Work to be complete with no additional cost to the School District.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.
   5. Will reimburse School District and Project Architect for review or redesign services associated with re-approval by authorities.

E. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

F. Substitution Submittal Procedure:
   1. Submit three copies of request for substitution for consideration. Limit each request to one proposed substitution.
   2. Submit shop drawings, product data, and certified test results attesting to the proposed product equivalence. Burden of proof is on proposer.
   3. The Project Architect will notify Contractor in writing of decision to accept or reject request.

3.02 TRANSPORTATION AND HANDLING

A. Coordinate schedule of product delivery to designated prepared areas in order to minimize site storage time and potential damage to stored materials.

B. Transport and handle products in accordance with manufacturer's instructions.

C. Transport materials in covered trucks to prevent contamination of product and littering of surrounding areas.

D. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

E. Provide equipment and personnel to handle products by methods to prevent soiling, disfigurement, or damage.

F. Arrange for the return of packing materials, such as wood pallets, where economically feasible.

3.03 STORAGE AND PROTECTION

A. Designate receiving/storage areas for incoming products so that they are delivered according to installation schedule and placed convenient to work area in order to minimize waste due to excessive materials handling and misapplication.

B. Store and protect products in accordance with manufacturers' instructions.

C. Store with seals and labels intact and legible.

D. Store sensitive products in weather tight, climate controlled, enclosures in an environment favorable to product.

E. For exterior storage of fabricated products, place on sloped supports above ground.

F. Provide bonded off-site storage and protection when site does not permit on-site storage or protection.

G. Cover products subject to deterioration with impervious sheet covering. Provide ventilation to prevent condensation and degradation of products.

H. Store loose granular materials on solid flat surfaces in a well-drained area. Prevent mixing with foreign matter.

I. Prevent contact with material that may cause corrosion, discoloration, or staining.

J. Provide equipment and personnel to store products by methods to prevent soiling, disfigurement, or damage.

K. Arrange storage of products to permit access for inspection. Periodically inspect to verify products are undamaged and are maintained in acceptable condition.

END OF SECTION

PART 1-GENERAL

1.01 REQUIREMENTS INCLUDED

A. Surveying and Field Engineering Services.

1.02 QUALITY CONTROL

A. Land Surveyor: Registered in the State of California and acceptable to the District's Architect, Inspector, and/or Project Manager.

1.03 LINES AND GRADES

A. The Contractor shall provide all construction survey work required for the accurate location of the work. Horizontal and vertical control for the work shall be from the project reference marks as shown on the Drawings. In all questions arising as to the proper location of the work, the District's A&E team's, and the Inspector's decision shall be final.

B. The Contractor shall verify final configuration of the project during demolition work. Minor adjustments of the work to accommodate existing field conditions shall be the responsibility of the Contractor.

C. Replace, at no increase in Contract Sum, control points which may be lost or destroyed; base requirements on original survey control.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION

3.1 INSPECTION

A. Verify locations of survey control points prior to starting work. Promptly notify District Architect and Inspector of any discrepancies discovered.

3.2 SURVEY REFERENCE POINTS

A. Protect survey control points prior to starting site work; preserve permanent reference points during construction. Make no changes without prior written notice to the Architect and Inspector.

B. Promptly report to the Architect and the Inspector the loss or destruction of any reference point or relocation required because of changes in grades or other reasons. Replace dislocated survey points based on original survey control.

3.3 SURVEY REQUIREMENTS

A. Establish a minimum of three (3) permanent bench marks on site, referenced to establish control points. Record locations, with horizontal and vertical data, on Project Record Documents.

B. Establish lines and levels, locate and lay out by instrumentation and similar appropriate means:
   1. Site improvements, including pavements; stakes for grading, fill and topsoil placement; and utility locations, slopes and invert elevations.
   2. Grid or axis for structures.
   3. Building foundation, column locations, and ground floor elevations.
   4. Controlling lines and levels required for mechanical and electrical work.
   5. Verify layouts as Work proceeds to assure compliance with required lines, levels and tolerances.

C. Periodically certify layouts by same means, with same approvals by the Architect and Inspector.

3.4 RECORDS

A. Maintain a complete and accurate log of all control and survey Work as it progresses.

B. On completion of foundation walls and major site improvement, including underground utilities, prepare a certified survey showing all dimensions, locations, angles, and elevations of construction to the Architect and Inspector for review and approval of the final survey for the Project record.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. This Section specifies administrative and procedural requirements for cutting and patching.

1.02 RELATED SECTIONS

A. Section 01 31 13: Project Coordination

B. Section 01 31 19: Project Meetings

C. Section 01 33 00: Submittals

D. Section 01 32 16: Schedule and Reports

E. Section 01 45 00: Testing and Laboratory Services

F. Section 01 78 36: Warranties & Bonds

PART 2 - PRODUCTS (Not applicable)

PART 3 - EXECUTION

3.01 SUBMITTALS

A. The word "cutting" as used in the Contract Documents includes, but is not limited to, cutting, drilling, chopping, and other similar operations and the word "patching" includes, but is not limited to, patching, rebuilding, reinforcing, repairing, refurbishing, restoring, replacing, or other similar operations.

B. Cutting and Patching Proposal: CONTRACTOR shall submit a proposal describing procedures well in advance of the time cutting and patching will be performed if the Contract Documents requires approval of these procedures before proceeding. The Contractor shall be responsible for locating existing utilities within the Limits of Work, whether shown or not, prior to any excavation. Contractor shall protect in place all utilities not identified to be removed, relocated or abandoned. Include the following information, as applicable, in the proposal:
   1. Describe the extent of cutting and patching required. Denote how it will be performed and indicate why it cannot be avoided.
   2. Describe anticipated results in terms of changes to existing construction. Include changes to structural elements and operating components as well as changes in the building's appearance or other significant visual elements.
   3. List products to be used and firms or entities that will perform this Work.
   4. Indicate dates when cutting and patching will be performed.

5. Utilities: List utilities that cutting and patching operations will disturb or affect. List utilities to be relocated and those that will be temporarily out-of-service. Indicate how long service will be disrupted.
6. Where cutting and patching involves adding reinforcement to structural elements, submit details and engineering calculations showing integration of reinforcement with the original structure.
7. Review by ARCHITECT/Engineer and INSPECTOR prior to proceeding with cutting and patching does not waive ARCHITECT/Engineer right to later require complete removal and replacement of defective Work.

3.02 QUALITY ASSURANCE

A. Requirements for structural Work: Do not cut and patch structural elements in a manner that would change their load-carrying capacity or load-deflection ratio.
   1. Obtain approval from ARCHITECT/Engineer and Inspector of the cutting and patching proposal before cutting and patching the following structural elements:
      a. Foundation construction
      b. Bearing and retaining walls
      c. Structural concrete
      d. Structural steel
      e. Lintels
      f. Timber and primary wood framing
      g. Miscellaneous structural metals
      h. Equipment supports
      i. Piping, ductwork, vessels, and equipment
      j. Structural systems of special construction in Division 13 Sections.

B. Operational Limitations: Do not cut and patch operating elements or related components in a manner that would result in reducing their capacity to perform as intended. Do not cut and patch operating elements or related components in a manner that would result in increased maintenance or decreased operational life or safely.
   1. Obtain review of the cutting and patching proposal before cutting and patching the following operating elements or safety related systems:
      a. Primary operational systems and equipment
      b. Air or smoke barriers
      c. Water, moisture, or vapor barriers
      d. Membranes and flashings
      e. Fire protection systems
      f. Noise and vibration control elements and systems
      g. Control systems
      h. Communication and/or data systems
      i. Electrical wiring systems
      j. Operating systems of special construction in Division 13 Sections

C. Visual Requirements: Do not cut and patch construction exposed on the exterior or in occupied spaces in a manner that would, in the opinion of ARCHITECT/Engineer/District, or Inspector reduce the building's aesthetic qualities. Do not cut and patch construction in a manner that would result in visual evidence of cutting and patching. Remove and replace Work cut and patched in a visually satisfactory manner.
   1. If possible, retain the original installer or fabricator to cut and patch the exposed Work listed below. If it is impossible to engage the original installer or fabricator, engage another recognized experienced and specialized firm.
      a. Firestopping
      b. Acoustical ceilings
      c. Acoustical panels
      d. Carpeting
      e. HVAC enclosures, cabinets, or covers
      f. Ceramic and quarry tile
      g. Gypsum board
      h. Masonry (exterior and interior where exposed)
      i. Tack boards
      j. Casework
      k. Finish carpentry

3.03 WARRANTY

A. Existing Warranties: Replace, patch, and repair material and surfaces cut or damaged by methods and with materials in such a manner as not to void any warranties required or existing.

3.04 INSPECTION

A. Examine surfaces to be cut and patched and conditions under which cutting and patching is to be performed before cutting. If unsafe or unsatisfactory conditions are encountered, take corrective action before proceeding.
   1. Before proceeding, meet at the Project site with District Inspector, District Project Manager and District Maintenance Supervisors and all contractors involved in cutting and patching, including mechanical and electrical trades. Review areas of potential interference and conflict. Coordinate procedures and resolve potential conflicts before proceeding. ENSURE THAT ALL AVAILABLE AS-BUILT DRAWINGS ARE PULLED AND REVIEWED PRIOR TO ANY CUTTING.

3.05 PREPARATION

A. Temporary support: Provide adequate temporary support of existing improvements or Work to be cut, with prior approval by the Structural Engineer and/or Inspector.

B. Protection: Protect existing improvements and Work during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of existing improvements or Work that might be exposed during cutting and patching operations.

C. Avoid interference with use of adjoining areas or interruption of free passage to adjoining areas.

D. Where the Work requires sandblasting of existing surfaces in order to receive new materials secured by cementitious, adhesive or chemical bond, completely remove existing finishes, stains, oil, grease, bitumen, mastic and adhesives or other substances deleterious to the new bonding and/or fastening of new Work. Utilize wet sand blasting for interior surfaces and for exterior surfaces where necessary to prevent objectionable production of dust.

3.06 PERFORMANCE

A. General: Employ skilled workmen to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time and complete without delay. Carefully remove existing Work to be salvaged and/or reinstalled. Protect and store for reuse into the Work. Verify compatibility and suitability of existing substrates before starting the Work.

B. Cutting: Cut existing construction using methods least likely to damage elements retained or adjoining Work. Where possible, review proposed procedures with the original installer; comply with the original installer's recommendations.
   1. In general, where cutting, use hand or small power tools designed for sawing or grinding, not hammering and chopping. Cut holes and slots as small as possible, neatly to size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. To avoid marring existing finished surfaces, cut or drill from the exposed or finished side into concealed surfaces.
   3. Cut through concrete and masonry using a cutting machine, such as a carborundum saw or a diamond-core drill. Saw cut reinforcing bars and paint ends with bituminous paint except where bonded into new concrete or masonry.
   4. Comply with requirements of applicable Division 2 Sections where cutting and patching requires excavating, backfill, and/or recompaction.
   5. Woodwork: Cut and or remove to a panel or joint line.
   6. Sheet Metal: Remove back to joint, lap, or connection. Secure loose or unfastened ends or edges and seal watertight.
   7. Glass: Remove cracked, broken, or damaged glass and clean rebates and stops of setting materials.

8. Plaster: Cut back to sound plaster on straight lines, and back bevel edges of remaining plaster. Trim existing lath and prepare for new lath.
9. Gypsum Wallboard: Cut back on straight lines to undamaged surfaces with at least two opposite cut edges centered on supports.
10. Acoustical ceilings: Remove hanger wires and related appurtenances where ceilings are not scheduled to be installed.
11. Tile: Cut back to sound tile and backing on joint lines.
12. Flooring: Completely remove flooring and clean backing of prior adhesive. Carefully remove wood flooring for patching and repairing of existing wood flooring scheduled to remain.

C. Patching: Patch with durable seams that are as invisible as possible. Comply with required tolerances.
1. Where feasible, inspect and test patched areas to demonstrate integrity of the installation. Verify conditions of existing substrates prior to executing Work.
2. Restore exposed finishes of patched areas and extend finish restoration into retaining adjoining construction in a manner that will eliminate all evidence of patching and refinishing.
3. Concrete: Maintain cut edges in a moist condition for twenty four (24) hours prior to the placement of new concrete. In lieu of this an epoxy adhesive may be provided. Finish placed concrete to match existing unless noted otherwise. Concrete shall have a minimum compressive strength of 3,000 psi where installed to repair and/or match existing improvements, unless noted otherwise, and approved by the Structural Engineer, in conjunction with review by the Inspector.
4. Metal Fabrications: Items to remain exposed shall have their edges cut and ground smooth and rounded.
5. Sheet Metal: Replace removed or damaged sheet metal items as required for new Work.
6. Glass: Install matching glass and re-seal exterior window assemblies.
7. Lath and Plaster: Install new lath materials to match existing and fasten to supports at 6”centers. Provide a 6” lap where new lath to adjoins existing lath. Fasten new lath as required for new Work. Restore paper backings as required. Apply a bonding agent on cut edges of existing plaster. Apply three coat plaster of the type, thickness, finish, texture, and color to match existing.
8. Gypsum Wallboard: Fasten cut edges of wallboard. Install patches with at least two opposite edges centered on supports and secure at 6” centers. Tape and finish joints and fastener heads. Patching shall be non-apparent when painted or finished.
9. Acoustical Ceilings: Comply with the requirements for new Work specified in related sections of the Contract Documents.
10. Resilient Flooring: Completely remove flooring and prepare substrate for new material.
11. Painting: Prepare areas to be patched, patch and paint as specified under related sections of the Contract Documents.

3.06 CLEANING

A. Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar items. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged coverings to their original condition.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES.

A. Maintain premises and adjacent public and private properties free from accumulations of waste, debris, and rubbish, caused by operations during the project.

B. At completion of Work, remove waste materials rubbish, tools, equipment, machinery and surplus materials, and clean all exposed surfaces; leave project clean and ready for occupancy.

PART 2 - PRODUCTS

2.01 MATERIALS:

A. Use only cleaning materials recommended by the manufacturer of surface to be cleaned.

B. Use cleaning materials only on proper surfaces recommended by the manufacturer.

PART 3 - EXECUTION

3.01 DURING CONSTRUCTION:

A. Execute daily cleaning plans from each trade to ensure that buildings, grounds, and public and private properties are maintained free from accumulations of waste materials, rubbish and trash on a daily basis.

B. Wet down dry materials and rubbish to prevent blowing dust and debris on and from the construction work.

C. Daily, during progress of work, clean construction site and utilized public properties, and dispose of waste materials, debris and rubbish.

D. Provide on-site steel dump containers and appropriately sized trash containers for collection of waste materials, debris and rubbish.

E. Remove waste materials, debris and rubbish from site and legally dispose of at public or private dumping areas off the District's property.

F. Vacuum clean and wet wipe interior building walls, floors, doors, windows, and hardware in preparation for and when ready to receive finish preparation and painting. Continue vacuum cleaning on an as-needed basis until building is ready final inspection by the Architect, Inspector, and Project Manager and determined to be ready for substantial completion and occupancy.

G. Handle materials in a controlled manner to minimize any unnecessary waste or debris emanating from the construction areas. Do not drop or throw materials from heights: rather, a closed chute shall be used, to minimize unnecessary dust, waste or debris from the construction area.

H. Schedule cleaning operations so that dust and other contaminants resulting from cleaning process will not migrate into new equipment or furniture, or onto wet, newly painted surfaces.

3.02 FINAL CLEANING:

A. Employ experienced workmen, or professional cleaners, for final cleaning.

B. Exterior: Clean surfaces of the construction and site including, but not limited to, fixtures, walls, soffits, floors, hardware, roofs, window and opening ledges and sills, horizontal projections, steps and platforms, walkways, rails and all like surfaces, and adjoining private and public property to the extent soiled by the Contractor's operations.

C. Interior: Leave all horizontal and vertical surfaces in vacuum cleaned, wet-wiped condition with all dust, dirt, stains, hand marks, paint spots, droppings, and other blemishes and defects completely removed, and conform to the following requirements:
   1. Hard Floors: Freshly administer specified product sealants, and Wet mop/wash and dry, concrete, portland cement flooring, tile, elastomeric, epoxy, refinished and colored concrete, and similar hard floor surfaces free of dust, streaks or stains.
   2. Resilient Flooring: Freshly wax and buff as specified in Section 09650.
   3. Wood Flooring: Remove defects and blemishes by sanding surface and painting according to Section 09900.
   4. Resilient Bases: Clean off adhesive smears and wipe clean with wet-wipe methods.
   5. Unpainted and Painted Surfaces: Clean of dust, lint, streaks or stains, utilizing wet-wipe methods as necessary.
   6. Tile Walls: Clean and polish per manufacturer's specifications.
   7. Hardware and Metal Surfaces: Clean and polish all exposed surfaces using non-corrosive and nonabrasive materials.
   8. Glass: Wash and polish both sides, and leave free of dirt, spots, streaks, and labels. Clean and polish mirrors.
   9. Ceilings: Clean and free of stains, hand marks, and defacing.
   10. Replace air conditioning filters as specified in Mechanical Specifications.
   11. Clean ducts, blowers and coils, if air conditioning units were operated without filters during construction, and after final inspection.
   12. Lighting fixtures: Replace lamps and clean fixtures and lenses if fixtures or lamps are dirty or have smudges or dust.

13. Fixtures and Equipment: Clean and polish mechanical and electrical fixtures and like items. Leave lighting fixtures free of dust, dirt, stains or waste material. Clean and service equipment and machinery, leaving ready for use.
14. Surfaces Not Mentioned: Clean according to the intent of this Section and as required for Architect's approval.

D. Contaminated Earth: Final clean up operation includes the removal and disposal of earth that is contaminated or unsuitable for support of plant life in planting areas, and filling the resulting excavations with suitable soil as directed and approved by the Architect, Inspector, and/or Project Manager.

Contaminated areas include those used for disposal of waste concrete, mortar, plaster, masonry, paints, and similar materials, and areas in which washing out of concrete and plaster mixers or washing of tools and like cleaning operations have been performed, and all areas and adjacent areas that have been oiled, paved, or chemically treated.

Do not dispose of waste, oil, solvents, paints, solutions, or like penetrating material by depositing or burying on School property; dispose of such material in a lawful manner.

END OF SECTION

PART 1 - GENERAL

1.01 WASTE MANAGEMENT REQUIREMENTS

A. Glendale Unified School District requires that this project generate the least amount of trash and waste possible.
   1. Recycle Goal: Recycle 75% of construction and demolition debris (by weight).

B. Employ processes that ensure the generation of as little waste as possible due to error, poor planning, breakage, mishandling, contamination, or other factors.

C. Minimize trash/waste disposal in landfills; reuse, salvage, or recycle as much waste as economically feasible.

D. Required Recycling, Salvage, and Reuse: The following may not be disposed of in landfills or by incineration:
   1. Aluminum and plastic beverage containers.
   2. Corrugated cardboard.
   3. Wood pallets.
   4. Clean dimensional wood: May be used as blocking or furring.
   5. Concrete.
   6. Metals, including packaging banding, metal studs, sheet metal, structural steel, piping, reinforcing bars, door frames, and other items made of steel, iron, galvanized steel, stainless steel, aluminum, copper, zinc, lead, brass, and bronze.
   7. Glass.
   8. Gypsum drywall and plaster.
   9. Plastic buckets.
   10. Carpet, carpet cushion, carpet tile, and carpet remnants: DuPont (http://flooring.dupont.com) and Interface (www.interfaceinc.com) conduct reclamation programs.
   11. Paint.
   12. Plastic sheeting.
   13. Mechanical and electrical equipment.
   14. Fluorescent lamps (light bulbs).
   15. Acoustical ceiling tile and panels.

E. Comply with California Green Building Standards Code for Construction Waste Management and Disposal.

F. Contractor shall submit periodic Waste Disposal Reports; all landfill disposal, recycling, salvage, and reuse must be reported regardless of to whom the cost or savings accrues; use the same units of measure on all reports.

G. Contractor shall develop and follow a Waste Management Plan designed to implement these requirements.

H. The following sources may be useful in developing the Waste Management Plan:
   1. State Recycling Department, at www.calrecycle.ca.gov/conDemo/.

I. Methods of trash/waste disposal that are not acceptable are:
   1. Burning on the project site.
   2. Burying on the project site.
   3. Dumping or burying on other property, public or private.
   4. Other illegal dumping or burying.
   5. Incineration, either on- or off-site.

J. Regulatory Requirements: Contractor is responsible for knowing and complying with regulatory requirements, including but not limited to Federal, state and local requirements, pertaining to legal disposal of all construction and demolition waste materials.

1.02 DEFINITIONS

A. Clean: Untreated and unpainted; not contaminated with oils, solvents, caulk, or the like.

B. Construction and Demolition Waste: Solid wastes typically including building materials, packaging, trash, debris, and rubble resulting from construction, remodeling, repair and demolition operations.

C. Hazardous: Exhibiting the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity or reactivity.

D. Nonhazardous: Exhibiting none of the characteristics of hazardous substances, i.e., ignitibility, corrosivity, toxicity, or reactivity.

E. Nontoxic: Neither immediately poisonous to humans nor poisonous after a long period of exposure.

F. Recyclable: The ability of a product or material to be recovered at the end of its life cycle and remanufactured into a new product for reuse by others.

G. Recycle: To remove a waste material from the project site to another site for remanufacture into a new product for reuse by others.

H. Recycling: The process of sorting, cleansing, treating and reconstituting solid waste and other discarded materials for the purpose of using the altered form. Recycling does not include burning, incinerating, or thermally destroying waste.

I. Return: To give back reusable items or unused products to vendors for credit.

J. Reuse: To reuse a construction waste material in some manner on the project site.

K. Salvage: To remove a waste material from the project site to another site for resale or reuse by others.

L. Sediment: Soil and other debris that has been eroded and transported by storm or well production run-off water.

M. Source Separation: The act of keeping different types of waste materials separate beginning from the first time they become waste.

N. Toxic: Poisonous to humans either immediately or after a long period of exposure.

O. Trash: Any product or material unable to be reused, returned, recycled, or salvaged.

P. Waste: Extra material or material that has reached the end of its useful life in its intended use. Waste includes salvageable, returnable, recyclable, and reusable material.

1.03 SUBMITTALS

A. See Section 01 33 13 - Submittal Procedures.

B. Submit Waste Management Plan within 10 calendar days after receipt of Notice of Award of Bid, or prior to any trash or waste removal, whichever occurs sooner; submit projection of all trash and waste that will require disposal and alternatives to landfilling.

C. Waste Management Plan: Include the following information:
   1. Analysis of the trash and waste projected to be generated during the entire project construction cycle, including types and quantities.
   2. Landfill Options: The name, address, and telephone number of the landfill(s) where trash/waste will be disposed of, the applicable landfill tipping fee(s), and the projected cost of disposing of all project trash/waste in the landfill(s).
   3. Landfill Alternatives: List all waste materials that will be diverted from landfills by reuse, salvage, or recycling.
      a. List each material proposed to be salvaged, reused, or recycled.
   4. Meetings: Describe regular meetings to be held to address waste prevention, reduction, recycling, salvage, reuse, and disposal.

5. Materials Handling Procedures: Describe the means by which materials to be diverted from landfills will be protected from contamination and prepared for acceptance by designated facilities; include separation procedures for recyclables, storage, and packaging. Whether recyclable materials will be collected via site separated bins or in co-mingled bins.
6. Transportation: Identify the destination and means of transportation of materials to be recycled; i.e. whether materials will be site-separated and self-hauled to designated centers, or whether mixed materials will be collected by a waste hauler.

D. Waste Disposal Reports: Submit at specified intervals, with details of quantities of trash and waste, means of disposal or reuse, and costs; show both totals to date and since last report.
   1. Submit updated Report with each Application for Progress Payment; failure to submit Report will delay payment.
   2. Submit Report on a form acceptable to Glendale Unified School District.
   3. Landfill Disposal: Include the following information:
      a. Identification of material.
      b. Amount, in tons or cubic yards, of trash/waste material from the project disposed of in landfills.
      c. State the identity of landfills, total amount of tipping fees paid to landfill, and total disposal cost.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
   4. Recycled and Salvaged Materials: Include the following information for each:
      a. Identification of material, including those retrieved by installer for use on other projects.
      b. Amount, in tons or cubic yards, date removed from the project site, and receiving party.
      c. Transportation cost, amount paid or received for the material, and the net total cost or savings of salvage or recycling each material.
      d. Include manifests, weight tickets, receipts, and invoices as evidence of quantity and cost.
      e. Certification by receiving party that materials will not be disposed of in landfills or by incineration.
   5. Material Reused on Project: Include the following information for each:
      a. Identification of material and how it was used in the project.
      b. Amount, in tons or cubic yards.
      c. Include weight tickets as evidence of quantity.

   6. Other Disposal Methods: Include information similar to that described above, as appropriate to disposal method.

PART 2 PRODUCTS

2.01 PRODUCT SUBSTITUTIONS

A. See Section 01 60 00 - Product Requirements for substitution submission procedures.

B. For each proposed product substitution, submit the following information in addition to requirements specified in Section 01 60 00:
   1. Relative amount of waste produced, compared to specified product.
   2. Cost savings on waste disposal, compared to specified product, to be deducted from the Contract Sum.
   3. Proposed disposal method for waste product.
   4. Markets for recycled waste product.

PART 3 - EXECUTION

3.01 WASTE MANAGEMENT PROCEDURES

A. See Section 01 31 19 for additional requirements for project meetings, reports, submittal procedures, and project documentation.

B. See Section 01 50 00 for additional requirements related to trash/waste collection and removal facilities and services.

C. See Section 01 60 00 for waste prevention requirements related to delivery, storage, and handling.

D. See Section 01 70 00 for trash/waste prevention procedures related to demolition, cutting and patching, installation, protection, and cleaning.

3.02 WASTE MANAGEMENT PLAN IMPLEMENTATION

A. Manager: Designate an on-site person or persons responsible for instructing workers and overseeing and documenting results of the Waste Management Plan.

B. Communication: Distribute copies of the Waste Management Plan to job site foreman, each subcontractor, Glendale Unified School District, and Project Architect.

C. Instruction: Provide on-site instruction of appropriate separation, handling, and recycling, salvage, reuse, and return methods to be used by all parties at the appropriate stages of the project.

D. Meetings: Discuss trash/waste management goals and issues at project meetings.
   1. Pre-bid meeting.
   2. Pre-construction meeting.
   3. Regular job-site meetings.

E. Facilities: Provide specific facilities for separation and storage of materials for recycling, salvage, reuse, return, and trash disposal, for use by all contractors and installers or contract with waste haulers who will sort waste off-site.
   1. Provide containers as required.
   2. Provide adequate space for pick-up and delivery and convenience to subcontractors.
   3. Keep recycling and trash/waste bin areas neat and clean and clearly marked in order to avoid contamination of materials.

F. Hazardous Wastes: Separate, store, and dispose of hazardous wastes according to applicable regulations.

G. Recycling: Separate, store, protect, and handle at the site identified recyclable waste products in order to prevent contamination of materials and to maximize recyclability of identified materials. Arrange for timely pickups from the site or deliveries to recycling facility in order to prevent contamination of recyclable materials.

H. Reuse of Materials On-Site: Set aside, sort, and protect separated products in preparation for reuse.

I. Salvage: Set aside, sort, and protect products to be salvaged for reuse off-site.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES
A. Procedures for closing-out Project.

1.02 RELATED SECTIONS:
A. Closeout Submittals: See Respective Specification Sections.

1.03 GENERAL:
A. As a prerequisite for final payment release, Contractor shall complete the work of this Section.

B. Comply with requirements stated in Conditions of the Contract and in Specifications for administrative procedures in closing out the Work.

1.04 PRE-FINAL INSPECTION; SUBSTANTIAL COMPLETION:
A. Pre-final Inspection:
1. Upon "substantial completion" of the Work AS AGREED TO BY Contractor, Architect/Engineer, Inspector of Record and District Project Manager, Contractor shall notify Architect/Engineer, and Inspector and request a "pre-final inspection" of the Work.
2. If Architect/Engineer, Inspector, and Project Manger concur that work of the contract project/phase is "substantially complete", he will review and list any items that need to be corrected on a punch list. List will be amended as required to include items on the correction or punch list subsequently observed.

B. Substantial Completion Defined: "Substantial Completion" of the Work is the status, as approved by the Architect/Engineer when construction is sufficiently complete, in accordance with the Contract Documents, so the District/Owner can occupy or utilize the Work for the use for which it is intended.

1.05 FINAL INSPECTION:
A. Reference: See Supplementary Conditions.

B. Final Inspection: When Contractor has complied with above Article at the end of the final phase, Architect/Engineer and Inspector and Project Manager will review the Work and list any items that are not completed or need to be corrected.

C. Contractor shall complete and/or correct the Work in a timely manner as outlined in the contract documents.

1.06 GUARANTEES:

A. General: Contractor shall guarantee in writing to District/Owner that:

"Contractor will repair or replace any or all of such work, together with any other adjacent work which may be displaced in connection with such replacement, that may prove to be defective in workmanship or material within a period of one year from the date of acceptance of the above mentioned structure by the Glendale Unified School District, ordinary wear and tear, and unusual abuse or neglect excepted."

B. Format: Contractor shall submit guarantees typed in the format indicated in "Guarantee Form".

C. Number of Copies: Submit in triplicate (3) to Architect/Engineer with one electronic pdf.

D. Required Guarantees:

1. General: Submit all guarantees listed herein or required by various Spec. Sections.
2. General Guarantee:
   a. By General Contractor; For the Entire Work: 1 Year.
3. Specific Guarantees:

SPEC DIVISION	ITEM	TIME PERIOD
a. Division 6	Custom Casework	2 Years
b. Division 7	Built-up Roofing	10 Years
	All Flashing & Sheet Metal, in connection with roof coverings	5 Years
	All Joint Sealants	5 Years
	Damp proofing	2 Years
c. Division 8	Hollow Metal Doors & Frames	2 Years
	Wood Doors	Lifetime
d. Division 9	Acoustical Ceiling Systems	2 Years
e. Division 10	Porcelain Enamel Liquid Marker Board Surfaces	Lifetime
	Toilet Compartments	Lifetime
	Operable Walls	3 Years
	Toilet Accessories	1 Years
f. Division 11	Equipment Projector Screen	1 Years
	Laboratory Equipment and Cabinets	Lifetime

g. Division 12 Furnishings
Vertical Blinds.....Lifetime

h. Division 14 Hydraulic Elevator.....1 Year
Wheelchair Lift.....1 Year

I. Division 15 Plumbing.....1 Year
HVAC Systems.....1 Year
Temperature Controls
for HVAC Systems.....1 Year

j. Division 26 All Electrical Work.....1 Year

1.07 WARRANTIES:

A. General: Comply with Section 017836. Submit all warranties required by various Specification Sections.

1.08 CERTIFICATES:

A. General: Submit in triplicate (3) all certificates required by various Specification Sections or listed herein, notarized as required.

B. Certificates:
1. Division 8: Finish Hardware installation acceptance.
2. Division 26: Fire Alarm System testing and approval.

1.09 OPERATION AND MAINTENANCE DATA:

A. General: Submit all manuals required by various Specification Sections or listed herein; three (3) copies each, and one electronic pdf. Provide durable binders, no less than 8-1/2" x 11" in size and provide the following information:
1. Identification on, or readable through, the front cover stating general nature of the manual.
2. Neatly typewritten index at the front of the Manual, furnishing immediate information as to location in the Manual of all data or equipment included.
3. Complete instructions regarding operation and maintenance of all equipment included.
4. Complete nomenclature of all replaceable parts, their part numbers, current cost, and name and address of nearest vendor of parts.
5. Copy of all Guarantees and Warranties issued.
6. Copy of the approved Shop Drawings with all data concerning changes made during construction.

B. Extraneous data: Where contents of Manuals include Manufacturers' catalog pages, clearly indicate the precise items included in this installation by clouding, or highlighting, and delete, all manufacturers' data with which this installation is not concerned.

1.10 RECORD DRAWINGS:

A. Procedures:

1. Promptly following contract award, General Contractor shall secure from the District one complete set of Drawings. Identify the set as "Record."
2. Timing of Entries: Make entries within 24 hours after receipt of information on any changes by Contractor or Sub Contractors.
3. Contractor shall be responsible for maintaining and recording the changes on the set, and by affixing any related RFI, COR, and/or ASI applicable to the changes.
4. Do not use the "Record" set for any purpose except entry of new data and for review by the Architect. Maintain separate job sets for subcontractors and workers daily use.
5. Maintain the "Record" set at the job site where designated by the Architect/Engineer, in conjunction with the Inspector.
6. Use all means necessary to protect the "Record" set from deterioration, loss or damage until completion of the work.
7. Making entries on Drawings: Using an erasable colored pencil, other than blue or black, not ink or indelible pencil, and clearly describe the change by note and by graphic line as required. Date all entries. Call attention to the entry by a "cloud" around the area or areas affected. In the event of overlapping changes, different colors may be used for each of the changes.
    a. Changes due to approved change orders may be indicated by referencing the change order number and scope of change in lieu of revising the Drawings.
    b. The location and depth below finish grade or above ceilings and attic spaces of utilities shall be fully dimensioned and indicated on Drawings. Dimensions shall be taken to building lines or permanent landmarks.
8. The architect's approval of the current status of the "Record" drawings will be a prerequisite to the Architect/Engineer's and Inspector's approval of requests for progress payments and request for final payment release.
    a. Progress approvals: Prior to submitting each request for progress payments, secure the District Inspector's approval of the status of the "Record" Drawings.
    b. Prior to submitting request for final payment and final inspection, General Contractor shall submit the "Record Drawing" set to the District Inspector, with transmittal letter, in duplicate, for approval and further processing through the Architect/Engineers for their approval and acceptance, and delivery to the District.

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 SUBMITTALS

A. Project Record Documents: Submit documents to Project Architect with claim for final Application for Payment.

B. Operation and Maintenance Data:
   1. Submit two copies of preliminary draft or proposed formats and outlines of contents before start of Work. Project Architect will review draft and return one copy with comments.
   2. For equipment, or component parts of equipment put into service during construction and operated by the School District, submit completed documents within ten days after acceptance.
   3. Submit one copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with Project Architect comments. Revise content of all document sets as required prior to final submission.
   4. Submit two sets of revised final documents in final form within 10 days after final inspection.

C. Warranties and Bonds:
   1. For equipment or component parts of equipment put into service during construction with the School District's permission, submit documents within 10 days after acceptance.
   2. Make other submittals within 10 days after Date of Substantial Completion, prior to final Application for Payment.
   3. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within 10 days after acceptance, listing the date of acceptance as the beginning of the warranty period.

PART 2 - PRODUCTS- NOT USED

PART 3 - EXECUTION

3.01 PROJECT RECORD DOCUMENTS

A. Maintain on site one set of the following record documents; record actual revisions to the Work:
   1. Drawings.
   2. Specifications.

3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.

B. Ensure entries are complete and accurate, enabling future reference by the School District.

C. Obtain Inspector of Record approval on documents.

D. Store record documents separate from documents used for construction.

E. Record information concurrent with construction progress.

F. Specifications: Legibly mark and record at each product section description of actual products installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

G. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
1. Measured depths of foundations in relation to finish first floor datum.
2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
4. Field changes of dimension and detail.
5. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

B. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

C. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

D. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.03 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES

A. For Each Product, Applied Material, and Finish:
   1. Product data, with catalog number, size, composition, and color and texture designations.
   2. Information for re-ordering custom manufactured products.

B. Instructions for Care and Maintenance: Manufacturer's recommendations for cleaning agents and methods, precautions against detrimental cleaning agents and methods, and recommended schedule for cleaning and maintenance.

C. Moisture protection and weather-exposed products: Include product data listing applicable reference standards, chemical composition, and details of installation. Provide recommendations for inspections, maintenance, and repair.

D. Additional information as specified in individual product specification sections.

E. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.04 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS

A. For Each Item of Equipment and Each System:
   1. Description of unit or system, and component parts.
   2. Identify function, normal operating characteristics, and limiting conditions.
   3. Include performance curves, with engineering data and tests.
   4. Complete nomenclature and model number of replaceable parts.

B. Operating Procedures: Include start-up, break-in, and routine normal operating instructions and sequences. Include regulation, control, stopping, shut-down, and emergency instructions. Include summer, winter, and any special operating instructions.

C. Maintenance Requirements: Include routine procedures and guide for preventative maintenance and trouble shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

D. Provide servicing and lubrication schedule, and list of lubricants required.

E. Include manufacturer's printed operation and maintenance instructions.

F. Include sequence of operation by controls manufacturer.

G. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

H. Provide control diagrams by controls manufacturer as installed.

I. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.

J. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

K. Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

L. Include test and balancing reports.

M. Additional Requirements: As specified in individual product specification sections.

3.05 OPERATION AND MAINTENANCE MANUALS

A. Comply with requirements contained in specific Sections for quantity of O&M manuals and operational data.

B. Prepare instructions and data by personnel experienced in maintenance and operation of described products.

C. Prepare data in the form of an instructional manual.

D. Cover: Identify each binder with typed or printed title OPERATION AND MAINTENANCE INSTRUCTIONS; identify title of Project; identify subject matter of contents.

E. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.

3.06 WARRANTIES AND BONDS

A. Obtain warranties and bonds, executed in duplicate by responsible Subcontractors, suppliers, and manufacturers, within 10 days after completion of the applicable item of work. Except for items put into use with the School District's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

B. Verify that documents are in proper form, contain full information, and are notarized.

C. Co-execute submittals when required.

D. Retain warranties and bonds until time specified for submittal.

E. Manual: Bind in commercial quality 8-1/2 by 11 inch three D side ring binders with durable plastic covers.

F. Cover: Identify each binder with typed or printed title WARRANTIES AND BONDS, with title of Project; name, address and telephone number of Contractor and equipment supplier; and name of responsible company principal.

G. Table of Contents: Neatly typed, in the sequence of the Table of Contents of the Project Manual, with each item identified with the number and title of the specification section in which specified, and the name of product or work item.

H. Separate each warranty or bond with index tab sheets keyed to the Table of Contents listing. Provide full information, using separate typed sheets as necessary. List Subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.

END OF SECTION

PART 1 - GENERAL

1.01 SUBMITTAL REQUIREMENTS:

A. Assemble Warranties, Bonds, and Service and Maintenance Contract, executed by each of the respective Manufacturers, Suppliers, and Subcontractors, and submit to the Architect/Engineer for review and approval before Final Payment will be approved and released.

B. Number of original signed copies required: Three (3) each and one electronic pdf.

C. Table of Contents Neatly typed in orderly sequence.

D. Provide complete information for each item:
   1. Product or work Item.
   2. Firm, with name of principal, address and telephone number.
   3. Beginning date of Warranty, Bond, or Service and Maintenance Contract.
   4. Duration of Warranty, Bond of Service, and Maintenance Contract.
   5. Provide the following information for District/Owner's Personnel:
      a) Procedure in case of failure or malfunction.
      b) Instances which affect Warranty or Bond validity.
   6. Contractor, name of responsible principal, address, telephone number and email address.

1.02 SUBMITTAL FORM:

A. Punch sheets for standard 3-ring binder.

B. Size: 8-1/2 x 11 inches.

C. Fold larger sheets to fit into binder.

D. Cover: Identify each packet with typed or printed title 'WARRANTIES AND BONDS" 1st:
   1. Title of Project.
   2. Name of Contractor.

PART 2 – PRODUCTS – NOT USED

PART 3 – EXECUTION – NOT USED

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Work Includes:
   1. Remove designated items for relocation on-site.
   2. Remove items to clear path for installation.
   3. Remove excavated concrete, asphalt and soil spoils from site.

B. Related Work:
   1. Requirements in Addenda, Alternates, Conditions and Division 1 collectively apply to this work.

1.02 QUALITY ASSURANCE

A. Demolition shall be in compliance with Title 24 of the California Code of Regulations and conform to the California Building Code, 2016 edition.

B. Utilities disconnection, capping and re-installation shall be by workmen licensed to perform such work.

1.03 SUBMITTALS

A. Two (2) copies of permits and notices.

B. Upon completion of work in this Section, submit record documents recording the extent of active and abandoned underground utilities.

1.04 EXISTING CONDITIONS

A. Contractor shall contact the local underground service alert company for information on buried utilities and pipelines.

B. Conduct demolition to minimize interference with adjacent structures, trees and properties.

C. Provide, erect and maintain temporary barriers and security devices.

D. Conduct operations with minimum interference to public or private thoroughfares. Maintain egress and access at all times.

E. Traffic: Conduct site-clearing operations to ensure minimum interference with roads, streets, walks, and other adjacent occupied or used facilities. Do not close or obstruct streets, walks, or other occupied or used facilities without permission from authorities having jurisdiction.

F. Prior to demolition or heavy vehicular activity, examine structures adjacent to the designated demolition, including concrete walks and asphaltic concrete paving. Obtain District Inspector's confirmation by signature for the following:
   1. Record on the Project Record Documents any pre-existing conditions that could later be construed as Contractor damage.

2. Document each recorded pre-existing condition with a supporting photograph.

G. Protection of Existing Utilities: Protect existing utilities, including irrigation system from damage.
1. Contact the local underground service alert company and the District prior to any trenching for determining location of underground utilities/irrigation lines.
2. Contact the District for repair instructions for damaged lines.
3. REPAIR OF HIDDEN DAMAGED PRODUCTS, DISCOVERED BY THE DISTRICT, WILL BE CHARGED DIRECTLY TO THE CONTRACTOR.

H. Protection of Existing Improvements: Provide protection necessary to prevent damage to existing improvements not indicated to be demolished and/or removed.
1. Protect improvements on adjoining properties and on Owner's property.
2. Restore damaged improvements to their original condition, as acceptable to property owners.

I. Protection of Existing Trees and Vegetation: Protect existing trees and other vegetation indicated to remain in place against unnecessary cutting, breaking or skinning of roots, skinning or bruising of bark, smothering of trees by stockpiling construction materials or excavated materials within drip, excess foot or vehicular traffic, or parking of vehicles within drip line. Provide temporary guards to protect trees and vegetation to be left standing.
1. Water trees and other vegetation to remain within limits of Contract Work as required to maintain their health during course of construction operations.
2. Replace damaged trees that are damaged by construction activities.

PART 2 - PRODUCTS
Not Used.

PART 3 - EXECUTION

3.01 PREPARATION
A. Verify that structures to be demolished are unoccupied and discontinued in use.

B. Prevent movement or settlement of adjacent structures. Provide bracing and shoring.

C. Protect existing landscaping materials, appurtenances and structures, which are noted to remain.

D. Notify School maintenance personnel and utility authorities to locate and flag underground lines. Disconnect, remove and cap designated utility lines within demolition areas. Obtain release from respective utility companies that utilities have been capped in a safe manner.

E. Mark location of disconnected utilities. Identify utilities and indicate capping locations on project record documents.

3.02 EXECUTION

A. Remove excavated soil/rocks in association with the installation of the asphaltic sidewalks and building bases. Dispose of rocks and excavated debris to off-site dump. Top soil shall be stockpiled or spread in accordance with District's wishes at each indicated site.

B. Asphaltic concrete paving shall be saw cut to a straight line on the demolition border, prior to paving demolition.

C. Cease operations and notify Architect immediately if adjacent structures appear to be endangered. Do not resume operations until corrective measures have been taken.

D. Remove and promptly dispose of contaminated, vermin infested or dangerous materials encountered.

E. Do not burn or bury materials on Site.

F. Keep work sprinkled to minimize dust. Provide hoses and water main or hydrant connections for this purpose.

3.03 SITE CLEARING

A. General: Remove shrubs, grass, and other vegetation, improvements, or obstructions, as required, to permit installation of new construction. Remove similar items elsewhere on site or premises as specifically indicated. Removal includes digging out and off-site disposal of stumps and roots. Removal of trees are not permitted, unless prior approval has been obtained from the Architect and District.

B. Removal of Improvements: Remove existing above-grade and below-grade improvements as indicated and as necessary to facilitate new construction. Saw cut existing paving at boundary of areas to be removed.

3.04 DISPOSAL OF WASTE MATERIALS

A. Burning on Owner's Property: Burning is not permitted on Owner's property.

B. Removal from Owner's Property: Remove waste materials and unsuitable or excess topsoil from Owner's property.

END OF SECTION

PART 1 – GENERAL

1.01 Provisions of Divisions 01 apply to this Section

1.02 SECTION INCLUDES

A. Formwork for cast-in-place concrete as indicated.

B. Installation of items to be embedded in concrete, such as anchor bolts, inserts, embeds, and sleeves.

1.03 RELATED REQUIREMENTS

A. Section 03 20 00: Concrete Reinforcement.

B. Section 03 30 00: Cast-In-Place Concrete

1.04 SYSTEM DESCRIPTION

A. Work shall be in accordance with CBC, Chapter 19A, Concrete.

1.05 SUBMITTALS

A. Submit Shop Drawings indicating locations of forms, joints, embedded items, and accessories.

B. Submit manufacturer's product data for form materials and accessories.

1.06 QUALITY ASSURANCE

A. As a minimum requirement, conform to ACI 347, Chapter 1: Design and Chapter 3: Materials for Formwork; ACI 301, “Specifications for Structural Concrete for Buildings”, as applicable, and for plywood, conform to tables for form design and strength in APA Form V 345.

B. Provide mock-ups for architectural exposed finishes.

1.07 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials for forms in timely manner to ensure uninterrupted progress.

B. Store materials by methods that prevent damage and permit inspection and identification.

PART 2 PRODUCTS

2.01 - GENERAL

A. Form materials may be reused provided they are completely cleaned and reconditioned, recoated for each use, capable of producing formwork of required quality, and are structurally sound.

B. Form Lumber: WCLIB Construction Grade or Better, WWPA No. 1 or Better.

C. Plywood: PS 1 95, Group I, Exterior Grade B-B Plyform or better.

D. For exposed painted concrete, plastic overlaid plywood of grade specified above, factory coated with a form coating and release agent Noxcrete", or equal.

E. Tube Forms: Burke "SmoothTube," Sonoco "Seamless Sonotubes," or Alton Building Products "Sleek Seamless Standard Wall," of the type leaving no marks in concrete.

F. Joist Forms: Code recognized steel or molded plastic types as required.

G. Special Forms: For exposed integrally-colored concrete, plywood as above with high density overlay, plywood with integral structural hardboard or fibrous glass reinforced plastic facing.

H. For Exposed Concrete Finish, material can be the following types: plywood, glass, steel and a combination plywood formwork types.

I. Form Ties: Prefabricated rod, flat band, wire, internally threaded disconnecting type.

J. Form Coating: Non-staining clear coating free from oil, silicone, wax, not grain-raising, or "Cast-Off".

K. Form Liner: Rigid or resilient type.

L. Void Forms: Forms shall be "WallVoid" for temporary support and "SlabVoid" for creating gaps. Void forms shall be fabricated of corrugated paper with moisture resistant exterior and shall be capable of withstanding working load of 1,500 psf.

PART 3 - EXECUTION

3.01 GENERAL

A. Forms shall be constructed so as to shape final concrete structure conforming to shape, lines and dimensions of members. They shall be properly braced or tied together and their supports shall be designed so that previously placed structures will not be damaged.

3.02 ERECTION

A. Plywood shall be installed with horizontal joints level, vertical joints plumb and with joints tight. Reused plywood shall bethoroughly cleaned and repaired, nail plywood to maintain alignment and prevent warping.

B. Provide temporary openings at points in formwork to facilitate cleaning and inspection.

3.03 REMOVAL OF FORMS

A. Forms shall not be removed until concrete has sufficiently hydrated and shoring shall not be removed until member has acquired sufficient strength.

B. Compressive strength of in-place concrete shall be determined by testing field-cured specimens representative of concrete location or members, as specified in Cast-In-Place Concrete.

3.04 PROTECTION

A. Protect the Work of this section until Substantial Completion.

3.05 CLEAN UP

A. Remove rubbish, debris and waste materials and legally dispose of off the Project site.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete and concrete masonry units.

B. Supports and accessories for steel reinforcement.

1.02 RELATED SECTIONS

A. Section 03 10 00 - Concrete Forms and Accessories.

B. Section 03 30 00 - Cast-in-Place Concrete.

1.03 REFERENCES

A. ACI 301 - Specifications for Structural Concrete for Buildings; American Concrete Institute International.

B. ACI 318- Building Code Requirements For Reinforced Concrete and Commentary; American Concrete Institute International.

C. ACI SP-66 - ACI Detailing Manual; American Concrete Institute International.

D. ASTM A 82- Standard Specification for Steel Wire, Plain, for Concrete Reinforcement.

E. ASTM A 184/A 184M - Standard Specification for Welded Deformed Steel Bar Mats for Concrete Reinforcement.

F. ASTM A 185- Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete.

G. ASTM A 497/A 497M- Standard Specification for Steel Welded Wire Reinforcement, Deformed, for Concrete.

H. ASTM A 615/A 615M - Standard Specification for Deformed and Plain Billet-Steel 1;3ars for Concrete Reinforcement.

I. ASTM A 704/A 704M - Standard Specification for Welded Steel Plain Bar or Rod Mats for Concrete Reinforcement.

J. ASTM A 706/A 706M- Standard Specification for Low-Alloy Steel Deformed and Plain Bars for Concrete Reinforcement.

K. ASTM A 996/A 996M -Standard Specification for Rail-Steel and Axle-Steel Deformed Bars for Concrete Reinforcement.

L. AWS D1.4 - Structural Welding Code- Reinforcing Steel; American Welding Society.

M. California Code of Regulations (CCR) Title 24 California Building Code (CBC). 2016 Edition.

N. CRSI (DA4)- Manual of Standard Practice; Concrete Reinforcing Steel Institute.

0. CRSI (P1)- Placing Reinforcing Bars; Concrete Reinforcing Steel Institute.

1.04 SUBMITTALS

A. Shop Drawings: Only when deviations are made from the contract documents, submit shop drawings under provision of Section 01 33 00 with deviations clearly identified.
   1. Indicate sizes, spacings, locations and quantities of reinforcing steel, wire fabric, bending and cutting schedules, splicing, stirrup spacing, supporting and spacing devices.

B. Manufacturer's Certificate: Certify that reinforcing steel and accessories supplied for this project meet or exceed specified requirements.

C. Reports: Submit certified copies of mill test report of reinforcement materials analysis, indicate physical and chemical analysis.

D. Welders Certificates: Submit certifications for welders employed on the project, verifying AWS qualifications within the previous 12 months.

1.5 QUALITY ASSURANCE

A. Perform work of this section in accordance with CRSI (DA4), CRSI (P1), ACI 301, and ACI SP-66.

B. Tests of Reinforcing bars shall be in conformance with 2016 CBC Sections 1916A.2 and 1704A.4.1.

PART 2 - PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A 615/A 615M Grade 60.
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Reinforcing Steel: ASTM A 706/A 706M, deformed low-alloy steel bars.
   1. Unfinished.

C. Steel Welded Wire Reinforcement: ASTM A185/A 185M, plain type.
   1. Welded Wire Mat Reinforcing: mesh size and gage as indicated on drawings.

D. Steel Welded Wire Reinforcement: ASTM A 497, deformed type.
   1. Flat Sheets.
   2. Mesh Size and Wire Gage: As indicated on drawings.

E. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage acceptable patented system.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement, including load bearing pad on bottom to prevent vapor barrier puncture.
   3. Provide stainless steel, plastic, or plastic coated steel components for placement within 1 %" of weathering surfaces.

2.02 FABRICATION

A. Fabricate concrete reinforcing in accordance with CRSI (DA4)- Manual of Standard Practice.

B. Welding of reinforcement, in conformance with 2016 CBC Section 1903A.7 with Table 1704A.3, is permitted only with the specific approval of Structural Engineer. Perform welding in accordance with AWS D1.4.

C. Obtain approval from the architect/engineer for additional reinforcing splices not indicated on drawings.

PART 3 - EXECUTION

3.01 PLACEMENT

A. Comply with requirements of ACI 301. Clean reinforcement of loose rust and mill scale, and accurately position, support, and secure in place to achieve not less than minimum concrete coverage required for protection.

B. Install welded wire reinforcement in maximum possible lengths, and offset end laps in both directions. Splice laps with tie wire.

C. Verify that anchors, seats, plates, reinforcement and other items to be cast into concrete are accurately placed, positioned securely, and will not interfere with concrete placement.

D. Do not displace or damage vapor barrier.

E. Accommodate placement of formed openings.

3.2 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 43 00, will inspect installed reinforcement for conformance to contract documents before concrete placement.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Work Included:
   1. Cast-in-place concrete for the following:
      a. CMU Footings.
   2. Formwork.
   3. Curing and protection.
   4. Finishing.
   5. Vapor Barrier.

B. Related Work:
   1. Requirements in Addenda, Conditions and Division 1 collectively apply to this work.
   2. Portland Cement Concrete Paving: Section 32 13 13.
   3. Concrete Formwork: Section 03 10 00.
   4. Steel Reinforcement: Section 03 20 00.

1.02 SUBSTITUTIONS

Only written approval of Architect, by addenda or change order, will permit substitutions for materials specified. Refer to Section 01 25 13 - Product Options and Substitutions for procedure.

1.03 REFERENCES

A. ASTM C33/C33M-08 - Concrete Aggregates.

B. ASTM C94/C94M-10a - Ready-Mixed Concrete.

C. ASTM C150/CM150-09 - Portland Cement.

D. ASTM C260-06 - Air-Entraining Admixtures for Concrete.

E. ASTM C494/C494M-102 - Chemical Admixtures for Concrete.

1.04 QUALITY ASSURANCE

A. Design Criteria for Formwork:
   1. Contractor shall be solely responsible for formwork and shall:
      a. Design, construct and maintain formwork to safely support loads.
      b. Obtain governing agency approval.

B. Testing Agency:
   1. On-Site Work: District designated Testing Laboratory.
   2. Off-Site Work: Governing agency approved Testing Laboratory.

C. Requirements of Regulatory Agencies:
   1. Codes: Conform to Title 24 of the CCR and conform to CBC, 2016 Edition.

2. Off-Site Work:
   a. Conform to local governing agency requirements.
   b. Obtain and pay for permits, licenses and fees.
   c. Arrange for tests and inspections.

D. Tests and Inspections: See Section 01 45 00, Quality Control and Testing Services.

E. Allowable Tolerances for Concrete Surface Smoothness: 1/8" maximum permissible variation from a true plane measured from a 10' straight edge placed anywhere on the surface.

F. Source Quality Control:
   1. Testing Laboratory shall provide continuous inspection at concrete batch plant for structural concrete, defined as follows: Footings, foundation walls, floor slabs-on-grade, and exterior reinforced slabs.
   2. Furnish Weighmaster's Certificates for all concrete.

1.05 SUBMITTALS

A. Concrete Design Mix: Reviewed by Testing Laboratory.
   1. Per ACI 318, Section 5.2 and 5.3.

B. Test Reports: Source and Field Quality Control tests.

C. Certificates:
   1. Weighmaster's Certificates: Per requirements.
   2. Certificate for Off-Site Work: Provide for off-site work, per Section 01 77 00, Project Closeout.

D. Provide product data for specified products, under provisions of Section 01 33 13.

1.06 PRODUCT DELIVERY, STORAGE AND HANDLING

A. Storage:
   1. Cement: Store in weather-tight enclosures and protect against dampness, contamination and warehouse set.
   2. Aggregates:
      a. Stockpile to prevent excessive segregation or contamination with other materials or other sizes of aggregates.
      b. Use only one supply source for each aggregate stockpile.
   3. Admixtures:
      a. Store to prevent contamination, evaporation or damage.
      b. Protect liquid admixtures from freezing or harmful temperature ranges.
      c. Agitate emulsions prior to use.

B. Deliver Ready-Mixed Concrete in conformance with Title 24, Section 1905A.8 (which refers to ACI 318 Section 5.8).

C. Formwork Materials:
1. On delivery to Site, place materials in area protected from weather.
2. Store materials above ground on framework or blocking and cover with protective waterproof covering providing for adequate air circulation or ventilation.
3. Handle materials to prevent damage.

1.07 JOB CONDITIONS

A. Environmental Requirements:
1. Allowable Concrete Temperatures:
a. Cold Weather: When depositing concrete in freezing or near-freezing weather, concrete mix temperature shall be between 50°F and 90°F when cement is added. Maintain a concrete temperature of 50°F minimum for 72 hours after placing, or until concrete has thoroughly hardened. When necessary, heat concrete materials before mixing. Take necessary precautions to protect transit-mix concrete.
b. Hot Weather: 90ºF maximum.

B. Protection:
1. Do not place concrete during rain, sleet, or snow unless protection is provided.
2. After placement, protect from injury by elements, traffic, construction operations and other causes.

C. Sequencing, Scheduling: Coordinate work with earthwork, trenching for foundations, underground utilities, plumbing, electrical, mechanical, imbedded items, steel reinforcement and related work of other sections.

PART 2 - PRODUCTS

2.01 MATERIALS; GENERAL

Conform to Codes and additional requirements stated herein.

2.02 BASIC CONCRETE MATERIALS

A. Portland Cement:
1. Type II; per Title 24, Section 1903A.5 and modified ACI 318 Section 3.3.2.
2. Use tested cement only per Section 1903A. Use same cement brand for all exposed work.
3. Recycled content shall be 25% (15% flyash and 10% reclaimed aggregate).

B. Water: Clean, fresh, free of injurious amounts of minerals, organic, substances, salts, acids or alkali.

C. Aggregates:
   1. General: Per Title 24, Section 1903A.
   2. Aggregates: Per CBC Section 1903A.3.3.
      a. Fine: Sand; well graded from coarse to fine.
         1. 15% Flyash: Per CBC Section 1903A.4, ACI 318-05, ASTM C 618, ASTM C 311 and ASTM C 94.
      b. Coarse: Uniformly graded from 1/4" to maximum permissible size. Maximum size per Title 24, Section 1903A.3, but not to exceed 1-1/4". See Structural Drawings.
      c. Combined grading shall meet Table 19A-J, Title 24, Part 2.
   3. The nominal maximum size of coarse aggregate shall not be larger than one-fifth the narrowest dimension between sides of forms, nor one-third the depth of slabs, nor three-fourths the minimum clear spacing between individual reinforcing bars or wires, bundles of bards, or Pre-stressing tendons or ducts.

2.03 ADMIXTURES

A. Inclusion of admixtures in concrete mix is at Contractor's Option and expense. Types shall conform to the following:
   1. Conform to Title 24, Section 1903A.5. Admixtures shall increase workability and reduce water demand.
   2. Acceptable Products:
      a. Floor slabs-on-grade: Red Label or Anti-Hydro International Inc. or approved equivalent. Mix per manufacturer's recommendations.

2.04 CONCRETE SURFACE TREATMENTS

A. Liquid Curing Compounds:
   1. General: Conform to ASTM C309-07.
   2. Acceptable Manufacturers: Hunt Process Co., Edoco/Burke Construction Chemicals, Scofield, Sonneborn (Degussa Construction Chemicals); US Spec (US Mix Products Co.).
   3. "Clear", Oxidizing Type (For exterior areas): Hunt "Clear #ARB" as a standard of quality.

B. Liquid Curing Compound (for interior slabs):
   1. General: Penetrating curing compound.
   2. Acceptable manufacturers: Curranseal, Innerseal.
   3. Acceptable Products:
      a. Curranseal PM 3300 (714) 641-1121.
      b. Innerseal DPS; 800-999-9385.
      c. No other substitutions allowed.
   4. Apply penetrating sealer within 24 hours of slab placement while concrete is still "green."
   5. Application of compound shall be by a trained applicator acceptable to the compound manufacturer.

6. Provide manufacturer's standard 10 year warranty covering both labor and materials necessary to repair floor slab, repair or replace floor finish if repairs cannot be made.
7. Repair all cracks in interior slabs with "crack chaser" saw, fill crack with sealant. This requirement shall be provided prior to application of finish floor materials and is required to validate manufacturer's 10 year warranty.

2.05 WOOD FORMWORK

A. Grade Marks and Rules for Lumber and Plywood: Per Specifications Sections 03 11 00 - Concrete Formwork and 06 10 00 - Rough Carpentry.

B. Boards For Unexposed Concrete and Basic Forms: Douglas Fir, S4S; Standard Grade or better.

C. Form Coatings and Release Agents:
1. Per manufacturer's recommendations, suitable for type of form materials and finished concrete surface.
2. Materials shall not stain or change color of exposed concrete.
3. Materials shall be compatible with finishes to concrete.

2.06 ACCESSORIES AND MISCELLANEOUS

A. Non-Shrink Grout (Drypack Under Base Plates): Five Star high early strength grout by U.S. Grout Corporation. The grout shall be mixed and installed in accordance with manufacturer's recommendations. Tensile strength (ASTM C307-03(2008)): 2000 psi; Flexural strength (ASTM C580-02(2009)): 4000 psi.

B. Epoxy Adhesive: Simpson Epoxy-Tie ET-High Strength Adhesive or Hilti Equal. Two component solid epoxy system meeting minimum requirements of ASTM C-881/C881M-10 specification for Type I, II, IV, and V, Grade 3, Class B and C.
1. Compressive Yield Strength: 13,390 psi minimum at 7 days per ASTM D695.
2. Heat Deflector Temperature: 168° (76°C) minimum per ASTM D648-07.
3. Bond Strength: 4,420 psi at 14 days per ASTM 882.
4. Codes: ICBO-4945; SBCCI-94145; City of Los Angeles RR25185, RR25120.

C. Concrete Stair Nosing: Refer to Section 05 50 00 - Metal Fabrications.

D. Vapor Barrier Membrane under interior concrete slabs:
1. Membrane shall be Sego Wrap 15 mil as manufactured by Stego Industries (949) 257-4100.
a. Acceptable Manufacturer: Vaporguard by Reef Industries.
2. Vapor barrier membrane shall have the following properties.
a. Permeance as tested after mandatory conditioning (ASTM E154, Section 8, 11, 12, 13) less than 0.01 Perms.
b. Strength: ASTM E1745 Class A.
c. Thickness: 15 mils minimum.

d. Installation shall be in accordance with ASTM E1643 and manufacturer's instructions.

2.07 MIXES, CONCRETE

A. Mix Proportioning:

1. General:
   a. Non-designed Mix, per Title 24, Section 1905A.8 which refers to ACI 318 Section 2.
   b. Design shall include admixtures and/or additives. Use as approved by Engineer/Architect.
   c. Do not add salt, chemicals, or other materials to prevent freezing.
2. Strengths, Proportions and Criteria: Typical for all locations; except where higher strengths are indicated on the Drawings.
   a. Strength: 3,000 psi at 28 days; 1,800 psi at 7 days.
   b. Cement Content: Minimum 6 sacks (94#) cubic yard.
   c. Slump: Maximum four inches.

B. Mixing:

1. General: Per Title 24, Section 1905A.8 which refers to ACI 318 Section 5.8 and Section 5.2.
2. Batch Mixed: Use ASTM C94 batch mixer; or capacity to handle one or more full sack batches. No split-sack batches.
3. Transit Mixed: Per CBC 2016 edition Section 1905A.9 which refers to ACI 318 section 5.9.
4. Mix concrete only in quantities necessary for immediate use.
5. Do not retemper concrete.
6. Discharge wash water from mixer before reloading.
7. Include additives and admixtures.

PART 3 - EXECUTION

3.01 INSPECTION

A. Examine excavations for foundations, footings, and structures and examine earthwork operations and subgrade for defects that will adversely affect the execution and quality of work.

B. Verify anchors, seats, plates, reinforcement, and other items to be cast into concrete are accurately placed, held securely, and will not cause hardship in placing concrete.

C. Do not start work until unsatisfactory conditions are corrected.

3.02 PREPARATION

A. Layout: Accurately layout work to properly position elements to lines and levels.

B. Joining To Previous Pours or Existing Work: Sandblast, roughen and clean existing joining concrete and rebar surfaces to provide a proper bond to new work.

C. At locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels, and pack solid with epoxy cement.

D. Slabs-on-Grade:
   1. Refer to Section 31 00 00, Earthwork.
   2. Moisten surface sufficiently to prevent suction of water from concrete mix, except where a membrane is used.
   3. All interior slabs-on grade shall be poured over 6 mil visqueen vapor barrier membrane protected with 1" of sand overlay over crushed rock porous fill. Vapor barrier shall conform to ASTM E1745-09.

3.03 FORMWORK ERECTION

A. Scope:
   1. General: Concrete shall be cast in forms.
   2. Footings: When specifically approved by Architect/Engineer and, earth banks may be used as forms in lieu of wood forms.

B. Form Face Types: Plywood or horizontal boards.

C. General Construction:
   1. Forms shall be substantial, unyielding, true to line and level; sufficiently tight to prevent leakage; adequately tied and braced; and conform exactly to dimensions of finish concrete.
   2. Forms shall provide adequate work clearances, temporary access openings necessary for concrete placement, provisions for attachment to previous work; and provide for stripping without injury to concrete work.
   3. Cleanouts: Provide continuous cleanouts on one side at bottom of vertical work (such as walls), and other openings as necessary to facilitate cleaning and inspection of the work.

D. Fabrication:
   1. Nail form faces securely to studs. Space studs to adequately support form faces and prevent bulging. Provide stud or solid backing at joints.
   2. Install chamfer strips at exposed corners and edges.
   3. Securely fasten chamfers, control joints and other detail work.

E. Erection:
   1. Erect formwork plumb and level; double walls; adequately brace, shore and support; set so finished concrete surfaces will drain.
   2. Footings and Foundation Walls: Form both sides; secure to stakes.

F. Form Coatings and Release Agents: Apply per manufacturer's recommendations to evenly coat contact surfaces.

3.04 EMBEDDED ITEMS

A. General:
1. Install per Title 24, Section 1906A.
2. Place accurately; anchor securely to prevent displacement.
3. No wood to be permanently embedded in concrete, except where indicated.
4. Coordinate, notify, and provide access for other Specifications Sections to set their required work.
5. Install doweling with epoxy adhesive per manufacturer's recommendations.
6. Install safety treads and nosing specified in Section 05 50 00 - Metal Fabrications, embedded in wet concrete mix per the manufacturer's recommendations in the exterior, cast-in-place concrete steps as located on the Drawings.

3.05 CONCRETE PLACEMENT

A. General: Comply with Title 24, Section 1905A.10 which refers to ACI 318, Section 5.10.

B. Notify Architect and the Inspector of Record minimum 48 hours prior to commencement of all concreting operations.

C. Preparation and Inspection Prior to Concrete Placement:
1. Do not place concrete until:
a. Footing excavations are clean and dry.
b. Steel reinforcement is correctly positioned, securely anchored and cleaned.
c. Forms are cleaned, coated, and ties are tightened.
d. Embedded items are positioned and anchored.
e. Construction joints are cleaned and prepared.
f. Subgrade is prepared and moistened.
g. Preparations for a pour are completed.
h. Work has been inspected.
2. Inspection: Formwork, steel reinforcement, footing excavations and preparation work, as stated above, to be examined by the IOR and/or Architect/Engineer, prior to pouring concrete.

D. Placement (per CBC Section 1905A.10):
1. Convey concrete from mixer to final position by method which will prevent separation or loss of material and cause minimum handling.
2. Place concrete continuously between predetermined construction and control joints.
3. Regulate rate of placement so concrete remains plastic and flows into position.

4. Do not use partially hardened or contaminated concrete; and do not use concrete which has been remised after initial set.

E. Consolidation:
1. Use hand rodding, spading and tamping.
2. Vertically insert and remove hand-held tools.
3. Work concrete thoroughly around reinforcement, embedded items and into all parts of forms.
4. Consolidate to a dense, uniform mass without voids, rock pockets, or entrapped air. Consolidate each layer.
5. Mechanically powered vibrators may be used. Such use shall be limited to vertical consolidation of concrete over 8" thick and all walls. Do not use to move concrete laterally or in any other means that may cause aggregate separation.

F. Slabs, Walks and Flatwork:
1. Lift reinforcement at placement progresses to proper position in slab.
2. Tamp and screed to required lines and levels.
3. Depress coarse aggregate with grille-blade tamper.

3.06 FINISHING

A. Provide concrete formed surfaces to be left exposed with smooth rubbed finish.

B. Interior Flatwork (Floor slabs):
1. Smooth trowel finish surface texture unless otherwise indicated to receive ceramic tile, terrazzo, a concrete topping, or other surfacing which would benefit from the additional bonding of a comparatively rough surface.
2. Grind smooth any irregularities or improper levels in finished work.

3.07 FINISHING WALLS AND VERTICAL CONCRETE SURFACES

A. Scope: Finish walls and vertical concrete surfaces as specified herein, except for school name and office signs. Provide concrete formed surfaces, to be left exposed, with smooth rubbed (sacked) finish.

B. Exposed Concrete At Tops of Forms:
1. Strike concrete smooth and level.
2. Float and/or trowel to texture comparable to formed surfaces.

C. Preparation, Formed Surfaces:
1. Remove fins and irregularities while concrete is green.
2. Tie Holes: Fill full and flush with compacted drypack.
3. Surface Defects:
a. Cut out blemished and defective areas as directed by Architect.
b. Patch flush with drypack, typically, or as directed by Architect.

D. Cleaning:
   1. Exposed Surfaces:
      a. Remove form coatings, bond breakers and other surface coatings.
      b. Scrub formed surfaces with solution of 1-1/2 lbs. caustic soda to one-gallon water.
      c. Scrub smooth wood or waste mold areas with 20% muriatic or hydrochloric acid solution.
      d. Wash surfaces clean with clear water, immediately after scrubbing.
      e. If above methods fail to remove all substances, lightly sandblast surfaces clean as directed by Architect.
   2. Surfaces With Finish Materials Applied Directly to Concrete: Clean as stated for Exposed Surfaces, except where uncleaned surface will not affect application, bond, performance, or appearance of finish materials.

E. Sacked Finish on Exposed Concrete:
   1. General: Schedule work to complete entire panel, element, or area in one continuous operation.
   2. Application:
      a. Wet surface to control suction of water from grout.
      b. Apply grout mix; uniformly spread and scour to fill depressions.
      c. While still plastic, sponge rubber float finish surface, and remove excess grout.
   3. Sacking: Allow surface to dry, but not completely harden. Then rub vigorously with clean dry burlap to remove loose excess material. Finished surface to have a smooth slick burnished finish (similar to a steel trowel finish) which is free of defects and blemishes.

3.08 PROTECTION AND CURING OF CONCRETE

A. Protection: Protect work from damage and defacement during construction operations.

B. Curing:
   1. Keep concrete surfaces wet until curing medium is applied.
   2. Flatwork:
      a. Spray apply specified liquid curing compounds to exterior flatwork (slabs, walks, and similar work).
      b. Application: Apply uniform, continuous, tightly adhered film, free from pinholes or defects at rate of 1 gallon per 250 sq. ft. Brush out puddles and runs.
   3. The length of time, temperature and moisture conditions for curing concrete shall be in accordance with Section 1905A.11 which refers to ACI 318 Section 5.11.

3.09 FIELD QUALITY CONTROL

A. Field inspection and testing will be performed under provisions of Section 01 45 00, Quality Control and Testing Services.

B. Inspections:
   1. Steel reinforcement.
   2. Structural concrete.

C. Tests:
   1. Concrete slump.
   2. Making concrete compression test cylinders.
   3. Core tests of defective work.

3.10 ADJUSTMENT AND CLEANING

A. Correction of Defective Work:
   1. Work not conforming to Contract requirements shall be removed and replaced except where patching or other remedial work is specifically permitted by Architect. Contractor shall bear costs of correction of defective work.
      a. Surface patching materials and methods shall be as approved by Architect.
      b. Structural concrete replacement, strengthening, and repair methods and materials shall be as approved by Architect/ Engineer .

B. Clean exposed joint surfaces to receive joint sealant per Section 07 92 00.

C. Clean exposed surfaces prior to acceptance.

3.11 CONSTRUCTION JOINTS

A. Comply with Section 1906A.4, CBC, latest edition.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Excavating, backfilling, and compacting for utility pipes, water, irrigation lines sewer lines, storm drain lines, manholes, vaults, valve boxes, catch basins, underground tanks, thrust blocks, yard boxes, pull boxes and electrical conduits as required.

B. Compacting bedding under fill over utilities to subgrade elevations.

C. Related Work:
   1. Water Distribution: Section 33 10 00
   2. Sanitary sewage System: 33 30 00

1.02 SOILS INFORMATION

A. Information on the Drawings or in the soil investigation reports does not constitute a guarantee of uniformity of soil conditions over the construction site.

B. A copy of the foundation investigation and soils report included herein is for reference only.

1.03 FIELD MEASUREMENTS

Verify that survey benchmark and intended elevations for the Work are as shown on Drawings.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Use fill materials free of foreign materials, vegetable growths, sod, expansive soils, and all debris.

B. Fill Material:
   1. If the amount of suitable earth materials obtained from the Site excavations is not sufficient to properly construct the refill, furnish imported fill materials as necessary.
   2. Imported fill shall be of a granular nature with sufficient binder to form a firm and stable unyielding subgrade and shall not have more than 60% of fines passing a 200 mesh sieve. Material shall have a coefficient of expansion of not more than 2% from air-dry to optimum moisture content and not more than 6% from air-dry to saturation.

C. Backfill Materials: Use clean earth materials previously removed from excavations or imported fill material as specified above, free from large clods and stones larger than 2-1/2".

2.02 BASE MATERIALS

A. Under Concrete Slabs On Grade: Where indicated on the Drawings, use 3/4" maximum size crushed aggregate base.

B. Under Asphaltic Concrete Paving: As indicated on the Drawings and specified as Base Course in Section 32 12 16.

C. Under Portland Cement Concrete Paving: As indicated on the Drawings and specified as Base Course in Subsurface Exploration Section 02 30 00.

D. Bedding:

1. Sand Bedding: Clean fine-grained sand of such size that not less than 90% shall pass through a 1/4" screen and not more than 25% shall pass through a number 50 screen. Sand meeting specifications for fine aggregate for concrete may be used.

PART 3 - EXECUTION

3.01 EXAMINATION

Field conditions may require deviations from information indicated on Drawings, or recommendations made in Soils Report. Such changes in the Work, shall be covered by a Change Order, indicating an increase or decrease in the Contract sum.

3.02 PREPARATION

A. Trenches, ditches, pits, sumps, and similar items which are outside the barricaded working area shall be barricaded to conform to California OSHA standards.

B. Protect plant life, lawns, rock outcroppings and other features to remain.

C. Perform Work in such a manner and at such times as not to interrupt the satisfactory performance of the existing services to the buildings on the site used by the District. Where an interruption is necessary, obtain written approval from the District.

3.03 EXCAVATION

A. Trenches over 5' in depth shall conform to Construction Safety Orders of the California Division of Industrial Safety.

B. Excavate trenches parallel to footings no closer than 24" from the face of the footing or above a plane having a downward slope of two horizontal to one vertical, from a line 9" above the bottom of the footings.

C. Unless otherwise indicated on the Drawings, depth of excavations shall allow for a minimum coverage above the top of pipe, or conduit measured from the adjoining finished grade, as follows:
   1. Steel Pipe: 24" below finished grade.
   2. Copper Water Tube: 18" below finished grade.
   3. Cast-Iron, Pressure Pipe: 36" below finished grade.
   4. Plastic Pipe (other than waste): 30" below finished grade.
   5. Tanks or other structures: 36" below finished grade.
   6. Soil, sewer and storm drain: As required for proper pitch. (Install plastic pipe with not less than 18" coverage.)

D. Trench width shall provide ample space for working and joining. Dig holes for bells for bell and spigot pipe, and for fittings for pipe.

E. Excavate trenches for utilities, pipes, concrete encased electrical conduits and fuel tanks to required depth as indicated on Drawings. Grade bottom of trenches to a uniform surface to prevent pockets. Remove loose soil from excavation before placing 6" of 90% compacted sand bedding. Place pipes, conduits and other utilities on a uniformly bearing sand bed.

F. Keep excavation free of water during the installation Work. Dispose of water in such a manner as not to endanger public or private property or public health. Remove accumulated water in excavations by pumping or other approved means.

G. Where portions of existing structures, walks, and paving are removed or cut for pipe or conduit installation, replace with equal quality material, finished to match adjacent work.

H. Provide a minimum space of 2" between outer surfaces of buried pipes including conduits placed in the same trench.

3.04 BACKFILLING

A. Backfill excess excavations to the required level with earth, gravel, sand, or concrete as directed by the Engineer and compact thoroughly. Grade the ground adjacent to all excavations to prevent water from running in.

B. Pipe to be laid lengthwise under concrete walks must have the approval of the Inspector of Record (IOR).

C. Do not place backfill until the Work installed has been inspected, tested and approved by the IOR. Remove excavated rocky material unsuitable for backfill from the Site.

D. Place backfill in 6" thick, loose layers, bring to near optimum moisture and compact to 90% minimum.

E. Trenches for electrical installation outside of the barricaded working area, shall be backfilled within 72 hours after approval by the District Electrical Inspector.

F. Trenches or other excavations that extend more than 4' below the surface shall comply with Public Contract Code Section 7104.

3.05 INSPECTION AND TESTING

A. The IOR will inspect subgrades and excavation prior to the placing of fill materials.

B. Make compaction test in accordance with ASTM D1557, method "C".

3.06 EXCESS MATERIAL DISPOSAL

Remove excess excavated and imported material not used for fill or backfill and waste and debris from the Site.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Asphaltic concrete paving.

B. Surface sealer (Seal coat).

1.02 RELATED WORK

A. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

B. Section 31 23 13 - Excavating, Backfilling, and Trenching: Compacted fill for paving.

C. Section 32 17 23 - Pavement Marking.

1.03 REFERENCES

A. California Department of Transportation (CALTRANS), Division of Highways-Standard Specifications, as last amended.

B. Definitions: Paving and base Type designations.
   1. Type A: Areas taking automobile traffic.
   2. Type B: Areas taking bus and/or truck traffic.
   3. Type C: Areas taking pedestrian traffic (play areas).

1.04 QUALITY ASSURANCE

A. Perform work in accordance with CALTRANS Standard Specifications.

B. Off-site work to conform to local governing agency requirements. Obtain and pay for required permits and licenses. Do required testing.

C. Allowable Tolerances:
   1. Material Weights: Weights of base course and paving materials delivered to Site shall be computed as follows:
      a. Asphalt Concrete Paving: 12 lbs/sf/inch of thickness.
      b. Rock Base Course: 9-1/2 lbs/sf/inch of thickness.
   2. Paving Surface Smoothness: 3/8" maximum permissible from a true plane measured from 10' straightedge placed on surface non-cumulative.

1.05 SUBMITTALS

A. Submit product data under provisions of Section 01 33 00.

B. Submit test reports of field quality control tests.

C. Submit Weighmaster's Certificates showing net weight of each load of base and paving materials.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Place asphalt when base surface temperature is above 40°F and dry, and when weather is stable.

B. Do not commence work until installation of underground pipes and utilities is complete.

1.07 ALTERNATIVES

A. Contractor's Option For Full-Thickness Paving: In lieu of providing rock base course, Contractor may, at his option and expense, install thickened paving section directly on compacted earth on the following basis:

1. Substitute 1" of additional paving thickness for each 2" of specified base course thickness omitted.

1.08 GUARANTEE

A. In addition to guarantee specified in Project Close-Out, Section 01 77 00, the Contractor shall repair or restore to first class condition any portion of asphaltic paving and surface coating in which weed growth, creeping, shoving, cracking, delamination, raveling, softening, excessive or uneven settlement due to improperly compacted subgrade, or other defects due to improper placing or defective materials, become apparent within one (1) year from acceptance date by the District.

B. Effectiveness of type of week control is sole responsibility of the Contractor.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Weed Control:

1. Herbicide: Only use of borates, sodium chlorate, or other nonpoisonous chemicals will be permitted.
2. Option: The Contractor may, at his option and expense, use Nox-Weed 310 emulsion.

B. Base Course: Untreated rock using a pit run unwashed stream bar material, crusher run material, or blend of commercial products; graded as follows:

1. Class 2 Aggregate Base, per Section 26, CALTRANS Standard Specifications.
2. Mixing: Thoroughly blend material by blading or other suitable means.

C. Asphalt Concrete Paving:

1. General: CALTRANS Standard Specification, except as modified herein.
2. Asphalt: 40 or 50 penetration.

3. Aggregate: Graded mix as follows:

TOTAL PERCENTAGE PASSING SIEVES

Sieve Size	Percentage	
3/4"	100%	
1/2"90%-	100%	
3/8"74%-	89%	
No. 4	53%-67%	
No. 8	40%-50%	
No. 30	20%-30%	
No. 200	3%-8%	
Paving Asphalt	5-1/2 % to 7%	by weight of total mix.

4. Mixing: Plant mix aggregate and asphalt, to produce a dense mixture with minimum of voids, per Section 39, CALTRANS Standard Specifications.

D. Surface Seal Coat For All Paving Areas:
1. Sealer: Plushtex by Koch Asphalt Co., Fontana, CA, telephone 909-829-0505, as a standard of quality: An asphalt emulsion with selected mineral fillers.
2. Sand: Clean, washed sand, 30 to 60 mesh.

PART 3 - EXECUTION

3.01 INSPECTION

A. Verify compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Beginning of installation means acceptance of substrate.

3.02 PREPARATION

A. Subgrade Preparation: After areas are brought to approximate required subgrade, finish by scarifying to depth of 3", moistening and rolling with a self-propelled tandem roller, weighting 8 tons minimum, until surface is firm and unyielding. Bring any depressions and high areas to required grade by scarifying, filling or cutting, and rolling to density and stability of adjoining material.

B. Weed Control: Just prior to paving work, apply herbicide to earth as per manufacturer's printed recommendations.

C. Coat surfaces of manhole, catch basin, and metal surface frames with oil to prevent bond with asphalt paving.

3.03 INSTALLATION - BASE COURSE

A. Spread to uniform thickness; water and roll until firm enough to support material trucks without displacement or rutting.

B. Compacted Thicknesses: As listed in Asphalt Pavements Section table.

C. Density Required: 90% minimum.

3.04 INSTALLATION - PAVING

A. General: Conform to Section 39, CALTRANS Standard Specifications.

B. Placing: Spread to headers and/or temporary screeds, where required, with Barber-Greene self-propelled mechanical spreading and finishing equipment, or Architect-approved equal. Hand spread only in places inaccessible to mechanical spreader. Heat shovels, forks and rakes.

C. Edges: At headers, lay to a thickness 4" deep x 8" wide at bottom, forming a footing. Slope bottom up 3:1 to meet typical paving thickness. Where paving stops against buildings, walls, curbs, or concrete walks, thickened edges are not required.

D. Abutting Work: Where paving contacts rigid structures, thoroughly clean and coat contact surfaces with a film of asphalt emulsion and/or asphalt cement. Protect adjoining work from spotting and splashing or asphalt materials.

E. Rolling and Smoothness: Roll per Section 39, CALTRANS Standard Specifications. Finished surface to be even, smooth, of uniform texture free of roller welts, true to place and line, and drain as indicated. Paving to have a density such that water will not penetrate.

F. Asphalt Pavement Sections

R - Value Subgrade Soils - 7 (tested) Design Method - CALTRANS 1995

		Flexible Pavements	
Traffic Index (Assumed)	Pavement Use	Asphaltic Concrete Thickness (Inches)	Aggregate Base Thickness (Inches)
4.5	Auto Parking Areas	3.0	4.0
5.0	Light Traffic	3.0	9.5
5.5	Truck Traffic	3.0	11.0
5.5	Fire Lane	3.5	12.0
7.0	Bus Lane	4.0	15.0
	Site Walks and Hardcourt Areas	3.0	3.0

Notes:

1. Asphaltic concrete should be CalTrans, Type B, 1/2-in. or 3/4-in. maximum-medium grading and compacted to a minimum of 95% of the 75-blow Marshall density (ASTM D 1559) or equivalent.
2. Aggregate base should be CalTrans Class 2 (3/4-in. maximum) and compacted to a minimum of 95% of ASTM D1557 maximum dry density near its optimum moisture.
3. All pavements should be placed on 12 inches of moisture-conditioned subgrade, compacted to a minimum of 90% for flexible and 95% for rigid pavements of ASTM D 1557 maximum dry density near its optimum moisture.
4. Portland cement concrete should have a minimum of 3250 psi compressive strength at 28 days.
5. Equivalent Standard Specifications for Public Works Construction (Green book) may be used instead of CalTrans specifications for asphaltic concrete and aggregate base.

California Code of Regulations, Title 21, Division 2, Chapter 7, Section 14511.7, Fire Trucks, allows for a higher axle load for fire trucks than for standard commercial vehicles. Standard commercial vehicles are typically limited to an axle load of 18,000 pound and tandem axle loads of 36,000 pounds, but fire trucks are allowed a single axle load of 24,000 pounds and a tandem axle load of 48,000 pounds. According to data from the American Association of State Highway and Transportation Officials, 48,000 pound tandem axles like those found on many fire trucks, are about 4 times more damaging to pavements than 36,000 pound tandem axles. Restated, one 3-axle fire truck is approximately equivalent to four 3-axle standard trucks.

3.05 APPLICATION - SURFACE SEAL COAT

A. Preparation: Clean paving surfaces of loose, foreign material.

B. Application:
   1. Per manufacturer's recommendations.
   2. Mix into a slurry with three to six lbs. of sand per gallon of sealer.
   3. Protect adjacent structures from mixture.
   4. Apply evenly and spread immediately with rubber-faced squeegees; pull at angle from line of spread, to roll material toward operator. After each coat has dried, remove ridges with scraper.
   5. Total Application Rate: Apply at an undiluted rate of 0.2 gallons minimum per square yard. Increase application rate due to surface porosity per manufacturer's printed recommendations.
   6. Final seal shall be slurry seal per 2.01.D.

C. Protect from traffic for three (3) days minimum after application.

3.06 FIELD QUALITY CONTROL

A. On-Site Work:

1. Water Test: Flood test paving to show surfaces are free of standing puddles, and drain properly.
2. Material Tests:
   a. Made at District's option, by District selected Testing Lab.
   b. District's Inspector to select test sample locations.
   c. The Contractor is to repair test areas at no additional cost to District.
   d. Testing costs, as stated in Section 01 41 00.

3.07 CLEANING

Remove equipment, excess materials, debris; and material splashes from abutting work.

END OF SECTION

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section includes exterior Portland cement concrete paving for the following: Walkways, ramps and steps.

B. Related Sections: The following Sections contain requirements that relate to this Section:
   1. Section 31 23 13 - Excavating, Backfilling, and Trenching.
   2. Section 03 21 00 - Steel Reinforcement.
   3. Section 03 30 00 - Cast-in-Place Concrete.

1.03 PROJECT CONDITIONS

Traffic Control: Maintain access for vehicular and pedestrian traffic as required for other construction activities.

PART 2 - PRODUCTS

2.01 FORMS

A. Form Materials: Plywood, metal, metal framed plywood, or other acceptable panel type materials to provide full depth, continuous, straight, smooth exposed surfaces. Use flexible or curved forms for curves of a 100 foot or less radius.

B. Form Release Agent: Provide commercial formulation form release agent with a maximum of 350 g/L volatile organic compounds (VOC) that will not bond with, stain, or adversely affect concrete surfaces and will not impair subsequent treatments of concrete surfaces.

2.02 REINFORCING MATERIALS

A. Reinforcing Bars and Tie Bars: ASTM A615/A615M-05a, Grade 60, deformed.

B. Plain, Cold-Drawn Steel Wire: ASTM A82/A82M-05a.

C. Welded Steel Wire Fabric: ASTM A185/A185M-05a. Furnish in flat sheets, not rolls, unless otherwise acceptable to Architect.

D. Fabricated Bar Mats: Welded or clip-assembled steel bar mats, ASTM A184/A184M-05. Use ASTM A615/A615M-05a, Grade 60 steel bars, unless otherwise indicated.

E. Joint Dowel Bars: Plain steel bars, ASTM A615/A615M-05a, Grade 60. Cut bars true to length with ends square and free of burrs.

2.03 CONCRETE MATERIALS

A. Portland Cement: ASTM C150-05, Type I. Use one brand of cement throughout Project unless otherwise acceptable to Architect.

B. Fly Ash: ASTM C-618-05, Type F.

C. Normal Weight Aggregates: ASTM C33-03, Class 4, and as follows. Provide aggregates from a single source.
   1. Maxim Aggregate Size: 3/4 inches.
   2. Do not use fine or coarse aggregates that contain substances that cause spalling.
   3. Local aggregate not complying with ASTM C33-03 that have been shown to produce concrete of adequate strength and durability by special tests or actual service may be used when acceptable to Architect.

D. Water: Potable.

2.04 ADMIXTURES

A. Provide concrete admixtures that contain not more than 0.1% chloride ions and are certified to be compatible with each other.

B. Air-Entraining Admixture: ASTM C260-06.

C. Water-Reducing Admixture: ASTM C494/C494M-05, Type A.

D. High-Range Water-Reducing Admixture: ASTM C494/C494M-05, Type F or Type G.

2.05 CURING MATERIALS

A. Clear Waterborne Membrane-Forming Curing Comb: ASTM C309-07, Type I, Class B. Provide material that has a maximum VOC rating meeting California Air Resource Board requirements.

2.06 CONCRETE MIX

A. Prepare design mixes for each type and strength.

B. Proportion mixes conforming to CALTRANS Class B minimum to provide normal-weight concrete with the following properties:
   1. Compressive Strength (28-Day): 2500 psi.
   2. Maximum Water-Cement Ratio at Point of Placement: 0.45.

3. Slump Limit at Point of Placement: 3".
   a. Slump limit for concrete containing high-range water-reducing admixture (superplasticizer): Not more than 8" after adding admixture to site-verified 2" slump concrete.

C. Add air-entraining admixture at manufacturer's prescribed rate to result in concrete at point of placement having an air content as follows with a tolerance of +/- 1-1/2%

D. Adjustment to Concrete Mixes: Mix design adjustments may be requested by Contractor when characteristics of materials, project conditions, weather, test results, or other circumstances warrant.

2.07 CONCRETE MIXING

A. Ready-Mixed Concrete: Comply with requirements and with ASTM C94/C49M-04a.

B. When air temperature is between 85°F (30°C) and 90°F (32°C), reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90°F (32°C), reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.01 SUBSURFACE PREPARATION

A. Proof-roll prepared sub base surface to check for unstable areas and verify need for additional compaction. Do not begin paving work until such conditions have been corrected and are ready to receive paving.

B. Remove loose material from compacted sub base surface immediately before placing base aggregate and concrete.

C. Provide 2" sand aggregate base under all exterior 4" concrete site walk and hardcourt paving with crushed rock aggregate base under other paving as depicted on the Portland Cement Pavement Sections table.

PORTLAND CEMENT CONCRETE PAVEMENT SECTIONS

R - Value Subgrade Soils - 7 (tested) Design Method - CALTRANS 1995

Traffic Index (Assumed)	Pavement Use	Rigid Pavements	
		Portland Cement Concrete (Inches)	Aggregate Base Thickness (Inches)
4.5	Auto Parking Areas	4.5	4.0 Crusher Rock
5.0	Light Traffic	6.0	4.0 Crusher Rock
5.5	Truck Traffic	6.5	4.0 Crusher Rock
5.5	Fire Lane	6.5	4.0 Crusher Rock
7.0	Bus Lane	8.0	4.0 Crusher Rock
	Site Walks and Hardcourt Areas	4.0	2" Sand

Notes:

1. Aggregate base should be CalTrans Class 2 (3/4-in. maximum) and compacted to a minimum of 95% of ASTM D 1557 maximum dry density near its optimum moisture.
2. All pavements should be placed on 12 inches of moisture-conditioned subgrade, compacted to a minimum of 90% for flexible and 95% for rigid pavements of ASTM D 1557 maximum dry density near its optimum moisture.
3. Portland cement concrete should have a minimum of 3250 psi compressive strength at 28 days.
4. Equivalent Standard Specifications for Public Works Construction (Green book) may be used instead of CalTrans specifications for asphaltic concrete and aggregate base.

California Code of Regulations, Title 21, Division 2, Chapter 7, Section 14511.7, Fire Trucks, allows for a higher axle load for fire trucks than for standard commercial vehicles. Standard commercial vehicles are typically limited to an axle load of 18,000 pound and tandem axle loads of 36,000 pounds, but fire trucks are allowed a single axle load of 24,000 pounds and a tandem axle load of 48,000 pounds. According to data from the American Association of State Highway and Transportation Officials, 48,000 pound tandem axles like those found on many fire trucks, are about 4 times more damaging to pavements than 36,000 pound tandem axles. Restated, one 3-axle fire truck is approximately equivalent to four 3-axle standard trucks.

3.02 EDGE FORMS AND SCREED CONSTRUCTION

A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides for paving to required lines, grades, and elevations. Install forms to allow continuous progress of work and so that forms can remain in place at least 24 hours after concrete placement.

B. Check completed formwork and screeds for grade and alignment to following tolerances:
   1. Top of Forms: Not more than 1/8" in 10'
   2. Vertical Face on Longitudinal Axis: Not more than 1/4" in 10'

C. Clean forms after each use and coat with form release agent as required to ensure separation from concrete without damage.

3.03 PLACING REINFORCEMENT

A. General: Comply with Concrete Reinforcing Steel Institute's recommended practice for "Placing Reinforcing Bars" for placing and supporting reinforcement.

B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.

C. Arrange, space and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.

D. Install welded wire fabric in lengths as long as practicable. Lap adjoining pieces at least one full mesh and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.04 JOINTS

A. General: Construct contraction, construction, expansion, and isolation joints true to line with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to the centerline, unless indicated otherwise.
   1. When joining existing paving, place transverse joints to align with previously placed joints, unless indicated otherwise.

B. Contraction Joints: Provide weakened-plane contraction joints, sectioning concrete into areas as shown on Drawings. Construct contraction joints for a depth equal to at least 1/4 of the concrete thickness, as follows:
   1. Tooled Joints: Form contraction joints in fresh concrete by grooving and finishing each edge of joint with a radiused jointer tool.
   2. Inserts: Form contraction joints by inserting premolded plastic, hardboard, or fiberboard strips into fresh concrete until top surface of strip is flush with paving surface. Radius each joint edge with a jointer tool. Carefully remove strips or caps of two-piece assemblies after concrete has hardened. Clean groove of loose debris.

3. Spacing: Contraction joints shall not exceed 10' O.C. but shall be spaces no further than the width of the paved surface. Example: a 5' wide walk has contraction joints 5' O.C. maximum.

C. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than 1/2 hour, unless paving terminates at isolation joints.
1. Continue reinforcement across construction joints unless indicated otherwise. Do not continue reinforcement through sides of strip paving unless indicated.
2. Provide tie bars at sides of paving strips where indicated.
3. Use bonding agent on existing concrete surfaces that will be joined with fresh concrete.

D. Expansion and Isolation Joints: Form isolation joints of preformed joint filler strips abutting concrete curbs, catch basins, manholes, inlets, structures, walks, other fixed objects, and where indicated.
1. Locate expansion joints at intervals not exceeding 36 times the paving thickness. Example: A 4" thick paving thickness would have expansion joints spaced at 12'-0" maximum. Greater thickness of paving would not exceed 20'-0" maximum.
2. Extend joint fillers full width and depth of joint, not less than 1/2" or more than 1" below finished surface where joint sealant is indicated.
3. Furnish joint fillers in one-piece lengths for full width being placed wherever possible. Where more than one length is required, lace or clip joint filler sections together.
4. Protect top edge of joint filler during concrete placement with a metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.

E. Install dowel bars and support assemblies at joints where indicated. Lubricate or asphalt-coat 1/2 of dowel length to prevent concrete bonding to one side of joint.

3.05 CONCRETE PLACEMENT

A. Inspection: Before placing concrete, inspect and complete formwork installation, reinforcing steel, and items to be embedded or cast in. Notify other trades to permit installation of their work.

B. Remove snow, ice, or frost from sub base surface and reinforcing before placing concrete. Do not place concrete on surfaces that are frozen.

C. Moisten sub base to provide a uniform dampened condition at the time concrete is placed. Do not place concrete around manholes or other structures until they are at the required finish elevation and alignment.

D. Comply with requirements and with ACI 304R for measuring, mixing, transporting, and placing concrete.

E. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
   1. When concrete placing is interrupted for more than 1/2 hour, place a construction joint.

F. Use a bonding agent at locations where fresh concrete is placed against hardened or partially hardened concrete surfaces.

G. Consolidate concrete by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping. Use equipment and procedures to consolidate concrete complying with ACI 309R.
   1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcing, dowels, and joint devices.
   2. Screed paved surfaces with a straightedge and strike off. Use bull floats or darbies to form a smooth surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces prior to beginning finishing operations.

3.06 CONCRETE FINISHING

A. Float Finish: Begin floating when bleed water sheen has disappeared and the concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats, or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes within a tolerance of 1/4" in 10' as determined by a 10' straightedge placed anywhere on the surface in any direction. Cut down high spots and fill low spots. Refloat surface immediately to a uniform granular texture.

B. Final Tooling: Tool edges of paving, gutters, curbs, and joints formed in fresh concrete with a jointing tool to the following radius. Repeat tooling of edges and joints after applying surface finishes. Eliminate tool marks on concrete surfaces. Radius: 3/8".

C. Exterior Flatwork (Slabs, Walks, and Similar Work):
   1. General:
      a. In indicated areas, finish concrete as specified herein.
      b. Work to match approved samples.
      c. Contractor to limit pour areas and provide sufficient ratio of finishers to product specified finishes.

2. "Sweated" Finish:
   a. Two steel trowellings, while concrete is still "green."
   b. Non-slip "sweated" finish with regular light trowel marks in an approximately 2' circular arc pattern.
3. Medium Broom Finish: Broom while concrete is still "green" perpendicular to direction of travel. Provide heavy broom finish at slopes at 6% or greater.
4. Tooling: Radius tool exposed edges, edges adjacent to permanent wood headers and edges at each side of metal joint screeds.
5. Sawcut control joint at an optimum time after finishing. Use 3/16" thick blade, cutting 1/3 into depth of slab thickness.
6. Separate exterior slab on fill from vertical surfaces with joint filler. Extend joint filler from bottom of slab to within 1/2" of finished slab surface.
7. In general, if not indicated otherwise, all exterior slabs along the accessible path-of-travel will have a finished slope away from the building or towards street or parking at 1/4" per foot maximum, perpendicular to the path-of-travel, and 5% maximum to the path-of-travel.

3.07 CONCRETE PROTECTION AND CURING

A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with the recommendations of ACI 306R for cold weather protection and ACI 305R for hot weather protection during curing.

B. Evaporation Control: In hot, dry, and windy weather, protect concrete from rapid moisture loss before and during finishing operations with an evaporation-control material. Apply according to manufacturer's instructions after screeding and bull floating, but before floating.

C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.

D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:
   1. Moisture Curing: Keep surfaces continuously moist for not less than 7 days with the following materials:
      a. Water.
      b. Continuous water-fog spray.
      c. Absorptive cover, water saturated, and kept continuously wet. Cover concrete surfaces and edges with a 12" lap over adjacent absorptive covers.

E. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover for curing concrete, placed in widest practicable width, with sides and ends lapped at least 12", and sealed by waterproof tape or adhesive. Immediately repair any holes or tears during curing period using cover material and waterproof tape.

F. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's directions. Recoat areas subjected to heavy rainfall within 3 hours after initial application. Maintain continuity of coating and repair damage during curing period.

3.08 REPAIRS AND PROTECTION

A. Remove and replace concrete paving that is broken, damaged, or defective, or does not meet the requirements of this Section.

B. Protect concrete from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.

C. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep concrete paving not more than 2 days prior to date scheduled for Substantial Completion inspections.

END OF SECTION

PART 1 - GENERAL

1.01 SUMMARY

A. Work Includes: Exterior tile warning surfaces at traffic walks; also denoted on drawings as truncated dome pavers, tiles, mat or other industry standard nomenclature.

B. Related Work:
   1. Requirements in Addenda, Alternates, Conditions, and Division 1 collectively apply to this work.

1.02 SUBSTITUTIONS

Only written approval of the Architect, by Addenda or Change Order, will permit substitutions for materials specified; in accordance with Article, Title 24, Part 2, CBSC, Section 01 25 13 Product Options and Substitutions.

1.03 QUALITY ASSURANCE

A. Standards: In general, Work shall conform to latest edition of the following standards as applicable, and as modified herein.
   1. Installation: Tile Council of America, Handbook for Ceramic Tile Installation.

B. Product shall comply with current California Building Standards Commission, Title 24, Part 12 CBSC, Chapters 12-11A and 12-11B, "Building and Facility Access Specifications".

C. Warranty: Five (5) year warranty from the manufacturer stating that detectable warning products and directional surfaces shall ensure consistency and uniformity of the following:
   1. Shape
   2. Color Fastness
   3. Conformation
   4. Sound-on-cane acoustic equality
   5. Resilience
   6. Attachment will not degrade significantly for at least 5 years. Significant degradation shall mean that the product maintains at least 90% of its approved design characteristics.

1.04 SUBMITTALS

A. Samples in duplicate: Manufacturer's standard color range.

B. Warranties: Manufacturer's standard warranty (5 year warranty). Refer to requirements under Paragraph 1.03, Quality Assurance of this Section.

C. Manufacturers: Recommended installation instructions.

D. Shop Drawings: Showing plans of tile placement including joints for each installation location, type used.

E. Material: Test reports.

F. Maintenance Instructions.

1.05 DELIVERY, STORAGE AND HANDLING

Deliver tile to Site in sealed containers with grade seals intact. Store materials in a dry location.

1.06 PROJECT CONDITIONS

A. Coordinate this work with work and backing furnished under other Specifications Sections.

B. Placement of tactile surfaces shall coincide with concrete curb ramps and concrete paving leading to a vehicular traffic lane pedestrian crossing.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Tile: Conform to Americans with Disabilities Act and CBC Section 11B-705 (Part 2, Title 24), latest edition. Tile to be standard grade; manufactured by Wausau Tile, Inc., Wausau, WI; 800-388-8728, or approved equivalent.
   1. Other Acceptable Manufacturers:
      a. ADA Solutions Inc.; 800-372-0519.

B. Materials – Cast-in-Place Tile:
   1. Tile Size:
      a. Rectangular
      b. 24" x 36" or 24" x 48"
   2. Thickness: 3/16"
   3. Dome Spacing: 2.35"
   4. Coefficient of Friction: 0.80 wet and dry
   5. Color: Federal Yellow, Color No. 33538
   6. Pattern: Rectangular SA Tile:
      a. Spacing: 2.3" to 2.4" nominal center of domes in both directions.
      b. Dome diameter to be 0.9" to 0.92" at base and 0.45" to 0.47" at top of dome.
      c. Height of dome: 0.18" to 0.22"
   7. Minimum physical properties of the detectable/tactile surfaces:
      a. Compressive Strength - ASTM D695 equal to or greater than 28,900 psi minimum.
      b. Flexural Strength - ASTM D790 equal to or greater than 29,300 psi minimum.
      c. Water Absorption - ASTM D570 less than 1.05%.

d. Freeze/Thaw: ASTM C1026 equal or less than 1% loss of dry weight (50 cycles)
e. Warranty: Refer to Paragraph 1.03 B and C of this section.

8. Fasteners: The Tactile Warning Surface Tile shall have minimum twelve (2' x 3') Tactile Warning Surface Tile) to twenty-four (3' x 5' Tactile Warning Surface Tile) countersunk fastening holes. Color matched, stainless steel 304 flat head drive anchor: ¼" diameter 1-1/2" long.
9. Adhesive:
   a. Polyether Structural Adhesive/Sealant by Chem Link (M-1)
   b. Approved equal.
10. Sealant:
   a. Polyether Structural Adhesive/Sealant by Chem Link (M-1)
   b. Approved equal.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Examine newly poured concrete surfaces scheduled to receive tactile tile work. Report any unsatisfactory conditions.

B. Do not start work until unsatisfactory conditions are corrected. Starting work constitutes acceptance of surfaces. Refer to manufacturer's recommendations.

3.02 INSTALLATION - GENERAL

A. Tile Placement: By skilled mechanics and in accordance with the applicable provisions of the manufacturer's installation recommendations for surface applied tiles.

B. Place tiles and set per manufacturer's recommendations in a single plane, 1:12 maximum slope, flush with surrounding paved surfaces. The mat shall have a 2' minimum dimension in the direction of travel perpendicular to the traffic lane being crossed. Arrange tile pattern to allow in-line approach by wheelchairs.

C. Tiles shall be placed after poured concrete ramp/walk mix is placed and screeded to the desired slope and fully cured.

3.03 CLEANING

A. Protection: Protect finish and surface of tile and adjacent materials with Vaseline to prevent staining.

B. Cleaning: Upon completion of any portion of tile work, remove rubbish and unused materials incidental to the installation, and give the finished surfaces a thorough cleaning in a manufacturer-approved manner. Remove traces of cement and dust accumulations. Do not use acid solutions on tactile tile work.

END OF SECTION

PART 1 - GENERAL

1.01 SECTION INCLUDES

A. Parking lot markings; including parking bays, crosswalks, arrows, handicapped symbols, and curb markings.

B. Roadway lane markings and crosswalk markings.

C. "No Parking" curb painting.

1.02 REFERENCE STANDARDS

A. FS TT-B-1325- Beads (Glass Spheres); Retro-Reflective.

B. FS TT-P-1952 - Paint, Traffic Black, and Airfield Marking, Waterborne.

C. MPI (APL) - Master Painters Institute Approved Products List; Master Painters and Decorators Association.

1.03 SUBMITTALS

A. See Section 01 33 13- Submittal Procedures.

B. Product Data: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Storage and handling requirements and recommendations.
   3. Installation methods.

C. Certificates: Submit for each batch of paint and glass beads stating compliance with specified requirements.

D. Maintenance Materials: Furnish the following for Glendale Unified School District's use in maintenance of project.
   1. See Section 01 60 00 - Product Requirements, for additional provisions.
   2. Extra Paint: 2 containers, 1 gallon size, of each type and color.

1.04 DELIVERY, STORAGE, AND HANDLING

A. Deliver paint in containers of at least 5 gallons accompanied by batch certificate.

B. Deliver glass beads in containers suitable for handling and strong enough to prevent loss during shipment accompanied by batch certificate.

C. Store products in manufacturer's unopened packaging until ready for installation.

D. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

1.05 FIELD CONDITIONS

A. Do not install products under environmental conditions outside manufacturer's absolute limits.

PART 2 - PRODUCTS

2.01 MATERIALS

A. Line and Zone Marking Paint: MPI No. 97 Latex Traffic Marking Paint; color(s) as indicated.
   1. Parking Lots: Yellow.
   2. Handicapped Symbols: Blue.
      a. Equal to Color No. 15090 per Federal Standard 595B.

B. Paint For Obliterating Existing Markings: FS TT-P-1952; black for bituminous pavements, gray for portland cement pavements.

C. Reflective Glass Beads: FS TT-B-1325, Type I (low index of refraction), Gradation A (coarse, drop-on); with silicone or other suitable waterproofing coating to ensure free flow.

D. Temporary Marking Tape: Preformed, reflective, pressure sensitive adhesive tape in color(s) required; Contractor is responsible for selection of material of sufficient durability as to perform satisfactorily during period for which its use is required.

PART 3 - EXECUTION

3.01 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify the Architect of unsatisfactory preparation before proceeding.

3.02 PREPARATION

A. Allow new pavement surfaces to cure for a period of not less than 14 days before application of marking materials.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Obliteration of existing markings using paint is acceptable in lieu of removal; apply the black paint in as many coats as necessary to completely obliterate the existing markings.

D. Clean surfaces thoroughly prior to installation.
   1. Remove dust, dirt, and other granular surface deposits by sweeping, blowing with compressed air, rinsing with water, or a combination of these methods.

E. Where oil or grease are present, scrub affected areas with several applications of trisodium phosphate solution or other approved detergent or degreaser, and rinse thoroughly after each application; after cleaning, seal oil-soaked areas with cut shellac to prevent bleeding through the new paint.

F. Establish survey control points to determine locations and dimensions of markings; provide templates to control paint application by type and color at necessary intervals.

G. Temporary Pavement Markings: When required or directed by Architect, apply temporary markings of the color(s), width(s) and length(s) as indicated or directed.
   1. After temporary marking has served its purpose, remove temporary marking by carefully controlled sandblasting, approved grinding equipment, or other approved method so that surface to which the marking was applied will not be damaged.
   2. At Contractor's option, temporary marking tape may used in lieu of temporary painted marking; remove unsatisfactory tape and replace with painted markings at no additional cost to Glendale Unified School District.

3.03 INSTALLATION

A. Begin pavement marking as soon as practicable after surface has been cleaned and dried.

B. Do not apply paint if temperature of surface to be painted or the atmosphere is less than 50 degrees F or more than 95 degrees F.

C. Apply in accordance with manufacturer's instructions using an experienced technician that is thoroughly familiar with equipment, materials, and marking layouts.

D. Parking spaces for the disabled shall be marked according to CBC Sections 112913.3 and 11298.4.

E. For other conditions, comply with California "Manual on Uniform Traffic Control Devices" for details not shown. Apply markings in locations determined by measurement from survey control points; preserve control points until after markings have been accepted.

F. Apply uniformly painted markings of color(s), lengths, and widths as indicated on the drawings true, sharp edges and ends.
   1. Apply paint in one coat only.
   2. Wet Film Thickness: 0.015 inch, minimum.
   3. Length Tolerance: Plus or minus 3 inches.
   4. Width: 3 inches minimum.
   5. Width Tolerance: Plus or minus 1/8 inch.

G. Roadway Traffic Lanes: Use suitable mobile mechanical equipment that provides constant agitation of paint and travels at controlled speeds.
   1. Conduct operations in such a manner that necessary traffic can move without hindrance.
   2. Place warning signs at the beginning of the wet line, and at points well in advance of the marking equipment for alerting approaching traffic from both directions. Place small flags or other similarly effective small objects near freshly applied markings at frequent intervals to reduce crossing by traffic.
   3. If paint does not dry within expected time, discontinue paint operations until cause of slow drying is determined and corrected.
   4. Skip Markings: Synchronize one or more paint "guns" to automatically begin and cut off paint flow; make length of intervals as indicated.
   5. Use hand application by pneumatic spray for application of paint in areas where a mobile paint applicator cannot be used.
   6. Distribute glass beads uniformly on the paint lines within ten seconds without any waste, applied at rate of 6 pounds per gallon of paint; if the marking equipment does not have a glass bead dispenser, use a separate piece of equipment adjusted and synchronized with the paint applicator; remove and replace markings having faulty distribution of beads.

H. Parking Lots: Apply parking space lines, entrance and exit arrows, painted curbs, and other markings indicated on drawings.
   1. Mark the International Handicapped Symbol at indicated parking spaces.
   2. Hand application by pneumatic spray is acceptable.

J. Symbols: Use a suitable template that will provide a pavement marking with true, sharp edges and ends, of the design and size indicated.

END OF SECTION