Technical Specifications For:

Tierra del Sol Middle School Security

Tierra del Sol Middle School

ASDG Job Number: 23-035

Client:
Lakeside Union School District
12335 Woodside Avenue
Lakeside, CA 92040

Architect:
AlphaStudio Design Group
6152 Innovation Way
Carlsbad, CA 92009
760-431-2444

Electrical:
Johnson Consulting Engineers, Inc.
12875 Brookprinter Place, Suite 300
Poway, CA 92064
858-513-0559

Tierra del Sol Middle School Security

Tierra del Sol Middle School

Architect:
Paul Gallegos

Electrical Engineer:
Monica Hansen

IDENTIFICATION STAMP
DIV. OF THE STATE ARCHITECT
APP: 04-123014 INC:
REVIEWED FOR
SS ☑ FLS ☑ ACS ☑
DATE: 04/02/2024

Approved By:

ACS: _____

FLS: _____

SS: _____

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SECTION 01 1000
SUMMARY

PART 1 GENERAL

1.01 PROJECT

A. Project Name: Tierra del Sol Middle School Security.

B. Owner's Name: Lakeside Union School District.

C. Architect's Name: AlphaStudio Design Group.

D. The Project consists of the installation of new perimeter fencing and access controlled entrance gate. Access control will consist of a video call station with remote electronic release of the gate hardware from the main office. .

1. As shown in Contract Documents prepared by AlphaStudio Design Group; 6152 Innovation Way, Carlsbad, CA 92009; (760) 431-2444.

1.02 DEFINITIONS

A. C.B.C.: California Building Code.

B. C.C.R.: California Code of Regulations.

C. Furnish: To supply products to the project site, including delivery.

D. Install: To put products in place in the work ready for the intended use, including unloading, unpacking, handling, storing, assembling, installing, erecting, placing, applying, anchoring, working, finishing, curing, protecting, cleaning, and similar operations.

E. Provide: To furnish and install products.

F. Indicated: Shown, noted, scheduled, specified, or drawn, somewhere in the Contract Documents.

1.03 REGULATORY REQUIREMENTS

A. The following regulations are applicable to this project:

1. 2022 California Building Code, Title 24, Part 2, California Code of Regulations (C.C.R.).
2. 2022 California Electrical Code, Title 24, Part 3, California Code of Regulations (C.C.R.).
3. 2022 California Mechanical Code, Title 24, Part 4, California Code of Regulations (C.C.R.).
4. 2022 California Plumbing Code, Title 24, Part 5, California Code of Regulations (C.C.R.).
5. 2022 California Fire Code, Title 24, Part 9, California Code of Regulations (C.C.R.).

B. Submit copies of all permits, licenses, and similar permissions obtained, and receipts for fees paid, to the owner directly.

1.04 CONTRACT DESCRIPTION

A. The work consists of the following:

1. The project scope includes the installation of new perimeter fencing and access controlled entrance gate. Access control will consist of a video call station with remote electronic release of the gate hardware from the main office.

1.05 OWNER OCCUPANCY

A. Owner intends to continue to occupy adjacent existing building during the entire construction period.

B. Owner intends to occupy the Project upon Substantial Completion.

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

D. Schedule the Work to accommodate Owner occupancy.

1.06 CONTRACTOR USE OF SITE AND PREMISES

A. Construction Operations: Limited to areas noted on Drawings.

B. Arrange use of site and premises to allow:

1. Owner occupancy.
2. Work by Others.
3. Work by Owner.

C. Provide access to and from site as required by law and by Owner:
   1. Emergency Building Exits During Construction: Keep all exits required by code open during construction period; provide temporary exit signs if exit routes are temporarily altered.
   2. Do not obstruct roadways, sidewalks, or other public ways without permit.

D. Utility Outages and Shutdown:
   1. Limit disruption of utility services to hours the site is unoccupied.
   2. Do not disrupt or shut down life safety systems, including but not limited to fire sprinklers and fire alarm system, without 48-hours notice to Owner and authorities having jurisdiction.
   3. Prevent accidental disruption of utility services to other facilities.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 1141
PROJECT COORDINATION

PART 1 GENERAL

1.01 RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Supplementary Conditions and other Division-1 Specification Sections, apply to this Section.

1.02 SUMMARY

A. This Section specifies administrative and supervisory requirements necessary for Project coordination including, but not necessarily limited to:
   1. Coordination.
   2. Administrative and supervisory personnel.
   3. General installation provisions.
   4. Cleaning and protection.

1.03 COORDINATION

A. Coordinate all aspects of the Work so each portion is installed in proper relationship with the whole, so the Work progresses in the proper order, in a smooth manner, and without interference between the trades.

B. Observation of Work by others shall not be interpreted as relieving the Contractor from responsibility for coordination of all Work, superintendence of the Work, or scheduling and direction of the Work.

C. Coordinate construction activities included under various Sections of these Specifications to assure efficient and orderly installation of each part of the Work. Coordinate construction operations included under different Sections of the Specifications that are dependent upon each other for proper installation, connection, and operation.
   1. Where installation of one part of the Work is dependent on installation of other components, either before or after its own installation, schedule construction activities in the sequence required to obtain the best results.
   2. Where availability of space is limited, coordinate installation of different components to assure maximum accessibility for required maintenance, service and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

D. Where necessary, prepare memoranda for distribution to each party involved outlining special procedures required for coordination. Include such items as required notices, reports, and attendance at meetings.
   1. Prepare similar memoranda for the Owner and separate Contractors where coordination of their Work is required.

E. Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities to avoid conflicts and ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Preparation of schedules.
   2. Installation and removal of temporary facilities.
   3. Delivery and processing of submittals.
   4. Progress Meetings.
   5. Project Closeout activities.

PART 2 PRODUCTS (NOT APPLICABLE)

PART 3 EXECUTION

3.01 GENERAL INSTALLATION PROVISIONS

A. Inspection of Conditions: Require the Installer of each major component to inspect both the substrate and conditions under which Work is to be performed. Do not proceed until unsatisfactory conditions have been corrected in an acceptable manner.

B. Manufacturer's Instructions: Comply with manufacturer's installation instructions and recommendations, to the extent that those instructions and recommendations are more explicit or stringent than requirements contained in Contract Documents.

C. Inspect materials or equipment immediately upon delivery and again prior to installation. Reject damaged and defective items.

D. Provide attachment and connection devices and methods necessary for securing Work. Secure Work true to line and level. Allow for expansion and building movement.

E. Visual Effects; Provide uniform joint widths in exposed Work. Arrange joints in exposed Work to obtain the best visual effect. Refer questionable choices to the Architect for final decision.

F. Recheck measurements and dimensions, before starting each installation.

G. Install each component during weather conditions and Project status that will ensure the best possible results. Isolate each part of the completed construction from incompatible material as necessary to prevent deterioration.

H. Coordinate temporary enclosures with required inspections and tests, to minimize the necessity of uncovering completed construction for that purpose.

I. Mounting Heights: Where mounting heights are not indicated, install individual components at standard mounting heights recognized within the industry for the particular application indicated. Refer questionable mounting height decisions to the Architect for final decision.

3.02 STARTING EQUIPMENT AND SYSTEMS

A. Provide manufacturer's field representative to prepare and start systems.

B. Adjust for proper operation within manufacturer's published tolerances.

C. Demonstrate proper operation of equipment to Owner's designated representative.

3.03 CLEANING AND PROTECTION

A. During handling and installation, clean and protect construction in progress and adjoining materials in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

B. Clean and maintain completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

C. Limiting Exposures: Supervise construction activities to ensure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

END OF SECTION

SECTION 01 2000
PRICE AND PAYMENT PROCEDURES

PART 1 GENERAL

1.01 SECTION INCLUDES

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

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

C. Contract Change procedures.

D. Correlation of Contractor submittals based on changes.

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

1.02 RELATED REQUIREMENTS

A. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions, Supplementary Conditions, Special Conditions, and other Sections in Division 1 of these Specifications.

B. The Contract Sum and the schedule for payments are described in other Documents of the Contract.

1.03 SCHEDULE OF VALUES

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

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

C. Submit a printed schedule on AIA Form G703 - Application and Certificate for Payment Continuation Sheet. Contractor's standard form or electronic media printout will be considered.

D. Submit Schedule of Values in duplicate within 15 days after date of Owner-Contractor Agreement.

E. 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.

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.

1.04 APPLICATIONS FOR PROGRESS PAYMENTS

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

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

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

D. Present required information two on electronic media printout.

E. Form: AIA G702 Application and Certificate for Payment and AIA G703 - Continuation Sheet including continuation sheets when required.

F. 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 and Stored Materials under this Application.
   6. Authorized Change Orders.
   7. Total Completed and Stored to Date of Application.
   8. Percentage of Completion.
   9. Balance to Finish.
   10. Retainage.

G. Execute certification by signature of authorized officer.

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

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

J. Submit three copies of each Application for Payment.

K. Include the following with the application:
   1. Transmittal letter as specified for Submittals in Section 01 3000.
   2. Construction progress schedule, revised and current as specified in Section 01 3000.
   3. All items listed and required under Article 37 of the General Conditions.

L. When 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.

M. PROCESSING:
   1. The Contractor shall submit a proposed Schedule of Values along with a draft Application for Payment to the Architect and Project Inspector for review, comment and approval prior to submitting the first Application for Payment.
   2. When preparing the Application for Payment each month, the Contractor shall review the proposed percentages of completion of work being applied for with the Project Inspector, who shall approve of the percentages prior to formalizing the Application for Payment. If possible, the percentages should be reviewed with the District, Architect and Project Inspector at the closest scheduled job meeting prior to finalizing.
   3. The Contractor shall submit three (3) copies of the Applications for Payment, with original signatures to the Project Inspector, who will verify the percentages and sign all copies. The Contractor shall be responsible for delivery to the Architect for signatures.
   4. The Architect will review the Application for Payment, and the Architect of Record will sign all copies and forward it to the Contractor, who in turn shall be responsible for delivery to the District for signatures, processing and payment.
   5. Applications for Payment shall be made on a monthly basis and shall be filed by the Contractor to the District in the timeframe as set forth in the General Conditions. Signatures on the Application for Payment shall include the Contractor, Architect, and Project Inspector. The Contractor shall be responsible for obtaining all required signatures. Once all signatures are obtained, Application for Payment may be submitted to the District. Work for payment may be estimated or pro-rated to the end of the month if approved before hand by the District.
   6. Applications for Payment may include billing for project materials not on-site if these materials have been received and are being stored in a bonded warehouse. Receipts for such project materials must accompany the Application for Payment.
   7. Applications for Payment will not be processed if As-Built Drawings are not updated to the satisfaction of the Project Inspector and the Architect.

1.05 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, Architect will issue instructions directly to Contractor.

C. Architect's Supplemental Instructions (ASI): Architect will advise of minor changes in the Work not involving an adjustment to Contract Sum or Contract Time as authorized by the Conditions of the Contract by issuing supplemental instructions on Architect's Supplemental Instructions (A.S.I.).

D. Construction Change Directive (CCD): Architect may issue a document, signed by District, instructing Contractor to proceed with a change in the Work, 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 Sum or Contract Time.
2. Promptly execute the change.

E. Proposal Request (P.R.): Architect may issue a document which 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 5 days.
   1. PROPOSAL REQUEST PRICING:
      a. The Contractor responds to a Proposal Request using the Proposal Request Pricing area on the Proposal Request form, a copy of which is found at the end of this section. The Contractor completes this form providing an itemized cost breakdown and indicating any extensions of time required. Upon review and acceptance of the cost submitted, and when signed by the Owner and Architect and received by the Contractor, this document becomes effective IMMEDIATELY and the Contractor shall proceed with the approved changes. Proceeding with the changes constitutes acceptance of the cost and time adjustment indicated.

F. Proposed Contract Modifications (PCM): Contractor may propose a change by submitting a request for change or Proposed Contract Modification (P.C.M.) to the 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 Sum 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 6000.
   1. PROPOSED CONTRACT MODIFICATIONS (P.C.M.'s):
      a. If additional services are required in the opinion of the Contractor that a Proposal Request has not been issued for, the Contractor issues the Proposed Contract Modification form, a copy of which is found at the end of this section. The Contractor completes this form providing an itemized cost breakdown and any pertinent backup information deemed necessary to fully justify the cost submitted, and indicating any extensions of time required. Upon review and acceptance of the cost submitted, and when signed by the District and Architect and received by the Contractor, this document becomes effective IMMEDIATELY and the Contractor shall proceed with the approved changes. Proceeding with the changes constitutes acceptance of the cost and time adjustment indicated.
   2. P.R. / P.C.M. REPLY:
      a. If the Architect takes exception to any portion of the Proposal Request Pricing and/or Proposed Contract Modification submitted by the Contractor, the Architect shall reply in writing using the the P.R./P.C.M. Reply form. The Contractor shall resubmit a revised P.R. or P.C.M. (utilizing the same number but with a letter suffix, i.e. "P.C.M. #1A") in response to the comments made by the Architect.
      b. Should the dollar amount of additional costs or credits attributable to the P.R. and/or P.C.M. become a point of contention, the Contractor and the Architect shall each make a reasonable effort to arrive at a mutually agreed upon dollar amount. If an agreement cannot be reached within a reasonable time frame, dollar amounts will be based on the current edition of SAYLOR PUBLICATIONS, INC. CURRENT CONSTRUCTION COSTS. Other cost estimating books or reference materials may be used for determining dollar amounts if acceptable to the General Contractor, Architect and the Owner.

G. Execution of Change Orders: All approved P.R.'s and P.C.M.'s shall be processed as Change Orders. Architect will issue Change Orders for signatures of parties as provided in the Conditions of the Contract. All Change Orders must be approved by the School Districts Governing Board and D.S.A.

H. Computation of Change in Contract Amount: As specified in the Agreement and Conditions of the Contract.

1. Refer to Article 40 of General Conditions.

I. Substantiation of Costs: Provide full information required for evaluation.
   1. On request, provide the 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.

J. 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 Sum.

K. 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.

L. Promptly enter changes in Project Record Documents.

1.06 APPLICATION FOR FINAL PAYMENT

A. As specified in the Agreement and Conditions of the Contract.
   1. Refer to Article 37 of the General Conditions.

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

C. Application for Final Payment will not be considered until the following have been accomplished:
   1. All requirements of Article 37 of the General Conditions.
   2. DSA Form 6-C Contractor Verified Report filed with the Division of the State Architect.
   3. All closeout procedures specified in Section 01780.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 01 3000
ADMINISTRATIVE REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preconstruction meeting.

B. Progress meetings.

C. Construction progress schedule.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Stages of the Work, occupancy, _____.

B. Section 01 3010 - Submittals: Submittal procedures.

C. Section 01 7000 - Execution and Closeout Requirements: Additional coordination requirements.

D. Section 01 7800 - Closeout Submittals: Project record documents.

1.03 DEFINITIONS

A. REQUEST FOR INFORMATION (R.F.I.'s):

1. Requests for Information may be generated by the Contractor, any of the Contractor's subcontractors or the Owner's Inspector and should be directed to the Architect through the General Contractor using the form provided at the end of this section. Request for Information forms are used to help clarify and/or interpret the information contained in the Contract Documents or to resolve construction questions in the field.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRECONSTRUCTION MEETING

A. District will schedule a meeting after Notice of Award.

B. Attendance Required:

1. School District Representative.
2. Architect.
3. Contractor.
4. Inspector.
5. Project Superintendent.

C. Agenda:

1. Execution of Owner-Contractor Agreement.
2. Submission of executed bonds and insurance certificates.
3. Distribution of Contract Documents.
4. Submission of list of Subcontractors, list of Products, schedule of values, and progress schedule.
5. Designation of personnel representing the parties in Contract, School District Representative and the Architect.
6. Procedures and processing of field decisions, submittals, substitutions, applications for payments, proposal request, Change Orders, and Contract closeout procedures.
7. Scheduling.
8. Scheduling activities of a Geotechnical Engineer.

D. Architect shall record minutes and distribute copies within five days after meeting to participants, with copies to Contractor, School District, Project Inspector, participants, and those affected by decisions made.

3.02 PROGRESS MEETINGS

A. Schedule and administer meetings throughout progress of the Work at an interval to be determined by the District.

B. Architect will make arrangements for meetings, prepare agenda with copies for participants, preside at meetings.

C. Attendance Required: School District Representative, Architect, Project Inspector, Job Superintendent, Major Subcontractors and suppliers, as appropriate to agenda topics for each meeting.

D. Agenda:
   1. Review minutes of previous meetings.
   2. Review of Work progress.
   3. Field observations, problems, and decisions.
   4. Identification of problems that impede, or will impede, planned progress.
   5. Review of submittals schedule and status of submittals.
   6. Review of off-site fabrication and delivery schedules.
   7. Contractor update on Safety Program / Storm Water Management.
   8. Maintenance of progress schedule.
   9. Corrective measures to regain projected schedules.
   10. Planned progress during succeeding work period.
   11. Maintenance of quality and work standards.
   12. Effect of proposed changes on progress schedule and coordination.
   13. Other business relating to Work.

E. The Architect will record minutes and distribute copies prior to the next meeting to participants, with copies to the Owner, Inspector, Contractor, other participants, and those affected by decisions made.

F. The Progress Meetings are intended to be conducted in an orderly and professional manner. Any foul language or unprofessional conduct will not be tolerated, and will result in the cessation of the meeting. Meetings shall not be recorded without the concurrence of all parties in attendance.

3.03 CONSTRUCTION PROGRESS SCHEDULE - SEE SECTION 01 3216

A. Refer to Article 7 of the General Conditions for requirements.

B. The first payment will not be made unless the District has been provided and has accepted the project schedule.

C. Submit updated schedule with each Application for Payment.

3.04 REQUEST FOR INFORMATION

A. Request for Information (RFI): Requests for Information may be generated by the Contractor, any of the Contractor's subcontractors or the Owner's Inspector and should be directed to the Architect through the General Contractor using the form provided at the end of this section. Request for Information forms are used to help clarify and/or interpret the information contained in the contract documents or to resolve construction questions in the field.
   1. The Architect shall respond in writing within three (7) working days of receipt of the RFI. The Architect will promptly advise the Contractor when a Request for Information being processed will be delayed beyond three (7) working days due to a need for additional information, research or coordination. The Contractor should allow sufficient review time so that the work will not be delayed as a result of the time required to process RFI's. No extension of contract time will be authorized because of failure by the Contractor to transmit RFI's to the Architect sufficiently in advance of work to permit processing.
   2. Deductions for Unnecessary or Redundant RFI's: Should the Contractor or the Contractor's subcontractor submit unnecessary or redundant RFI's to the Architect for review, the Architect shall be entitled to bill the Owner at his (Architect's) hourly rate for the additional work generated by the Contractor's inefficiency. The Owner shall then deduct the comparable dollar amount from the payments due the Contractor.
   3. Unnecessary and/or Redundant RFI's Include (But Are Not Limited To):
      a. RFI's questioning items or information clearly noted in the contract documents.

b. RFI's generated as a result of a Contractor's substitution or construction error which requires additional coordination with other related items or a revision to the contract documents.

END OF SECTION

SECTION 01 3010
SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittal Log

B. Preparing and processing of submittals for review and action.

C. Preparing and processing of informational submittals.

1.02 DEFINITIONS

A. "Shop drawings" are drawings and other data prepared, by the entity who is to do the work, specifically to show a portion of the work.

B. "Product data submittals" are standard printed data which show or otherwise describe a product or system, or some other portion of the work.
   1. Product data submittals also include:
      a. Performance curves, when issued by the manufacturer for all products of that type.
      b. Selection data showing standard colors.
      c. Wiring diagrams, when standard for all products of that type.

C. "Samples" are actual examples of the products or work to be installed.

D. Informational Submittals: Submittals identified in the contract documents as to be submitted for information only.

1.03 SUBMITTAL LOG

A. Contractor shall prepare submittal log in format approved by the Architect and School District.

B. As a minimum the submittal log shall list all submittals required by the contract documents, with assigned submittal number, corresponding specification section and description of submittal.

1.04 SUBMITTALS FOR REVIEW

A. Submit the following for the architect's review and action:
   1. Shop drawings.
   2. Structural design information required by the contract documents.
   3. Product data.
   4. Samples.
   5. Submittals indicated as "for approval."
   6. Submittals for which procedures are not defined elsewhere.

B. Submit to Architect for review for the limited purpose of checking fro conformance with information given and the design concept expressed in the contract documents.

C. Samples will be reviewed only for aesthetic, color, or finish selection.

D. After review, provide copies and distribute in accordance with SUBMITTAL PROCEDURES article below and for record documents purposes described in Section 01 7800 - Closeout Submittals.

1.05 SUBMITTALS FOR INFORMATION

A. When the following are specified in individual sections, submit them for information:
   1. Certificates.
   2. Coordination drawings.
   3. Test reports.
   4. Inspection reports.
   5. Manufacturer's instructions.
   6. Manufacturer's field reports.
   7. Qualification statements from manufacturers / installers.
   8. Verified Reports in accordance with Title 24, Part 1, Article 47336, C.C.R.

1.06 SUBMITTALS FOR PROJECT CLOSEOUT

A. When the following are specified in individual sections, submit them at project closeout:
   1. Project record documents.
   2. Operation and maintenance data.
   3. Warranties.
   4. Bonds.
   5. Other types as indicated.

B. Submit for Owner's benefit during and after project completion.

1.07 SUBMITTAL REQUIREMENTS

A. Do not commence work that requires review of any submittals until receipt of returned submittals with an acceptable action.

B. Do not allow submittals without an acceptable action marking to be used for the project.

C. Submit all submittals to the Architect.

D. All Submittals for the project shall be delivered to the Architect's office within five (5) days from the Notice to Proceed.

E. Do not submit substitute items that have not been approved by means of the procedure specified elsewhere.

F. Do not include requests for substitution (either direct or indirect) on submittals; comply with procedures for substitutions specified elsewhere.

G. Related Sections: The following are specified elsewhere in Division 1:
   1. 01 2000 - PRICE AND PAYMENT PROCEDURES
      a. Payment, modification, and completion submittals.
         1) Applications for payment.
         2) Schedule of values.
         3) Change proposals.
   2. 01 3216 - CONSTRUCTION PROGRESS SCHEDULE
      a. Progress of work submittals:
         1) Contractor's construction schedules.
   3. 01 4000 - QUALITY REQUIREMENTS
      a. Quality control submittals:
         1) Inspection reports.
         2) Test reports.
   4. 01 6000 - PRODUCT REQUIREMENTS
      a. Product submittals:
         1) Requests for Substitution.
         2) Maintenance materials and tools.
   5. 01 7800 - CLOSEOUT SUBMITTALS
      a. Contract closeout submittals:
         1) Equipment and systems demonstration reports.
         2) Operating and maintenance data.
         3) Request for determination of substantial completion.
         4) Project record documents.
         5) Warranties.
         6) Bonds.

1.08 NUMBER OF COPIES OF SUBMITTALS

A. Documents for Review:
   1. Small Size Sheets, Not Larger Than 8-1/2 x 11 inches: Submit the number of copies which the Contractor requires, plus [four] copies which will be retained by the Architect.
   2. Larger Sheets, Not Larger Than 36 x 48 inches: Submit the number of opaque reproductions which Contractor requires, plus [four] copies which will be retained by

Architect.

3. In lieu of hard copy submittals, electronic submittals are acceptable except for material and/or color selection samples.

B. Documents for Information: Submit [three] copies.

C. Documents for Project Closeout: Make one reproduction of submittal originally reviewed. Submit one extra of submittals for information.

D. Samples: Submit the number specified in individual specification sections; one of which will be retained by Architect.
   1. After review, produce duplicates.
   2. Retained samples will not be returned to Contractor unless specifically so stated.

E. Copies in excess of the number requested will not be returned.

F. Provide additional copies, if required for operating and maintenance data, marked to indicate their purpose.

1.09 SUBMITTAL PROCEDURES

A. Coordination:
   1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related construction activities to avoid delay.
      a. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals and related activities that require sequential activity.
      b. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
      c. The Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.

B. Processing:
   1. Allow sufficient review time so that installation will not be delayed as a result of the time required to process submittals, including time for resubmittals.
      a. For each submittal for review, allow 15 days excluding delivery time to and from the Architect. Allow additional time if processing time must be delayed to permit coordination with subsequent submittals. The Architect shall promptly advise the General Contractor when a submittal being processed must be delayed for coordination.
         1) Exceptions:
            (a) Deferred Approval Submittal through the Division of the State Architect's office. Due to the nature of these submittals, no estimated return date can be given.
            (b) Complicated Shop Drawings may require more than fifteen days for proper review time and coordination.
            (c) If numerous Submittals are provided within a short period of time, the review time may not be able to be met. In these cases, the Contractor should clearly identify on the Submittal Transmittal which Submittals have the highest priority in terms of the Project Schedule and related construction activities.
      b. If an intermediate submittal is necessary, process the same as the initial submittal.
      c. Allow two weeks for reprocessing each submittal.
      d. When revised for resubmission, identify all changes made since previous submission.
      e. No extension of Contract Time will be authorized because of the failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing and review.

C. Submittal Preparation:
   1. Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.

a. Provide a space approximately 4" x 5" on the label or besides the title block on Shop Drawings to record the Architect's/Engineer's review and approval markings and the action taken.
b. Include the following information on the label for processing and recoding action taken:
    1) Project Name.
    2) Date.
    3) Name and address of Architect.
    4) Name and address of District.
    5) Name and address of Subcontractor.
    6) Name and address of Supplier.
    7) Name of manufacturer.
    8) Number and title of the appropriate Specification Section.
    9) Drawing number and detail references, as appropriate.

D. Submittal Transmittal:
1. Package each submittal appropriately for transmittal and handling. Transmit each submittal from District or General Contractor to Architect using a standard "Submittal Transmittal" form in a format that is acceptable to the Architect and District. Submittals received from sources other than the District or General Contractor will be returned without action.
2. Sequentially number the transmittal form. Revise submittals with original number and a sequential alphabetic suffix.
3. On the transmittal, record relevant information and requests for data.
4. Apply Contractor's stamp, signed or initialed certifying that review, approval, verification of Products required, field dimensions, adjacent construction Work, and coordination of information is in accordance with the requirements of the Work and Contract Documents.
5. Deliver submittals to Architect at business address.
6. Schedule submittals to expedite the Project, and coordinate submission of related items.
7. Identify all variations from Contract Documents, and all Product or system limitations which may be detrimental to successful performance of the completed Work.
    a. Failure to identify all variations and limitations will be cause for retroactive rejection of submittals previously approved.

E. Distribution:
1. Distribute copies of reviewed submittals as appropriate. Instruct parties to promptly report any inability to comply with requirements.

1.10 COORDINATION OF SUBMITTALS

A. Coordinate submittals and activities that must be performed in sequence, so that the architect has enough information to properly review the submittals.

B. Coordinate submittals of different types for the same product or system so that the architect has enough information to properly review each submittal.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 TIMING OF SUBMITTALS

A. Transmit each submittal at or before the time indicated on the approved schedule of submittals.
1. Prepare and submit for approval a schedule showing the required dates of submittal of all submittals.
2. Organize the schedule by the applicable specification section number.
3. Incorporate the contractor's construction schedule specified elsewhere.
4. ALL SUBMITTALS FOR THE PROJECT SHALL BE DELIVERED TO THE ARCHITECT'S OFFICE WITHIN FIVE (5) DAYS FROM THE NOTICE TO PROCEED.

B. Deliver each submittal requiring approval in time to allow for adequate review and processing time, including resubmittals if necessary; failure of the contractor in this respect will not be

considered as grounds for an extension of the contract time.

C. Deliver each informational submittal prior to start of the work involved, unless the submittal is of a type which cannot be prepared until after completion of the work; submit promptly.

D. Allow a minimum of 15 business days for the first processing of each submittal. Allow more time when submittals must be coordinated with later submittals, or are more technical in nature and require more review and coordination time.

E. Allow a minimum of 7 business days for processing of resubmittals.

F. If a submittal must be delayed for coordination with other submittals not yet submitted, the architect may at his option either return the submittal with no action or notify the contractor of the other submittals, which must be received before the submittal can be reviewed.

3.02 SUBMITTAL PROCEDURES - GENERAL

A. Contractor Review: Sign each copy of each submittal certifying compliance with the requirements of the contract documents.

B. Notify the architect, in writing and at time of submittal, of all points upon which the submittal does not conform to the requirements of the contract documents, if any. All deviations form the Contract Documents must be clearly indicated on the submittal. All submittals for materials or equipment other than that specified must be submitted with properly completed Substitution Request Form.

C. Preparation of Submittals:
   1. Label each copy of each submittal, with the following information:
      a. Project name.
      b. Date of submittal.
      c. Contractor's name and address.
      d. Architect's name and address.
      e. Subcontractor's name and address.
      f. Manufacturer's name.
      g. Specification section where the submittal is specified.
      h. Numbers of applicable drawings and details.
      i. Other necessary identifying information.
   2. Pack submittals suitably for shipment.
   3. Submittals to receive architect's action marking: Provide blank space on the label or on the submittal itself for action marking; minimum 4 inches wide by 5 inches high.

D. Transmittal of Submittals:
   1. Submittals will be accepted from the contractor only. Submittals received from other entities will be returned without review or action.
   2. Submittals received without a transmittal form will be returned without review or action.
   3. Transmittal form: Use a form matching the sample form attached to this section.
   4. Fill out a separate transmittal form for each submittal; also include the following:
      a. Other relevant information.
      b. Requests for additional information.

3.03 SHOP DRAWINGS

A. Content: Include the following information:
   1. Dimensions, at accurate scale.
   2. All field measurements that have been taken, at accurate scale.
   3. Names of specific products and materials used.
   4. Details, identified by contract document sheet and detail numbers.
   5. Show compliance with the specific standards referenced.
   6. Coordination requirements; show relationship to adjacent or critical work.
   7. Name of preparing firm.

B. Preparation:
   1. Reproductions of contract documents are not acceptable as shop drawings.

2. Space for architect's action marking shall be adjacent to the title block.

3.04 PRODUCT DATA

A. Content:
   1. Submit manufacturer's standard printed data sheets.
   2. Identify the particular product being submitted; submit only pertinent pages.
   3. Show compliance with properties specified.
   4. Identify which options and accessories are applicable.
   5. Show compliance with the specific standards referenced.
   6. Show compliance with specified testing agency listings; show the limitations of their labels or seals, if any.
   7. Identify dimensions which have been verified by field measurement.
   8. Show special coordination requirements for the product.

3.05 SAMPLES

A. Samples:
   1. Provide samples that are the same as proposed product.
   2. Where unavoidable variations must be expected, submit "range" samples, minimum of 3 units, and describe or identify variations among units of each set.
   3. Where selection is required, provide full set of all options.

B. Preparation:
   1. Attach a description to each sample.
   2. Attach name of manufacturer or source to each sample.
   3. Where compliance with specified properties is required, attach documentation showing compliance.
   4. Where there are limitations in availability, delivery, or other similar characteristics, attach description of such limitations.
   5. Where selection is required, the first submittal may be a single set of all options; after return of submittal with selection indicated, submit standard number of sets of selected item.

C. Keep final sample set(s) at the project site, available for use during progress of the work.

3.06 REVIEW OF SUBMITTALS

A. Submittals for approval will be reviewed, marked with appropriate action, and returned.
   1. Informational submittals: Submittals will be reviewed.

3.07 RETURN, RESUBMITTAL, AND DISTRIBUTION

A. Submittals will be returned to the contractor by mail.Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by the architect.

B. Perform resubmittals in the same manner as original submittals; indicate all changes other than those requested by the architect.
   1. Exception: Transmittal number for resubmittals shall be the number of the original submittal plus a letter suffix; example: 05500-1 would become 05500-1 A.

C. Distribution:
   1. Distribute returned submittals to all subcontractors and suppliers involved in work covered by the submittal.
   2. Make one copy for project record documents.

END OF SECTION

SECTION 01 3216
CONSTRUCTION PROGRESS SCHEDULE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Preliminary schedule.

B. Construction progress schedule, bar chart type.

1.02 REFERENCES

A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

1.03 SUBMITTALS

A. Within 10 days after date of Agreement, submit preliminary schedule defining planned operations for the first 60 days of Work, with a general outline for remainder of Work.

B. If preliminary schedule requires revision after review, submit revised schedule within 10 days.

C. Within 20 days after review of preliminary schedule, submit draft of proposed complete schedule for review.
   1. Include written certification that major contractors have reviewed and accepted proposed schedule.

D. Within 10 days after joint review, submit complete schedule.

E. Submit updated schedule with each Application for Payment.

F. Submit the number of opaque reproductions that Contractor requires, plus three copies that will be retained by Architect.

G. Submit under transmittal letter form specified in Section 01 3000 - Administrative Requirements.

1.04 QUALITY ASSURANCE

A. Scheduler: Contractor's personnel or specialist Consultant specializing in CPM scheduling with one years minimum experience in scheduling construction work of a complexity comparable to this Project, and having use of computer facilities capable of delivering a detailed graphic printout within 48 hours of request.

1.05 SCHEDULE FORMAT

A. Listings: In chronological order according to the start date for each activity. Identify each activity with the applicable specification section number.

B. Diagram Sheet Size: Maximum 30 x 42 inches or width required.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 PRELIMINARY SCHEDULE

A. Prepare preliminary schedule in the form of a horizontal bar chart.

3.02 CONTENT

A. Show complete sequence of construction by activity, with dates for beginning and completion of each element of construction.

B. Identify each item by specification section number.

C. Identify work of separate stages and other logically grouped activities.

D. Provide sub-schedules for each stage of Work identified in Section 01 1000.

E. Provide sub-schedules to define critical portions of the entire schedule.

F. Show accumulated percentage of completion of each item, and total percentage of Work completed, as of the first day of each month.

G. Provide separate schedule of submittal dates for shop drawings, product data, and samples, owner-furnished products, and dates reviewed submittals will be required from Architect. Indicate decision dates for selection of finishes.

H. Provide legend for symbols and abbreviations used.

3.03 BAR CHARTS

A. Include a separate bar for each major portion of Work or operation.

B. Identify the first work day of each week.

3.04 UPDATING SCHEDULE

A. Maintain schedules to record actual start and finish dates of completed activities.

B. Indicate progress of each activity to date of revision, with projected completion date of each activity.

C. Annotate diagrams to graphically depict current status of Work.

D. Identify activities modified since previous submittal, major changes in Work, and other identifiable changes.

E. Indicate changes required to maintain Date of Substantial Completion.

F. Submit reports required to support recommended changes.

G. Provide narrative report to define problem areas, anticipated delays, and impact on the schedule. Report corrective action taken or proposed and its effect including the effects of changes on schedules of separate contractors.

3.05 DISTRIBUTION OF SCHEDULE

A. Distribute copies of updated schedules to Contractor's project site file, to Subcontractors, suppliers, Architect, Owner, Project Inspector, and other concerned parties.

B. Instruct recipients to promptly report, in writing, problems anticipated by projections shown in schedules.

END OF SECTION

SECTION 01 4000
QUALITY REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Submittals.

B. References and standards.

C. Control of installation.

D. Testing and inspection agencies and services.

E. Control of installation.

F. Manufacturers' field services.

G. Defect Assessment.

1.02 RELATED REQUIREMENTS

A. Section 01 3010 - Submittals: Submittal procedures.

B. Section 01 4219 - Reference Standards.

1.03 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Certificates: When specified in individual specification sections, submit certification by the manufacturer and Contractor or installation/application subcontractor to Architect, in quantities specified for Product Data.
   1. Indicate material or product conforms to or exceeds specified requirements. Submit supporting reference data, affidavits, and certifications as appropriate.
   2. Certificates may be recent or previous test results on material or product, but must be acceptable to Architect.

C. Manufacturer's Instructions: When specified in individual specification sections, submit printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, for the Owner's information. Indicate special procedures, perimeter conditions requiring special attention, and special environmental criteria required for application or installation.

D. Manufacturer's Field Reports: Submit reports for Architect's benefit as contract administrator or for Owner.
   1. Submit report in duplicate within 30 days of observation to Architect for information.
   2. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.

E. Erection Drawings: Submit drawings for Architect's benefit as contract administrator or for Owner.
   1. Submit for information for the limited purpose of assessing conformance with information given and the design concept expressed in the contract documents.
   2. Data indicating inappropriate or unacceptable Work may be subject to action by Architect or Owner.

1.04 REFERENCES AND STANDARDS

A. For products and workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Conform to reference standard of date of issue current on date of Contract Documents, except where a specific date is established by applicable code.

C. Obtain copies of standards where required by product specification sections.

D. Maintain copy at project site during submittals, planning, and progress of the specific work, until Substantial Completion.

E. Should specified reference standards conflict with Contract Documents, request clarification from Architect before proceeding.

F. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of Architect shall be altered from the Contract Documents by mention or inference otherwise in any reference document.

1.05 TESTING AND INSPECTION AGENCIES AND SERVICES

A. Owner will employ and pay for services of an independent testing agency to perform other specified testing. Refer to Section 01 9010 - Testing and Inspection Requirements.

B. Employment of agency in no way relieves Contractor of obligation to perform Work in accordance with requirements of Contract Documents.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION

3.01 CONTROL OF INSTALLATION

A. Monitor quality control over suppliers, manufacturers, products, services, site conditions, and workmanship, to produce Work of specified quality.

B. Comply with manufacturers' instructions, including each step in sequence.

C. Should manufacturers' instructions conflict with Contract Documents, request clarification from Architect before proceeding.

D. Comply with specified standards as minimum quality for the Work except where more stringent tolerances, codes, or specified requirements indicate higher standards or more precise workmanship.

E. Have Work performed by persons qualified to produce required and specified quality.

F. Verify that field measurements are as indicated on shop drawings or as instructed by the manufacturer.

G. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, physical distortion, and disfigurement.

3.02 TESTING AND INSPECTION

A. See Specification Section 01 9010 for testing required.

B. Contractor Responsibilities:
   1. Deliver to agency at designated location, adequate samples of materials proposed to be used that require testing, along with proposed mix designs.
   2. Cooperate with laboratory personnel, and provide access to the Work and to manufacturers' facilities.
   3. Provide incidental labor and facilities:
      a. To provide access to Work to be tested/inspected.
      b. To obtain and handle samples at the site or at source of Products to be tested/inspected.
      c. To facilitate tests/inspections.
      d. To provide storage and curing of test samples.
   4. Notify Architect and laboratory 48 hours prior to expected time for operations requiring testing/inspection services.
   5. Arrange with Owner's agency and pay for additional samples, tests, and inspections required by Contractor beyond specified requirements.

C. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by Architect.

D. Re-testing required because of non-conformance to specified requirements shall be paid for by Contractor.

E. Re-testing required because of non-conformance to specified requirements shall be performed by the same agency on instructions by the Architect. Payment for re-testing will be charged to

the Contractor by deducting testing charges from the Contract Sum/Price.

3.03 MANUFACTURERS' FIELD SERVICES

A. When specified in individual specification sections, require material or product suppliers or manufacturers to provide qualified staff personnel to observe site conditions, conditions of surfaces and installation, quality of workmanship, start-up of equipment, test, adjust and balance of equipment and _____ as applicable, and to initiate instructions when necessary.

B. Report observations and site decisions or instructions given to applicators or installers that are supplemental or contrary to manufacturers' written instructions.

3.04 DEFECT ASSESSMENT

A. Replace Work or portions of the Work not conforming to specified requirements.

B. If, in the opinion of Architect, it is not practical to remove and replace the Work, Architect will direct an appropriate remedy or adjust payment.

END OF SECTION

SECTION 01 4219
REFERENCE STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Requirements relating to referenced standards.

1.02 QUALITY ASSURANCE

A. For products or workmanship specified by reference to a document or documents not included in the Project Manual, also referred to as reference standards, comply with requirements of the standard, except when more rigid requirements are specified or are required by applicable codes.

B. Should specified reference standards conflict with Contract Documents, request clarification from the Architect before proceeding.

C. Neither the contractual relationships, duties, or responsibilities of the parties in Contract nor those of the Architect shall be altered by the Contract Documents by mention or inference otherwise in any reference document.

PART 2 CONSTRUCTION INDUSTRY ORGANIZATION DOCUMENTS

2.01 AA -- ALUMINUM ASSOCIATION, INC.

2.02 AAMA -- AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION

2.03 AASHTO -- AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS

A. AASHTO GDPS - Guide for Design of Pavement Structures; 1993, with Supplement (1998).

B. AASHTO GDPS-3 - Guide for Design of Pavement Structures, Volume 2; 1986.

C. AASHTO T 27 - Standard Specification for Sieve Analysis of Fine and Course Aggregates; 2006.

2.04 ACI -- AMERICAN CONCRETE INSTITUTE INTERNATIONAL

A. ACI 117 - Specification for Tolerances for Concrete Construction and Materials; 2010 (Reapproved 2015).

B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

C. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

D. ACI 308R - Guide to External Curing of Concrete; 2016.

E. ACI 347R - Guide to Formwork for Concrete; 2014 (Reapproved 2021).

2.05 AGC -- ASSOCIATED GENERAL CONTRACTORS OF AMERICA

A. AGC (CPSM) - Construction Planning and Scheduling Manual; 2004.

2.06 AISC -- AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.

A. AISC (MAN) - Steel Construction Manual; 2023.

2.07 AMCA -- AIR MOVEMENT AND CONTROL ASSOCIATION INTERNATIONAL, INC.

2.08 ASTM A SERIES -- ASTM INTERNATIONAL

A. ASTM A36/A36M - Standard Specification for Carbon Structural Steel; 2019.

B. ASTM A53/A53M - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless; 2022.

C. ASTM A108 - Standard Specification for Steel Bar, Carbon and Alloy, Cold-Finished; 2018.

D. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

E. ASTM A283/A283M - Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates; 2018.

F. ASTM A325 - Standard Specification for Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength; 2014.

G. ASTM A325M - Standard Specification for Structural Bolts, Steel, Heat Treated 830 MPa Minimum Tensile Strength (Metric); 2014.

H. ASTM A501/A501M - Standard Specification for Hot-Formed Welded and Seamless Carbon Steel Structural Tubing; 2021.

I. ASTM A572/A572M - Standard Specification for High-Strength Low-Alloy Columbium-Vanadium Structural Steel; 2021, with Editorial Revision.

J. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.

K. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

L. ASTM A792/A792M - Standard Specification for Steel Sheet, 55% Aluminum-Zinc Alloy-Coated by the Hot-Dip Process; 2023.

M. ASTM A992/A992M - Standard Specification for Structural Steel Shapes; 2022.

2.09 ASTM B SERIES -- ASTM INTERNATIONAL

A. ASTM B241/B241M - Standard Specification for Aluminum and Aluminum-Alloy Seamless Pipe and Seamless Extruded Tube; 2022.

2.10 ASTM F SERIES -- ASTM INTERNATIONAL

2.11 DASMA -- DOOR & ACCESS SYSTEMS MANUFACTURERS' ASSOCIATION, INTERNATIONAL

2.12 ICC -- INTERNATIONAL CODE COUNCIL, INC.

2.13 ICC-ES - ICC EVALUATION SERVICE, INC.

2.14 ITS -- INTERTEK TESTING SERVICES NA, INC.

2.15 NAAMM -- THE NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS

A. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.

2.16 NCMA -- NATIONAL CONCRETE MASONRY ASSOCIATION

2.17 NEMA -- NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION

2.18 RIS -- REDWOOD INSPECTION SERVICE

A. RIS (GR) - Standard Specifications for Grades of California Redwood Lumber; 2019.

2.19 SCAQMD -- SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

A. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

2.20 TMS -- THE MASONRY SOCIETY

2.21 UL -- UNDERWRITERS LABORATORIES INC.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 01 5000
TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Temporary sanitary facilities.

B. Temporary Controls: Barriers and fencing.

C. Security requirements.

D. Vehicular access and parking.

E. Waste removal facilities and services.

F. Field offices.

1.02 TELECOMMUNICATIONS SERVICES

A. Provide, maintain, and pay for telecommunications services to field office at time of project mobilization.

B. Provide, maintain, and pay for telephone service to field office and Inspector's field office at time of project mobilization through to project completion.

C. Provide, maintain and pay for facsimile service and a dedicated telephone line to field office and Inspector's field office at time of project mobilization through to project completion.

1.03 TEMPORARY SANITARY FACILITIES

A. Provide and maintain required facilities and enclosures. Provide at time of project mobilization through to project completion.

B. Maintain daily in clean and sanitary condition.

1.04 BARRIERS

A. Provide barriers to prevent unauthorized entry to construction areas, to prevent access to areas that could be hazardous to workers or the public, to allow for owner's use of site and to protect existing facilities and adjacent properties from damage from construction operations and demolition.

B. Provide barricades and covered walkways required by governing authorities for public rights-of-way and for public access to existing building.

C. Provide protection for plants designated to remain. Replace damaged plants.

D. Protect non-owned vehicular traffic, stored materials, site, and structures from damage.

1.05 FENCING

A. Construction: Commercial grade chain link fence.

B. Provide 6 foot high fence around construction site; equip with vehicular and pedestrian gates with locks as required.

1.06 SECURITY

A. Provide security and facilities to protect Work, and Owner's operations from unauthorized entry, vandalism, or theft.

1.07 VEHICULAR ACCESS AND PARKING

A. Comply with regulations relating to use of streets and sidewalks, access to emergency facilities, and access for emergency vehicles.

B. Coordinate access and haul routes with governing authorities and Owner.

C. Provide and maintain access to fire hydrants, free of obstructions.

D. Provide means of removing mud from vehicle wheels before entering streets.

1.08 WASTE REMOVAL

A. Provide waste removal facilities and services as required to maintain the site in clean and orderly condition.

B. Provide containers with lids. Remove trash from site weekly.

C. If materials to be recycled or re-used on the project must be stored on-site, provide suitable non-combustible containers; locate containers holding flammable material outside the structure unless otherwise approved by the authorities having jurisdiction.

1.09 FIELD OFFICES

A. Office: Weathertight, with lighting, electrical outlets, heating, cooling equipment, and equipped with sturdy furniture, drawing rack and drawing display table.

B. Provide space for Project meetings, with table and chairs to accommodate 6 persons.

C. Provide separate private office similarly equipped and furnished, for use of the Project Inspector.

1.10 REMOVAL OF UTILITIES, FACILITIES, AND CONTROLS

A. Remove temporary utilities, equipment, facilities, materials, prior to Date of Substantial Completion inspection.

B. Clean and repair damage caused by installation or use of temporary work.

C. Restore existing facilities used during construction to original condition.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 01 6000
PRODUCT REQUIREMENTS

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 RELATED REQUIREMENTS

A. Section 01 4000 - Quality Requirements: Product quality monitoring.

1.03 SUBMITTALS

A. 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.

B. 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.

C. 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.

D. Indicate utility and electrical characteristics, utility connection requirements, and location of utility outlets for service for functional equipment and appliances.

PART 2 PRODUCTS

2.01 EXISTING PRODUCTS

A. Do not use materials and equipment removed from existing premises unless specifically required or permitted by the Contract Documents.

B. Existing materials and equipment indicated to be removed, but not to be re-used, relocated, reinstalled, delivered to the Owner, or otherwise indicated as to remain the property of the Owner, become the property of the Contractor; remove from site. However, The Owner has the first right of refusal on all existing materials and equipment indicated to be removed, but not to be re-used.

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.

C. Provide interchangeable components of the same manufacture for components being replaced.

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 Project site; obtain receipt prior to final payment.

PART 3 EXECUTION

3.01 SUBSTITUTIONS DURING THE BIDDING PERIOD

A. Substitution requests submitted later than 7 days prior to the Bid Date will not be considered.

B. Acceptable substitutions will be added to the contract documents by addendum; no verbal approvals will be valid.

3.02 SUBSTITUTIONS AFTER AWARD OF THE CONTRACT

A. Substitutions will not be considered between the Bid date and the Award of the Contract.

B. Substitutions will not be allowed after Award of the Contract except when, through no fault of the Contractor, none of the specified products are available.
   1. Architect will consider requests for substitutions only within 30 days after date of Agreement.

3.03 SUBSTITUTION PROCEDURES

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

B. 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. Agrees to provide the same warranty for the substitution as for the specified product.
   3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner, including:
      a. Redesign.
      b. Additional components and capacity required by other work affected by the change.
   4. Waives claims for additional costs or time extension that may subsequently become apparent.

C. 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.

D. Substitutions will not be considered when submitted directly by subcontractor or supplier.

E. Substitution Submittal Procedure: Submit written request with complete data substantiating compliance of the proposed product with the requirements of the Contract Documents, utilizing the form provided in the bid documents.
   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. Substitutions shall be considered as a Change Order, and shall be approved by DSA prior to fabrication or use.
   4. The Architect will notify Contractor in writing of decision to accept or reject request.

F. Data Required with Substitution Request: Provide at least the following data:
   1. Identify product by specification section and paragraph number.
   2. Manufacturer's name and address, trade name and model number of product (if applicable), and name of the fabricator or supplier (if applicable).
   3. Complete Product Data.
   4. A list of other projects on which the proposed product has been used, with Project Name, the Design Professionals name, and Owner contact.
   5. A itemized side-by-side comparison of the proposed product to the specified product.

6. Net amount of change to the contract sum.
7. List of maintenance services and replacement materials available.
8. Statement of the effect of the substitution on the construction schedule.
9. Description of changes that will be required in other work or products if the substitute product is approved.

G. The Architect will determine the acceptability of the proposed substitution.

H. There are certain items and/or products that are specified for this project that are District Standards, where no substitutions will be accepted. If this is the case, the Substitution Request related to a District Standard shall be responded to stating such fact.

I. When the proposed substitution is accepted, provide the product (or one of the products, as the case may be) specified.

J. All changes in the work that affects the Structural, Access, or Fire & Life Safety portions of the project shall be submitted to DSA for review and approval as required per CBC 2019 Part 1 Section 4-338.

3.04 TRANSPORTATION AND HANDLING

A. Package products for shipment in manner to prevent damage; for equipment, package to avoid loss of factory calibration.

B. If special precautions are required, attach instructions prominently and legibly on outside of packaging.

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

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

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

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

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

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

3.05 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. Protect products from damage or deterioration due to construction operations, weather, precipitation, humidity, temperature, sunlight and ultraviolet light, dirt, dust, and other contaminants.

H. Comply with manufacturer's warranty conditions, if any.

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

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

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

L. 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

SECTION 01 7000
EXECUTION AND CLOSEOUT REQUIREMENTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Examination, preparation, and general installation procedures.

B. Requirements for alterations work, including selective demolition, except removal, disposal, and/or remediation of hazardous materials and toxic substances.

C. Pre-installation meetings.

D. Cutting and patching.

E. Cleaning and protection.

F. Starting of systems and equipment.

G. Demonstration and instruction of Owner personnel.

H. General requirements for maintenance service.

1.02 RELATED REQUIREMENTS

A. Section 01 3010 - Submittals: Submittal procedures.

B. Section 01 7800 - Closeout Submittals: Project record documents, operation and maintenance data, warranties and bonds.

1.03 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Cutting and Patching: Submit written request in advance of cutting or alteration that affects:
   1. Structural integrity of any element of Project.
   2. Integrity of weather exposed or moisture resistant element.
   3. Efficiency, maintenance, or safety of any operational element.
   4. Visual qualities of sight exposed elements.
   5. Work of Owner or separate Contractor.

1.04 PROJECT CONDITIONS

A. Grade site to drain. Maintain excavations free of water. Provide, operate, and maintain pumping equipment.

B. Protect site from puddling or running water. Provide water barriers as required to protect site from soil erosion.

C. Ventilate enclosed areas to assist cure of materials, to dissipate humidity, and to prevent accumulation of dust, fumes, vapors, or gases.

D. Noise Control: Provide methods, means, and facilities to minimize noise produced by construction operations.

E. Pest and Rodent Control: Provide methods, means, and facilities to prevent pests and insects from damaging the work.

F. Rodent Control: Provide methods, means, and facilities to prevent rodents from accessing or invading premises.

1.05 COORDINATION

A. Coordinate scheduling, submittals, and work of the various sections of the Project Manual to ensure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

B. Notify affected utility companies and comply with their requirements.

C. Verify that utility requirements and characteristics of new operating equipment are compatible with building utilities. Coordinate work of various sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.

D. Coordinate space requirements, supports, and installation of mechanical and electrical work that are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and conduit, as closely as practicable; place runs parallel with lines of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. In finished areas except as otherwise indicated, conceal pipes, ducts, and wiring within the construction. Coordinate locations of fixtures and outlets with finish elements.

F. Coordinate completion and clean-up of work of separate sections.

G. After Owner occupancy of premises, coordinate access to site for correction of defective work and work not in accordance with Contract Documents, to minimize disruption of Owner's activities.

PART 2 PRODUCTS

2.01 PATCHING MATERIALS

A. New Materials: As specified in product sections; match existing products and work for patching and extending work.

B. Type and Quality of Existing Products: Determine by inspecting and testing products where necessary, referring to existing work as a standard.

C. Product Substitution: For any proposed change in materials, submit request for substitution described in Section 01 6000 - Product Requirements.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that existing site conditions and substrate surfaces are acceptable for subsequent work. Start of work means acceptance of existing conditions.

B. Verify that existing substrate is capable of structural support or attachment of new work being applied or attached.

C. Examine and verify specific conditions described in individual specification sections.

D. Take field measurements before confirming product orders or beginning fabrication, to minimize waste due to over-ordering or misfabrication.

E. Verify that utility services are available, of the correct characteristics, and in the correct locations.

F. Prior to Cutting: Examine existing conditions prior to commencing work, including elements subject to damage or movement during cutting and patching. After uncovering existing work, assess conditions affecting performance of work. Beginning of cutting or patching means acceptance of existing conditions.

3.02 PREPARATION

A. Clean substrate surfaces prior to applying next material or substance.

B. Seal cracks or openings of substrate prior to applying next material or substance.

C. Apply manufacturer required or recommended substrate primer, sealer, or conditioner prior to applying any new material or substance in contact or bond.

3.03 PREINSTALLATION MEETINGS

A. When required in individual specification sections, convene a preinstallation meeting at the site prior to commencing work of the section.

B. Require attendance of parties directly affecting, or affected by, work of the specific section.

C. Notify Architect seven days in advance of meeting date.

D. Prepare agenda and preside at meeting:
   1. Review conditions of examination, preparation and installation procedures.
   2. Review coordination with related work.

E. Record minutes and distribute copies within two days after meeting to participants, with two copies to Architect, Owner, participants, and those affected by decisions made.

3.04 LAYING OUT THE WORK

A. Establish elevations, 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; utility locations, slopes, and invert elevations.
   2. Grid or axis for structures.

B. Periodically verify layouts by same means.

3.05 GENERAL INSTALLATION REQUIREMENTS

A. Install products as specified in individual sections, in accordance with manufacturer's instructions and recommendations, and so as to avoid waste due to necessity for replacement.

B. Make vertical elements plumb and horizontal elements level, unless otherwise indicated.

C. Install equipment and fittings plumb and level, neatly aligned with adjacent vertical and horizontal lines, unless otherwise indicated.

D. Make consistent texture on surfaces, with seamless transitions, unless otherwise indicated.

E. Make neat transitions between different surfaces, maintaining texture and appearance.

3.06 ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation and existing record documents only.
   1. Verify that construction and utility arrangements are as shown.
   2. Report discrepancies to Architect before disturbing existing installation.
   3. Beginning of alterations work constitutes acceptance of existing conditions.

B. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.
   2. Relocate items indicated on drawings.
   3. Where new surface finishes are to be applied to existing work, perform removals, patch, and prepare existing surfaces as required to receive new finish; remove existing finish if necessary for successful application of new finish.
   4. Where new surface finishes are not specified or indicated, patch holes and damaged surfaces to match adjacent finished surfaces as closely as possible.

C. Services (Including but not limited to electrical and irrigation): Remove, relocate, and extend existing systems to accommodate new construction.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components; if necessary, modify installation to allow access or provide access panel.
   2. Where existing systems or equipment are not active and Contract Documents require reactivation, put back into operational condition; repair supply, distribution, and equipment as required.
   3. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
      a. Disable existing systems only to make switchovers and connections; minimize duration of outages.
      b. Provide temporary connections as required to maintain existing systems in service.
   4. Verify that abandoned services serve only abandoned facilities.
   5. Remove abandoned pipe, ducts, conduits, and equipment ; remove back to source of supply where possible, otherwise cap stub and tag with identification; patch holes left by removal using materials specified for new construction.

D. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.

2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
3. Repair adjacent construction and finishes damaged during removal work.
4. Patch as specified for patching new work.

E. Adapt existing work to fit new work: Make as neat and smooth transition as possible.

F. Patching: Where the existing surface is not indicated to be refinished, patch to match the surface finish that existed prior to cutting. Where the surface is indicated to be refinished, patch so that the substrate is ready for the new finish.

G. Refinish existing surfaces as indicated:

H. Where rooms or spaces are indicated to be refinished, refinish all visible existing surfaces to remain to the specified condition for each material, with a neat transition to adjacent finishes.

I. If mechanical or electrical work is exposed accidentally during the work, re-cover and refinish to match.
1. Patch as specified for patching new work.

J. Clean existing systems and equipment.

K. Remove demolition debris and abandoned items from alterations areas and dispose of off-site; do not burn or bury.

L. Do not begin new construction in alterations areas before demolition is complete.

M. Comply with all other applicable requirements of this section.

3.07 CUTTING AND PATCHING

A. Whenever possible, execute the work by methods that avoid cutting or patching.

B. See Alterations article above for additional requirements.

C. Perform whatever cutting and patching is necessary to:
1. Complete the work.
2. Fit products together to integrate with other work.
3. Match work that has been cut to adjacent work.
4. Repair areas adjacent to cuts to required condition.
5. Repair new work damaged by subsequent work.
6. Remove samples of installed work for testing when requested.
7. Remove and replace defective and non-conforming work.

D. Execute cutting and patching including excavation and fill to complete the work, to uncover work in order to install improperly sequenced work, to remove and replace defective or non-conforming work, to remove samples of installed work for testing when requested, to provide openings in the work for penetration of mechanical and electrical work, to execute patching to complement adjacent work, and to fit products together to integrate with other work.

E. Execute work by methods that avoid damage to other work and that will provide appropriate surfaces to receive patching and finishing. In existing work, minimize damage and restore to original condition.

F. Employ original installer to perform cutting for weather exposed and moisture resistant elements, and sight exposed surfaces.

G. Cut rigid materials using masonry saw or core drill. Pneumatic tools not allowed without prior approval.

H. Restore work with new products in accordance with requirements of Contract Documents.

I. Patching:
1. Finish patched surfaces to match finish that existed prior to patching. On continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.
2. Match color, texture, and appearance.
3. Repair patched surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. If defects are due to condition of substrate, repair

substrate prior to repairing finish.

J. Refinish surfaces to match adjacent finish. For continuous surfaces, refinish to nearest intersection or natural break. For an assembly, refinish entire unit.

K. Make neat transitions. Patch work to match adjacent work in texture and appearance. Where new work abuts or aligns with existing, perform a smooth and even transition.

L. Patch or replace surfaces that are damaged, lifted, discolored, or showing other imperfections due to patching work. Repair substrate prior to patching finish. Finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, refinish entire surface to nearest intersections.

3.08 PROGRESS CLEANING

A. Maintain areas free of waste materials, debris, and rubbish. Maintain site in a clean and orderly condition.

B. Collect and remove waste materials, debris, and trash/rubbish from site periodically and dispose off-site; do not burn or bury.

3.09 PROTECTION OF INSTALLED WORK

A. Protect installed work from damage by construction operations.

B. Provide special protection where specified in individual specification sections.

C. Provide temporary and removable protection for installed products. Control activity in immediate work area to prevent damage.

D. Remove protective coverings when no longer needed; reuse or recycle plastic coverings if possible.

3.10 DEMONSTRATION AND INSTRUCTION

A. Demonstrate operation and maintenance of products to Owner's personnel two weeks prior to date of Substantial Completion.

B. Provide a qualified person who is knowledgeable about the Project to perform demonstration and instruction of owner personnel.

C. Utilize operation and maintenance manuals as basis for instruction. Review contents of manual with Owner's personnel in detail to explain all aspects of operation and maintenance.

D. Prepare and insert additional data in operations and maintenance manuals when need for additional data becomes apparent during instruction.

3.11 ADJUSTING

A. Adjust operating products and equipment to ensure smooth and unhindered operation.

3.12 FINAL CLEANING

A. Execute final cleaning after Substantial Completion but before making final application for payment.

B. Use cleaning materials that are nonhazardous.

C. Remove all labels that are not permanent. Do not paint or otherwise cover fire test labels or nameplates on mechanical and electrical equipment.

D. Clean equipment and fixtures to a sanitary condition with cleaning materials appropriate to the surface and material being cleaned.

E. Clean site; sweep paved areas, rake clean landscaped surfaces.

F. Remove waste, surplus materials, trash/rubbish, and construction facilities from the site; dispose of in legal manner; do not burn or bury.

3.13 MAINTENANCE

A. Provide service and maintenance of components indicated in specification sections.

B. Maintenance Period: As indicated in specification sections or, if not indicated, not less than one year from the Date of Substantial Completion or the length of the specified warranty,

whichever is longer.

C. Furnish service and maintenance of components indicated in specification sections for one year from date of Substantial Completion.

D. Examine system components at a frequency consistent with reliable operation. Clean, adjust, and lubricate as required.

E. Include systematic examination, adjustment, and lubrication of components. Repair or replace parts whenever required. Use parts produced by the manufacturer of the original component.

F. Maintenance service shall not be assigned or transferred to any agent or subcontractor without prior written consent of the Owner.

END OF SECTION

SECTION 01 7410
CLEANING

PART 1 GENERAL

1.01 SCOPE

A. Throughout the construction period, maintain the buildings and site in a standard of cleanliness as described in this Section.

1.02 RELATED WORK

A. In addition to standards described in this Section, comply with requirements for cleaning as described in pertinent other Sections of these Specifications.

1.03 QUALITY ASSURANCE

A. Conduct daily inspections, and more often if necessary, to verify that requirements for cleanliness are being met.

B. In addition to the standards described in this Section, comply with pertinent requirements of governmental agencies having jurisdiction.

PART 2 PRODUCTS

2.01 CLEANING MATERIALS AND EQUIPMENT

A. Provide required personnel, equipment, and materials needed to maintain the specified standard of cleanliness.

2.02 COMPATIBILITY

A. Use only the cleaning materials and equipment, which are compatible with the surface being cleaned, as recommended by the manufacturer of the material.

PART 3 EXECUTION

3.01 PROGRESS CLEANING

A. General:
   1. Retain stored items in an orderly arrangement allowing maximum access, not impeding traffic or drainage, and providing required protection of materials.
   2. Do not allow accumulation of scrap, debris, waste material, and other items not required for construction of this Work.
   3. At least twice each month, and when requested by the District Representative, completely remove all scrap, debris, and waste material from the job site.
   4. Provide adequate storage for all items awaiting removal from the job site, observing requirements for fire protection and protection of the ecology.

B. Site:
   1. Daily, and more often if necessary, inspect the site and pick up all scrap, debris, and waste material. Remove such items to the place designated for their storage.
   2. Weekly, and more often, if necessary, inspect all arrangements of materials stored on the site. Restack, tidy, or otherwise service arrangements to meet the requirements of subparagraph 3.01 A above.
   3. Maintain the site in a neat and orderly condition at all times.

3.02 FINAL CLEANING

A. "Clean", for the purpose of this Article, and except as may be specifically provided otherwise, shall be interpreted as meaning the level of cleanliness generally provided by skilled cleaners using commercial quality building maintenance equipment and materials.

B. Prior to completion of the Work, remove from the job site all tools, surplus materials, equipment, scrap, debris, and waste. Conduct final progress cleaning as described in Article 3.01 above.

C. Site:
   1. Unless otherwise specifically directed by the Construction Manager, broom clean paved areas on the site and public paved areas adjacent to the site.

2. Completely remove resultant debris.

D. Schedule final cleaning as approved by the Architect to enable the District to accept a completely clean Work.

3.03 CLEANING DURING DISTRICT'S OCCUPANCY

A. Should the District occupy the Work or any portion thereof prior to its completion by the Trade Contractor and acceptance by the District, responsibilities for interim and final cleaning shall be as determined by the Architect in accordance with the General Conditions of the Contract.

3.04 TRADE CONTRACTOR RESPONSIBILITY FOR MISUSE OF MATERIALS

A. Should construction materials or debris created by the construction process not be properly stored in a secure area or placed in the proper secured debris containers and such materials are used in acts of vandalism, the contractor shall be responsible to the District and adjacent property Districts for the repair or replacement of items damaged in such vandalism.

END OF SECTION

SECTION 01 7700
PROJECT CLOSEOUT

PART 1 GENERAL

1.01 SUMMARY

A. This Section specifies administrative and procedural requirements for project closeout, including but not limited to:
   1. Requirements preparatory to Final Inspection.
   2. Final Inspection Procedures.

B. The work includes performing all operations necessary for and properly incidental to closing out the project and assisting in Owner's final inspection as hereinafter specified. The Conditions of the Contract and the other sections of Division 1 apply to this section as fully as if repeated herein.

C. Closeout requirements for specific construction activities are included in the appropriate Sections in Divisions 2 through 33.

1.02 RELATED SECTIONS

A. 01 2000 - Price and Payment Procedures; Procedures for preparation and submittal of application for final payment.

B. 01 7000 - Execution Requirements; Starting of systems and equipment and demonstration and instruction of Owner personnel.

C. 01 7410 - Cleaning; Final cleaning requirements.

D. 01 7800 - Closeout Submittals; Project Record Documents, Operation and Maintenance Data and Warranties and Bonds.

1.03 REQUIREMENTS PREPARATORY TO FINAL INSPECTION

A. All temporary facilities shall be removed from the site as specified in Division 01 5000 sections.

B. The site shall be thoroughly cleaned as specified in Section 01 7410.

C. Record (As-built) Drawings shall be completed, signed, and submitted to the Architect as specified in Section 01 7800 - Closeout Submittals.

D. The Material and Equipment maintenance instructions, as specified in the body of the Specifications, shall be submitted to the Architect.

E. All guarantees and warranties shall be submitted to the Architect as specified in the General Conditions, and Section 01 7800 - Closeout Submittals.

1.04 FINAL INSPECTION PROCEDURES

A. After all requirements preparatory to the final inspection have been completed as herein before specified, the Contractor shall notify the Architect to perform the final inspection. Notice shall be given at least one week of the time the final inspection is to be performed.

B. On receipt of a request for inspection, the Architect will either proceed with inspection or advise the Contractor of unfulfilled requirements. The Architect will prepare the Certificate of Substantial Completion following inspection, or advise the Contractor by preparing a punch list of construction that must be completed or corrected before the certificate will be issued.

C. The Contractor or his principal superintendent, authorized to act in behalf of the Contractor, shall accompany the Architect, Consultants and Owner on the final inspection tour, as well as principal subcontractors that the Architect, Consultants or Owner may request to be present.

D. If the work has been completed in accordance with the Contract Documents, and no further corrective measures are required, the Owner will accept the Project and will include the Notice of Completion on the next Board Agenda for approval by the Board of Trustees.

E. Failure to include an item on the Punch List does not alter the responsibility of Contractor to complete all Work in accordance with the Contract Documents.

F. If the work has not been substantially completed in accordance with the Contract Documents, and numerous corrective measures are still required, the Owner will not accept the Project nor file for the Notice of Completion. Instead, a Punch List will be prepared, based on the information gathered from the final inspection, and the Contractor will be required to complete this work and then call for another final inspection, following the procedures outlined above.

G. The Architect will repeat inspection when requested and assured that the Work has been substantially completed. If the re-inspection discloses any item not included on the initial Punch List the Contractor shall add these items to the Punch List.

H. Results of the completed inspection will form the basis of requirements for final acceptance.

1.05 FINAL ACCEPTANCE

A. PRELIMINARY PROCEDURES:
   1. Submit final payment request in compliance with Article 37 of the General Conditions.
   2. Submit a certified copy of the Architect's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for acceptance, and the list has been endorsed and dated by the Architect.
   3. Submit consent of surety to final payment.
   4. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   5. Submit evidence that DSA Form 6-C Contractor's Verified Report has been filed with the Division of the State Architect.

END OF SECTION

SECTION 01 7800
CLOSEOUT SUBMITTALS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Project Record Documents.

B. Operation and Maintenance Data.

C. Warranties and bonds.

1.02 RELATED REQUIREMENTS

A. Section 01 3010 - Submittals: Submittal procedures, shop drawings, product data, and samples.

B. Section 01 7000 - Execution and Closeout Requirements: Contract closeout procedures.

C. Individual Product Sections: Specific requirements for operation and maintenance data.

D. Individual Product Sections: Warranties required for specific products or Work.

1.03 SUBMITTALS

A. Project Record Documents: Submit documents to 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. 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 Owner, 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 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 Owner'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.
   6. Manufacturer's instruction for assembly, installation, and adjusting.

B. Ensure entries are complete and accurate, enabling future reference by Owner.

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

D. Record information concurrent with construction progress.

E. 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.

F. Record Drawings and Shop Drawings: Legibly mark each item to record actual construction including:
   1. Prepare a full set of transparencies of contract drawings with all record changes marked.
      a. The architect will furnish to the contractor transparencies (erasable vellums) of the original contract drawings at the cost of $10.00 (ten dollars) per sheet.
   2. Measured depths of foundations in relation to finish first floor datum.
   3. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
   4. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   5. Field changes of dimension and detail.
   6. Details not on original Contract drawings.

3.02 OPERATION AND MAINTENANCE DATA

A. Source Data: 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. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

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. Where additional instructions are required, beyond the manufacturer's standard printed instructions, have instructions prepared by personnel experienced in the operation and maintenance of the specific products.

C. 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.

D. 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.

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

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

G. Include sequence of operation by controls manufacturer.

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

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

3.05 ASSEMBLY OF OPERATION AND MAINTENANCE MANUALS

A. Assemble operation and maintenance data into durable manuals for Owner's personnel use, with data arranged in the same sequence as, and identified by, the specification sections.

B. Where systems involve more than one specification section, provide separate tabbed divider for each system.

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

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

E. Binders: Commercial quality, 8-1/2 by 11 inch three D side ring binders with durable plastic covers; 2 inch maximum ring size. When multiple binders are used, correlate data into related consistent groupings.

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

G. Project Directory: Title and address of Project; names, addresses, and telephone numbers of Architect, Consultants, Contractor and subcontractors, with names of responsible parties.

H. Tables of Contents: List every item separated by a divider, using the same identification as on the divider tab; where multiple volumes are required, include all volumes Tables of Contents in each volume, with the current volume clearly identified.

I. Dividers: Provide tabbed dividers for each separate product and system; identify the contents on the divider tab; immediately following the divider tab include a description of product and major component parts of equipment.

J. Text: Manufacturer's printed data, or typewritten data on 24 pound paper.

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

L. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

M. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:
   1. Part 1: Directory, listing names, addresses, and telephone numbers of Architect, Contractor, Subcontractors, and major equipment suppliers.
   2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:
      a. Significant design criteria.
      b. List of equipment.
      c. Parts list for each component.
      d. Operating instructions.
      e. Maintenance instructions for equipment and systems.
      f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:
    a. Shop drawings and product data.
    b. Air and water balance reports.
    c. Certificates.
    d. Photocopies of warranties and bonds.

N. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.

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 Owner's permission, leave date of beginning of time of warranty until 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

SECTION 01 9010
TESTING AND INSPECTION REQUIREMENTS

PART 1 GENERAL

1.01 RELATED SECTIONS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this section.

1.02 QUALITY ASSURANCE

A. Codes and Standards: Comply with provisions of the following, except where requirements of the contract documents or of governing codes and authorities having jurisdiction are more stringent:
   1. Title 24, Part 1 - Administrative Regulations of the State Building Standards Commission.
   2. Title 24, Part 2 - California Building Code (CBC); 2022 California Building Code.
   3. Title 24, Part 4 - California Fire Code (CFC); 2022 California Fire Code.

B. Testing Laboratory Services:
   1. The owner will engage an independent testing agency to conduct tests and perform other services required for quality assurance.

1.03 TESTS

A. The Owner will select an independent testing laboratory to conduct the tests. Selection of the material required to be tested shall be by the laboratory or the Owner's representative and not by the contractor. See Form DSA-103-1, "Structural Tests and Inspections" for tests and inspections required to be performed under this contract.

B. The Owner will select an independent testing laboratory to conduct the tests. Selection of the material required to be tested shall be by the laboratory or the Owner's representative and not by the contractor.

1.04 TEST REPORTS

A. One copy of all test reports shall be forwarded to the Owner, Architect, Structural Engineer, Inspector of Record (IOR), and Contractor by the testing agency. Such reports shall include all tests made, regardless of whether such tests indicate that the material is satisfactory or unsatisfactory. Samples taken but not tested shall also be reported. Records of special sampling operations as required shall also be reported. The reports shall show that the material or materials were sampled and tested in accordance with the requirements of 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 the requirements.

1.05 VERIFICATION OF TEST REPORTS

A. Each testing agency shall submit to the Architect a verified report in duplicate covering all of the tests which are required to be made by that agency during the progress of the project. Such reports shall be furnished each time that work on the project is suspended, covering the tests up to that time, and at the completion of the project, covering all tests.

1.06 INSPECTION BY THE OWNER

A. The Owner and his representatives shall at all times have access for the purpose of inspection to all parts of the work and to the shops wherein the work is in preparation. The Contractor shall at all times maintain proper facilities and provide safe access for such inspection. The Owner shall have the right to reject materials and workmanship, which are defective, or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the Owner. If the Contractor does not correct such rejected work within a reasonable time, fixed by written notice, the Owner may correct same and charge the expense to the Contractor. Should it be considered necessary or advisable by the Owner at any time before final acceptance of the entire work to make an examination of work already completed by removing or tearing out the same, the Contractor shall on request promptly furnish all necessary facilities, labor and materials. If such

work is found to be defective in any respect due to fault of the Contractor or his subcontractor, he shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet the requirements of the Contract, the additional cost of labor and material necessarily involved in the examination and replacement shall be allowed the Contractor.

1.07 INSPECTOR - OWNER'S

A. An Inspector employed by the Owner will be assigned to the work. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Inspector. He/she shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep him/her fully informed respecting the progress and manner of the work and character of the materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this Contract.

PART 2 PRODUCTS - NOT USED

PART 3 EXECUTION - NOT USED

END OF SECTION

SECTION 02 4100
DEMOLITION

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Selective demolition of built site elements.

B. Selective demolition of building elements for alteration purposes.

C. Abandonment and removal of existing utilities and utility structures.

1.02 RELATED REQUIREMENTS

A. Section 01 1000 - Summary: Limitations on Contractor's use of site and premises.

B. Section 01 5000 - Temporary Facilities and Controls: Site fences, security, protective barriers, and waste removal.

C. Section 01 7000 - Execution and Closeout Requirements: Project conditions; protection of bench marks, survey control points, and existing construction to remain; reinstallation of removed products; temporary bracing and shoring.

D. Section 31 2323 - Fill: Fill material for filling holes, pits, and excavations generated as a result of removal operations.

1.03 REFERENCE STANDARDS

A. 29 CFR 1926 - Safety and Health Regulations for Construction; Current Edition.

1.04 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Project Record Documents: Accurately record actual locations of capped and active utilities and subsurface construction.

1.05 PROJECT CONDITIONS

A. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

B. Comply with other requirements specified in Section 01 7000.

PART 2 PRODUCTS

2.01 MATERIALS

A. Fill Material: As specified in Section 31 2323 - Fill.

PART 3 EXECUTION

3.01 SCOPE

A. Remove paving and site improvements as indicated on drawings and as required to accomplish new work.

B. Remove existing improvements / construction as indicated on the drawings **or as required to complete new work scope, whether specifically identifed or not.**

C. Remove fences and gates.

3.02 GENERAL PROCEDURES AND PROJECT CONDITIONS

A. Comply with other requirements specified in Section 01 7000.

B. Comply with applicable codes and regulations for demolition operations and safety of adjacent structures and the public.
   1. Comply with California Building Code Chapter 33 and California Fire Code Chapter 33.
   2. Obtain required permits.
   3. Take precautions to prevent catastrophic or uncontrolled collapse of structures to be removed; do not allow worker or public access within range of potential collapse of unstable structures.

4. Provide, erect, and maintain temporary barriers and security devices.
5. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.
6. Conduct operations to minimize effects on and interference with adjacent structures and occupants.
7. Do not close or obstruct roadways or sidewalks without permit.
8. Conduct operations to minimize obstruction of public and private entrances and exits; do not obstruct required exits at any time; protect persons using entrances and exits from removal operations.
9. Obtain written permission from owners of adjacent properties when demolition equipment will traverse, infringe upon or limit access to their property.

C. Do not begin removal until receipt of notification to proceed from Owner.

D. Do not begin removal until built elements to be salvaged or relocated have been removed.

E. Protect existing structures and other elements that are not to be removed.
1. Provide bracing and shoring.
2. Prevent movement or settlement of adjacent structures.
3. Stop work immediately if adjacent structures appear to be in danger.

F. Minimize production of dust due to demolition operations; do not use water if that will result in ice, flooding, sedimentation of public waterways or storm sewers, or other pollution.

G. If hazardous materials are discovered during removal operations, stop work and notify Architect and Owner; hazardous materials include regulated asbestos containing materials, lead, PCB's, and mercury.

H. Perform demolition in a manner that maximizes salvage and recycling of materials.
1. Dismantle existing construction and separate materials.
2. Set aside reusable, recyclable, and salvageable materials; store and deliver to collection point or point of reuse.

I. Partial Removal of Paving and Curbs: Neatly saw cut at right angle to surface.

3.03 EXISTING UTILITIES

A. Coordinate work with utility companies; notify before starting work and comply with their requirements; obtain required permits.

B. Protect existing utilities to remain from damage.

C. Do not disrupt public utilities without permit from authority having jurisdiction.

D. Do not close, shut off, or disrupt existing life safety systems that are in use without at least 7 days prior written notification to Owner.

E. Do not close, shut off, or disrupt existing utility branches or take-offs that are in use without at least 3 days prior written notification to Owner.

F. Locate and mark utilities to remain; mark using highly visible tags or flags, with identification of utility type; protect from damage due to subsequent construction, using substantial barricades if necessary.

G. Remove exposed piping, valves, meters, equipment, supports, and foundations of disconnected and abandoned utilities.

H. Prepare building demolition areas by disconnecting and capping utilities outside the demolition zone; identify and mark utilities to be subsequently reconnected, in same manner as other utilities to remain.

3.04 SELECTIVE DEMOLITION FOR ALTERATIONS

A. Drawings showing existing construction and utilities are based on casual field observation only.
1. Contractor shall be responsible and shall pay for all services required for locating all existing underground utilities within the area of work.
2. Verify that construction and utility arrangements are as shown.
3. Report discrepancies to Architect before disturbing existing installation.

4. Beginning of demolition work constitutes acceptance of existing conditions that would be apparent upon examination prior to starting demolition.

B. Maintain weatherproof exterior building enclosure except for interruptions required for replacement or modifications; take care to prevent water and humidity damage.

C. Remove existing work as indicated and as required to accomplish new work.
   1. Remove items indicated on drawings.

D. Services (Including but not limited to HVAC, Plumbing, Electrical, and Telecommunications): Remove existing systems and equipment as indicated.
   1. Maintain existing active systems that are to remain in operation; maintain access to equipment and operational components.
   2. Where existing active systems serve occupied facilities but are to be replaced with new services, maintain existing systems in service until new systems are complete and ready for service.
   3. Verify that abandoned services serve only abandoned facilities before removal.
   4. Remove abandoned pipe, ducts, conduits, and equipment, including those above accessible ceilings; remove back to source of supply where possible, otherwise cap stub and tag with identification.

E. Protect existing work to remain.
   1. Prevent movement of structure; provide shoring and bracing if necessary.
   2. Perform cutting to accomplish removals neatly and as specified for cutting new work.
   3. Repair adjacent construction and finishes damaged during removal work.
   4. Patch as specified for patching new work.

3.05 DEBRIS AND WASTE REMOVAL

A. Remove debris, junk, and trash from site.

B. Remove from site all materials not to be reused on site; do not burn or bury.

C. Leave site in clean condition, ready for subsequent work.

D. Clean up spillage and wind-blown debris from public and private lands.

END OF SECTION

SECTION 03 2000
CONCRETE REINFORCING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Reinforcing steel for cast-in-place concrete.

B. Supports and accessories for steel reinforcement.

1.02 RELATED REQUIREMENTS

A. Section 03 3000 - Cast-in-Place Concrete.

1.03 REFERENCE STANDARDS

A. ACI 301 - Specifications for Concrete Construction; 2020.

B. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014.

C. ACI SP-66 - ACI Detailing Manual; 2004.

D. ASTM A82/A82M - Standard Specification for Steel Wire, Plain, for Concrete Reinforcement; 2007.

E. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

F. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.

G. ASTM A706/A706M - Standard Specification for Deformed and Plain Low-Alloy Steel Bars for Concrete Reinforcement; 2022a.

H. ASTM A884/A884M - Standard Specification for Epoxy-Coated Steel Wire and Welded Wire Reinforcement; 2019, with Editorial Revision (2020).

I. CRSI (DA4) - Manual of Standard Practice; 2018, with Errata (2019).

J. CRSI (P1) - Placing Reinforcing Bars, 10th Edition; 2019.

1.04 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Shop Drawings: Comply with requirements of ACI SP-66. Include bar schedules, shapes of bent bars, spacing of bars, and location of splices.

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

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301.

PART 2 PRODUCTS

2.01 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 60 (60,000 psi).
   1. Deformed billet-steel bars.
   2. Unfinished.

B. Reinforcing Steel: ASTM A706/A706M, deformed low-alloy steel bars Grade 60 (for bar reinforcement that is to be welded).

C. Reinforcement Accessories:
   1. Tie Wire: Annealed, minimum 16 gage, 0.0508 inch.
   2. Chairs, Bolsters, Bar Supports, Spacers: Sized and shaped for adequate support of reinforcement during concrete placement.

2.02 FABRICATION

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

B. Welding of reinforcement is permitted only with the specific approval of Architect. Perform welding in accordance with AWS D1.4/D1.4M.

PART 3 EXECUTION

3.01 PLACEMENT

A. Place, support and secure reinforcement against displacement. Do not deviate from required position.

B. Do not displace or damage vapor barrier.

3.02 FIELD QUALITY CONTROL

A. An independent testing agency, as specified in Section 01 4000, will inspect installed reinforcement for conformance to contract documents before concrete placement.

END OF SECTION

SECTION 03 3000
CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Patching of concrete slabs on grade.

B. Concrete foundations and footings.

C. Concrete curing.

1.02 RELATED REQUIREMENTS

A. Section 03 1000 - Concrete Forming and Accessories: Forms and accessories for formwork.

B. Section 03 2000 - Concrete Reinforcing.

C. Section 07 9200 - Joint Sealants: Products and installation for sealants and joint fillers for saw cut joints and isolation joints in slabs.

1.03 REFERENCE STANDARDS

A. Title 24, Part 2, C.C.R., 2022 California Building Code (2021 I.B.C. w/ California Amendments); Chapter 19A.

B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

C. ACI 301 - Specifications for Concrete Construction; 2020.

D. ACI 302.1R - Guide to Concrete Floor and Slab Construction; 2015.

E. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

F. ACI 305R - Guide to Hot Weather Concreting; 2020.

G. ACI 306R - Guide to Cold Weather Concreting; 2016.

H. ACI 308R - Guide to External Curing of Concrete; 2016.

I. ACI 318 - Building Code Requirements for Structural Concrete and Commentary; 2014.

J. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

K. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.

L. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.

M. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.

N. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.

O. ASTM C260/C260M - Standard Specification for Air-Entraining Admixtures for Concrete; 2010a (Reapproved 2016).

P. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.

Q. ASTM C330/C330M - Standard Specification for Lightweight Aggregates for Structural Concrete; 2023.

R. ASTM C494/C494M - Standard Specification for Chemical Admixtures for Concrete; 2019, with Editorial Revision (2022).

S. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.

T. ASTM C1107/C1107M - Standard Specification for Packaged Dry, Hydraulic-Cement Grout (Nonshrink); 2020.

U. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.

V. ASTM E1745 - Standard Specification for Plastic Water Vapor Retarders Used in Contact with Soil or Granular Fill under Concrete Slabs; 2017 (Reapproved 2023).

1.04 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Product Data: Submit manufacturers' data on manufactured products showing compliance with specified requirements and installation instructions.

C. Test Reports: Submit report for each test or series of tests specified.

D. Quality Control Submittals: Submit the following information related to quality assurance requirements specified:
   1. Design data: Submit proposed mix designs and test data before concrete operations begin. Identify for each mix submitted the method by which proportions have been selected.
      a. For mix designs based on field experience, include individual strength test results, standard deviation, and required average compressive strength f(cr) calculations. Provide 30 test results from the previous 12 months from the date of the concrete pour.
      b. Indicate quantity of each ingredient per cubic yard of concrete.
      c. Indicate type and quantity of admixtures proposed or required.
   2. Certifications: Submit affidavits from an independent testing agency certifying that all materials furnished under this section conform to specifications.
   3. Delivery tickets: Submit copies of delivery tickets complying with ASTM C 94 for each load of concrete delivered to site.
      a. Include on the tickets the additional information specified in the ASTM document.
   4. Hot weather concreting: Submit description of planned protective measures.

E. Project Record Documents: Accurately record actual locations of embedded utilities and components that will be concealed from view upon completion of concrete work.

1.05 QUALITY ASSURANCE

A. Perform work of this section in accordance with ACI 301 and ACI 318.

B. Acquire cement from same source and aggregate from same source for entire project.

C. Follow recommendations of ACI 305R when concreting during hot weather.
   1. Well in advance of proposed concreting operations, advise the architect of planned protective measures including but not limited to cooling of materials before or during mixing, placement during evening to dawn hours, fogging during finishing and curing, shading, and windbreaks.

D. Follow recommendations of ACI 306R when concreting during cold weather.

E. If any of the test cylinders do not reach the required specified design strength, comply with C.B.C. Section 1910A; 26.12.4.1 of ACI 318-14 for core drilling and testing.

PART 2 PRODUCTS

2.01 FORMWORK

A. Comply with requirements of Section 03 1000.

2.02 REINFORCEMENT

A. Comply with requirements of Section 03 2000.

2.03 CONCRETE MATERIALS

A. Cement: ASTM C150/C150M, Type V - Sulfate Resistant Portland type.
   1. Acquire all cement for entire project from same source.

B. Fine and Coarse Aggregates: ASTM C 33.

1. Acquire all aggregates for entire project from same source.

C. Fly Ash: ASTM C618, Class N or F.

D. Water: Clean and not detrimental to concrete.

2.04 ADMIXTURES

A. Do not use chemicals that will result in soluble chloride ions in excess of 0.1 percent by weight of cement.

B. Air Entrainment Admixture: ASTM C260/C260M.

C. Water Reducing Admixture: ASTM C494/C494M Type A.

2.05 ACCESSORY MATERIALS

A. Underslab Vapor Retarder: Multi-layer, fabric-, cord-, grid-, or aluminum-reinforced polyethylene or equivalent, complying with ASTM E1745, Class A; stated by manufacturer as suitable for installation in contact with soil or granular fill under concrete slabs. The use of single ply polyethylene is prohibited.
   1. Installation: Comply with ASTM E1643.
   2. Accessory Products: Vapor retarder manufacturer's recommended tape, adhesive, mastic, prefabricated boots, etc., for sealing seams and penetrations.

B. Chemical Hardener: Fluosilicate solution designed for densification of cured concrete slabs.

C. Liquid Curing Compound: ASTM C 309, Type 1, clear or translucent.
   1. Non-yellowing formulation where subject to ultraviolet light.
   2. Where compounds are proposed for use on surfaces to which finishes, coatings, or coverings subsequently will be applied, compound shall possess demonstrated compatibility with finish, coating, or covering, and use shall be subject to approval of the architect.

2.06 BONDING AND JOINTING PRODUCTS

A. Slab Isolation Joint Filler: 1/2 inch thick, height equal to slab thickness, with removable top section that will form 1/2 inch deep sealant pocket after removal.

B. Joint Filler: Nonextruding, resilient asphalt impregnated fiberboard or felt, complying with ASTM D 1751, 1/4 inch thick and 4 inches deep; tongue and groove profile.

2.07 CURING MATERIALS

A. Curing Compound, Naturally Dissipating: Clear, water-based, liquid membrane-forming compound; complying with ASTM C309.

2.08 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with ACI 211.1 recommendations.

B. Proportioning Normal Weight Concrete: Comply with the 2022 California Building Code, Chapter 19A and ACI 318.

C. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended or required by manufacturer.

D. Normal Weight Concrete:
   1. Compressive Strength, when tested in accordance with ASTM C39/C39M at 28 days: As indicated on drawings.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.
      a. The contractor may elect to replace a portion of the portland cement with fly ash up to a maximum of 15 percent by weight of cement plus fly ash (per Section 1903A.5).
   3. Maximum water-cement ratio by weight: 0.45.
   4. Maximum Slump: 3 inches.
   5. Maximum Aggregate Size: 3/4 inch.

E. Admixtures:
   1. Air-entraining admixture: Add at rate to achieve specified air content.

a. Do not use in slabs-on-grade scheduled to receive topping, unless manufacturer of topping recommends use over air-entrained concrete.
2. Water-reducing admixture: Add as required for placement and workability.
3. Water-reducing and retarding admixture: Add as required in concrete mixes to be placed at ambient temperatures above 90 degrees F.
4. Do not use admixtures not specified or approved.

F. Design mixes to meet or exceed each requirement specified. Where more than one criterion is specified, the most stringent shall apply. For example, a minimum cement content or maximum water-cement ratio might result in strengths greater than the minimum specified; likewise, a greater cement content or lower water-cement ratio may be required in order to achieve the required strength.

2.09 CONTROL OF MIX IN THE FIELD

A. Slump: A tolerance of up to 1 inch above that specified will be permitted for 1 batch in 5 consecutive batches tested. Concrete of lower slump than that specified may be used, provided proper placing and consolidation is obtained.
1. If slump upon arrival at the site is lower than 1 inch below the value specified, one addition of water in accordance with ASTM C 94 will be permitted to bring slump within tolerance, provided that:
a. A positive means is available to measure the amount of water added at the site.
b. The specified (or approved) maximum water-cement ratio is not exceeded.
c. Not more than 45 minutes have elapsed since batching.

B. Total Air Content: A tolerance of plus or minus 1-1/2 percent of that specified will be allowed for field measurements.
1. Do not use batches that exceed tolerances.

2.10 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.
1. At ambient temperatures of 85 to 90 degrees F, reduce mixing and delivery time to 75 minutes.
2. At ambient temperatures above 90 degrees F, reduce mixing and delivery time to 60 minutes.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify lines, levels, and dimensions before proceeding with work of this section.

3.02 PREPARATION

A. Formwork: Comply with requirements of ACI 301. Design and fabricate forms to support all applied loads until concrete is cured, and for easy removal without damage to concrete.

B. Verify that forms are clean and free of rust before applying release agent.

C. Coordinate placement of embedded items with erection of concrete formwork and placement of form accessories.

D. Where new concrete is to be bonded to previously placed concrete, prepare existing surface by cleaning and applying bonding agent in according to bonding agent manufacturer's instructions.

E. In locations where new concrete is doweled to existing work, drill holes in existing concrete, insert steel dowels and pack solid with non-shrink grout.

3.03 JOINT CONSTRUCTION

A. Construction Joints: Locate and install construction joints as indicated on drawings. If construction joints are not indicated, locate in manner which will not impair strength and will have least impact on appearance, as acceptable to the architect.
1. Keyways: Provide keyways not less than 1-1/2 inches deep.
2. Reinforcement: Continue reinforcement across and perpendicular to construction joints, unless details specifically indicate otherwise.

B. Expansion Joints: Construct expansion joints where indicated. Install expansion joint filler to full depth of concrete. Recess edge of filler to depth indicated to receive joint sealant (and backer rod where necessary) specified in Division 7.

C. Control Joints: Construct contraction joints in slabs poured on grade to form panels of sizes indicated on drawings, but not more than 14 feet apart in either direction.
   1. Saw cuts: Form control joints by means of saw cuts one-fourth the depth of the slab, performed as soon as possible after slab finishing without dislodging aggregate.

3.04 INSTALLATION OF EMBEDDED ITEMS

A. General: Set anchorage devices and other items required for other work connected to or supported by cast-in-place concrete, using templates, setting drawings, and instructions from suppliers of items to be embedded.
   1. Edge Forms and Screeds: Set edge forms and intermediate screeds as necessary to achieve final elevations indicated for finished slab surfaces.

3.05 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Preparation: Provide materials necessary to ensure adequate protection of concrete during inclement weather before beginning installation of concrete.

C. Inspection: Before beginning concrete placement, inspect formwork, reinforcing steel, and items to be embedded, verifying that all such work has been completed.
   1. Wood forms: Moisten immediately before placing concrete in locations where form coatings are not used.

D. Placement - General: Comply with requirements of ACI 304 and as follows:
   1. Schedule continuous placement of concrete to prevent the formation of cold joints.
   2. Provide construction joints if concrete for a particular element or component cannot be placed in a continuous operation.
   3. Deposit concrete as close as possible to its final location, to avoid segregation.

E. Placement in Forms: Limit horizontal layers to depths which can be properly consolidated, but in no event greater than 24 inches.
   1. Consolidate concrete by means of mechanical vibrators, inserted vertically in freshly placed concrete in a systematic pattern at close intervals. Penetrate previously placed concrete to ensure that separate concrete layers are knitted together.
   2. Vibrate concrete sufficiently to achieve consistent consolidation without segregation of coarse aggregates.
   3. Do not use vibrators to move concrete laterally.

F. Hot Weather Placement: Comply with recommendations of ACI 305R when ambient temperature before, during, or after concrete placement is expected to exceed 90 degrees F or when combinations of high air temperature, low relative humidity, and wind speed are such that the rate of evaporation from freshly poured concrete would otherwise exceed 0.2 pounds per square foot per hour.
   1. Do not add water to approved concrete mixes under hot weather conditions.
   2. Provide mixing water at lowest feasible temperature, and provide adequate protection of poured concrete to reduce rate of evaporation.
   3. Use fog nozzle to cool formwork and reinforcing steel immediately prior to placing concrete.

G. Ensure reinforcement, inserts, embedded parts, and formed construction joint devices will not be disturbed during concrete placement.

3.06 SLAB JOINTING

A. Locate joints as indicated on drawings.

B. Anchor joint fillers and devices to prevent movement during concrete placement.

C. Isolation Joints: Use preformed joint filler with removable top section for joint sealant, total height equal to thickness of slab, set flush with top of slab.

3.07 CONCRETE FINISHING

A. Repair surface defects, including tie holes, immediately after removing formwork.
   1. Remove honeycombed areas and other defective concrete down to sound concrete, cutting perpendicular to surface or slightly undercutting. Dampen patch location and area immediately surrounding it prior to applying bonding compound or patching mortar.
   2. Before bonding compound has dried, apply patching mixture matching original concrete in materials and mix except for omission of coarse aggregate, and using a blend of white and normal portland cement as necessary to achieve color match. Consolidate thoroughly and strike off slightly higher than surrounding surface.

B. Unexposed Form Finish: Rub down or chip off fins or other raised areas 1/4 inch or more in height.

C. Exposed Form Finish: Rub down or chip off and smooth fins or other raised areas 1/4 inch or more in height. Provide finish as follows:
   1. Smooth Rubbed Finish: Wet concrete and rub with carborundum brick or other abrasive, not more than 24 hours after form removal.

D. CONCRETE SLABS: Finish to requirements of ACI 302.1R, and as follows:
   1. Do not directly apply water to slab surface or dust with cement.
   2. Use hand or powered equipment only as recommended in ACI 302.1R.
   3. Screeding: Strikeoff to required grade and within surface tolerances indicated. Verify conformance to surface tolerances. Correct deficiencies while concrete is still plastic.
   4. Bull Floating: Immediately following screeding, bull float or darby before bleed water appears to eliminate ridges, fill in voids, and embed coarse aggregate. Recheck and correct surface tolerances.
   5. Do not perform subsequent finishing until excess moisture or bleed water has disappeared and concrete will support either foot pressure with less than 1/4-inch indentation or weight of power floats without damaging flatness.
   6. Final floating: Float to embed coarse aggregate, to eliminate ridges, to compact concrete, to consolidate mortar at surface, and to achieve uniform, sandy texture. Recheck and correct surface tolerances.
   7. Troweling: Trowel immediately following final floating. Apply first troweling with power trowel except in confined areas, and apply subsequent trowelings with hand trowels. Wait between trowelings to allow concrete to harden. Do not overtrowel. Begin final troweling when surface produces a ringing sound as trowel is moved over it. Consolidate concrete surface by final troweling operation. Completed surface shall be free of trowel marks, uniform in texture and appearance, and within surface tolerance specified.
   8. Slab Surface Tolerances:
      a. Achieve flat, level planes except where grades are indicated. Slope uniformly to drains.
      b. Floated finishes: Depressions between high spots shall not exceed 1/4 inch under a 10-foot straightedge.
      c. Troweled finishes: Achieve level surface plane so that depressions between high spots do not exceed the following dimension, using a 10-foot straightedge:
         1) 1/4 inch.
   9. Repair of Slab Surfaces: Test slab surfaces for smoothness and to verify surface plane to tolerance specified. Repair defects as follows:
      a. High areas: Correct by grinding after concrete has cured for not less than 14 days.
      b. Low areas: Immediately after completion of surface finishing operations, cut out low areas and replace with fresh concrete. Finish repaired areas to blend with adjacent concrete. Proprietary patching compounds may be used when approved by the architect.
      c. Crazed or cracked areas: Cut out defective areas, except random cracks and single holes not exceeding 1 inch in diameter, by cutting out and replacing with fresh concrete. Remove defective areas with clean, square cuts. Dampen exposed concrete and apply bonding compound. Mix, place, compact, and finish patching

concrete to match adjacent concrete.

d. Isolated cracks and holes: Groove top of cracks and cut out holes not over 1 inch in diameter. Dampen cleaned concrete surfaces and apply bonding compound; place dry pack or proprietary repair compound acceptable to architect while bonding compound is still active:
   1) Dry-pack mix: One part portland cement to 2-1/2 parts fine aggregate and enough water as required for handling and placing.
   2) Install patching mixture and consolidate thoroughly, striking off level with and matching surrounding surface. Do not allow patched areas to dry out prematurely.

3.08 CURING AND PROTECTION

A. Comply with requirements of ACI 308R. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.

C. Surfaces Not in Contact with Forms:
   1. Initial Curing: Start as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Final Curing: Begin after initial curing but before surface is dry.
      a. Curing Compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.09 REMOVAL OF FORMS:

A. Formwork not supporting weight of concrete, such as sides of beams, walls, columns, and similar parts of the work, may be removed after cumulatively curing at not less than 50 deg F (10 deg C) for 24 hours after placing concrete, provided concrete is sufficiently hard to not be damaged by form removal operations, and provided curing and protection operations are maintained.

3.10 RE-USE OF FORMS:

A. Clean and repair surfaces of forms to be re-used in work. Split, frayed, delaminated, or otherwise damaged form facing material will not be acceptable for exposed surfaces. Apply new form coating compound as specified for new formwork.

B. When forms are extended for successive concrete placement, thoroughly clean surfaces, remove fins and laitance, and tighten forms to close joints. Align and secure joint to avoid offsets. Do not use "patched" forms for exposed concrete surfaces, except as acceptable to Architect.

3.11 FIELD QUALITY CONTROL

A. An independent testing agency will perform field quality control tests, as specified in Section 01 4000 - Quality Requirements.

B. Provide free access to concrete operations at project site and cooperate with appointed firm.

C. Composite Sampling, and Making and Curing of Specimens: ASTM C 172 and ASTM C 31.
   1. Take samples at point of discharge.
   2. For pumped concrete, perform sampling and testing at the frequencies specified herein at point of delivery to pump, and perform additional sampling and testing at the same frequency at discharge from line. Results obtained at discharge from line shall be used for acceptance of concrete.

D. Slump: ASTM C 143. One test per strength test and additional tests if concrete consistency changes.
   1. Modify sampling to comply with ASTM C 94.

E. Air Content of Normal Weight Concrete: ASTM C 173 or ASTM C 231. One test per strength test performed on air-entrained concrete.

F. Concrete Temperature:
   1. Test hourly when air temperature is 90 degrees F or above.
   2. Test each time a set of strength test specimens is made.

G. Compressive Strength Tests: ASTM C 39 and Section 1903A, 2022 C.B.C.
   1. Compression test specimens: Mold and cure one set of 4 standard cylinders for each compressive strength test required.
   2. Testing for acceptance of potential strength of as-delivered concrete:
      a. Obtain samples on a statistically sound, random basis.
      b. Minimum frequency:
         1) One set per 50 cubic yards or fraction thereof for each day's pour of each concrete class.
         2) One set per 2000 square feet of slab or wall area or fraction thereof for each day's pour of each concrete class.
         3) When the above testing frequency would provide fewer than 5 strength tests for a given class of concrete during the project, conduct testing from not less than 5 randomly selected batches, or from each batch if fewer than 5.
      c. Test one specimen per set at 7 days for information unless an earlier age is required.
      d. Test 2 specimens per set for acceptance of strength potential; test at 28 days unless other age is specified. The test result shall be the average of the two specimens. If one specimen shows evidence of improper sampling, molding, or testing, the test result shall be the result of the remaining specimen; if both show such evidence, discard the test result and inform the architect.
      e. Retain one specimen from each set for later testing, if required.
      f. Strength potential of as-delivered concrete will be considered acceptable if the following criteria is met:
         1) Minimum of all sets of 3 consecutive strength test results equals or exceeds specified compressive strength f'(c).
      g. Evaluate construction and curing procedures and implement corrective action when strength results for field-cured specimens are less than 85 percent of test values for companion laboratory-cured specimens.
   3. Removal of forms or supports: Mold additional specimens and field-cure with concrete represented; test to determine strength of concrete at proposed time of form or support removal.

H. Take one additional test cylinder during cold weather concreting, cured on job site under same conditions as concrete it represents.

3.12 CONCRETE SURFACE REPAIRS:

A. Patching Defective Areas: Repair and patch defective areas with cement mortar immediately after removal of forms, when acceptable to Architect.

B. Cut out honeycomb, rock pockets, voids over 1/4" in any dimension, and holes left by tie rods and bolts, down to solid concrete but, in no case to a depth of less than 1". Make edges of cuts perpendicular to the concrete surface. Thoroughly clean, dampen with water, and brush coat the area to be patched with specified bonding agent. Place patching mortar after bonding compound has dried.

C. For exposed-to-view surfaces, blend white portland cement and standard portland cement so that, when dry, patching mortar will match color surrounding. Provide test areas at inconspicuous location to verify mixture and color match before proceeding with patching. Compact mortar in place and strike?off slightly higher than surrounding surface.

D. Repair of Formed Surfaces: Remove and replace concrete having defective surfaces if defects cannot be repaired to satisfaction of Architect. Surface defects, as such, include color and texture irregularities, cracks, spalls, air bubbles, honeycomb, rock pockets; fins and other projections on surface; and stains and other discolorations that cannot be removed by cleaning. Flush out form tie holes, fill with dry pack mortar, or precast cement cone plugs secured in place with bonding agent.

E. Repair concealed formed surfaces, where possible, that contain defects that affect the durability of concrete. If defects cannot be repaired, remove and replace concrete.

F. Repair of Unformed Surfaces: Test unformed surfaces, such as monolithic slabs, for smoothness and verify surface plane to tolerances specified for each surface and finish. Correct low and high areas as herein specified. Test unformed surfaces sloped to drain for trueness of slope, in addition to smoothness using a template having required slope.

G. Repair finished unformed surfaces that contain defects which affect durability of concrete. Surface defects, as such, include crazing, cracks in excess of 0.01" wide or which penetrate to reinforcement or completely through non-reinforced sections regardless of width, spalling, pop outs, honeycomb, rock pockets, and other objectionable conditions.

H. Correct high areas in unformed surfaces by grinding, after concrete has cured at least 14 days.

I. Correct low areas in unformed surfaces during or immediately after completion of surface finishing operations by cutting out low areas and replacing with fresh concrete. Finish repaired areas to blend into adjacent concrete. Proprietary patching compounds may be used when acceptable to Architect.

J. Repair defective areas, except random cracks and single holes not exceeding 1" diameter, by cutting out and replacing with fresh concrete. Remove defective areas to sound concrete with clean square cuts and expose reinforcing steel with at least 3/4" clearance all around. Dampen concrete surfaces in contact with patching concrete and apply bonding compound. Mix patching concrete of same materials to provide concrete of same type or class as original concrete. Place, compact, and finish to blend with adjacent finished concrete. Cure in same manner as adjacent concrete

3.13 DEFECTIVE CONCRETE

A. Test Results: The testing agency shall report test results in writing to Architect and Contractor within 24 hours of test.
   1. Test reports shall contain the following data:
      a. Project name, number, and other identification.
      b. Name of concrete testing agency.
      c. Date and time of sampling.
      d. Concrete type and class.
      e. Location of concrete batch in the completed work.
      f. All information required by respective ASTM test methods.

B. Defective Concrete: Concrete not conforming to required lines, details, dimensions, tolerances or specified requirements.

C. Repair or replacement of defective concrete will be determined by the Architect. The cost of additional testing shall be borne by Contractor when defective concrete is identified.

D. Nondestructive testing devices such as impact hammer or sonoscope may be used at architect's option for assistance in determining probable concrete strength at various locations or for selecting areas to be cored, but such tests shall not be the sole basis for acceptance or rejection.

E. The testing agency shall make additional tests of in-place concrete as directed by the architect when test results indicate that specified strength and other concrete characteristics have not been attained.
   1. Testing agency may conduct tests of cored cylinders complying with ASTM C 42 and 2605(g), or tests as directed.
   2. Cost of additional testing shall be borne by the contractor when unacceptable concrete has been verified.

END OF SECTION

SECTION 07 9200
JOINT SEALANTS

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Nonsag gunnable joint sealants.

B. Self-leveling pourable joint sealants.

C. Joint backings and accessories.

1.02 REFERENCE STANDARDS

A. ASTM C834 - Standard Specification for Latex Sealants; 2017 (Reapproved 2023).

B. ASTM C920 - Standard Specification for Elastomeric Joint Sealants; 2018.

C. ASTM C1193 - Standard Guide for Use of Joint Sealants; 2016 (Reapproved 2023).

D. ASTM D2240 - Standard Test Method for Rubber Property--Durometer Hardness; 2015 (Reapproved 2021).

E. SCAQMD 1168 - Adhesive and Sealant Applications; 1989, with Amendment (2022).

1.03 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Product Data for Sealants: Submit manufacturer's technical data sheets for each product to be used, that includes the following.
   1. Physical characteristics, including movement capability, VOC content, hardness, cure time, and color availability.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing the products specified in this section with minimum three years documented experience.

B. Installer Qualifications: Company specializing in performing the work of this section with minimum three years documented experience.

1.05 WARRANTY

A. See Section 01 7800 - Closeout Submittals, for additional warranty requirements.

B. Correct defective work within a five year period after Date of Substantial Completion.

C. Warranty: Include coverage for installed sealants and accessories that fail to achieve watertight seal , exhibit loss of adhesion or cohesion, or do not cure.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Polyurethane Sealants:
   1. Bostik Inc; _____: www.bostik-us.com.
   2. BASF Construction Chemicals-Building Systems: www.chemrex.com
   3. Pecora Corporation; _____: www.pecora.com.
   4. Tremco Commercial Sealants & Waterproofing; ____: www.tremcosealants.com.
   5. Substitutions: See Section 01 6000 - Product Requirements.

B. Acrylic Emulsion Latex Sealants:
   1. Pecora Corporation; _____: www.pecora.com.
   2. BASF Construction Chemicals-Building Systems: www.chemrex.com.
   3. Tremco Commercial Sealants & Waterproofing; ____: www.tremcosealants.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 JOINT SEALANT APPLICATIONS

A. Scope:

1. Exterior Joints: Seal open joints, whether or not the joint is indicated on drawings, unless specifically indicated not to be sealed. Exterior joints to be sealed include, but are not limited to, the following items.
   a. Wall expansion and control joints.
   b. Joints between door, window, and other frames and adjacent construction.
   c. Joints between different exposed materials.
2. Interior Joints: Do not seal interior joints unless specifically indicated to be sealed. Interior joints to be sealed include, but are not limited to, the following items.
   a. Joints between door, window, and other frames and adjacent construction.
3. Do not seal the following types of joints.
   a. Joints indicated to be treated with manufactured expansion joint cover or some other type of sealing device.
   b. Joints where sealant is specified to be provided by manufacturer of product to be sealed.
   c. Joints where installation of sealant is specified in another section.
   d. Joints between suspended panel ceilings/grid and walls.

B. Exterior Joints: Use nonsag polyurethane sealant, unless otherwise indicated.

2.03 JOINT SEALANTS - GENERAL

A. Sealants and Primers: Provide products having lower volatile organic compound (VOC) content than indicated in South Coast Air Quality Management District (SCAQMD); Rule 1168.

2.04 NONSAG JOINT SEALANTS

A. Type 1 - Polyurethane Sealant: ASTM C920, Grade NS, Uses M and A; single component; not expected to withstand continuous water immersion or traffic.
   1. Movement Capability: Plus and minus 25 percent, minimum.

B. Type 2 - Acrylic Emulsion Latex: Water-based; ASTM C834, single component, non-staining, non-bleeding, non-sagging; not intended for exterior use.
   1. Color: Standard colors matching finished surfaces, Type OP (opaque).

2.05 SELF-LEVELING SEALANTS

A. Semi-Rigid Self-Leveling Polyurea Joint Filler: Two-component, 100 percent solids; Intended for filling cracks and control joints not subject to significant movement; rigid enough to support concrete edges under traffic.
   1. Hardness: 75, Shore A, minimum, when tested in accordance with ASTM D2240 after 7 days.
   2. Color: Concrete gray.

2.06 ACCESSORIES

A. Backer Rod: Cylindrical cellular foam rod with surface that sealant will not adhere to, compatible with specific sealant used, and recommended by backing and sealant manufacturers for specific application.

B. Backing Tape: Self-adhesive polyethylene tape with surface that sealant will not adhere to and recommended by tape and sealant manufacturers for specific application.

C. Joint Cleaner: Non-corrosive and non-staining type, type recommended by sealant manufacturer; compatible with joint forming materials.

D. Primers: Type recommended by sealant manufacturer to suit application; non-staining.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that joints are ready to receive work.

B. Verify that backing materials are compatible with sealants.

C. Verify that backer rods are of the correct size.

3.02 PREPARATION

A. Remove loose materials and foreign matter that could impair adhesion of sealant.

B. Clean joints, and prime as necessary, in accordance with manufacturer's instructions.

C. Perform preparation in accordance with manufacturer's instructions and ASTM C1193.

D. Mask elements and surfaces adjacent to joints from damage and disfigurement due to sealant work; be aware that sealant drips and smears may not be completely removable.

3.03 INSTALLATION

A. Perform work in accordance with sealant manufacturer's requirements for preparation of surfaces and material installation instructions.

B. Perform installation in accordance with ASTM C1193.

C. Measure joint dimensions and size joint backers to achieve width-to-depth ratio, neck dimension, and surface bond area as recommended by manufacturer, except where specific dimensions are indicated.

D. Install bond breaker backing tape where backer rod cannot be used.

E. Install sealant free of air pockets, foreign embedded matter, ridges, and sags, and without getting sealant on adjacent surfaces.

F. Do not install sealant when ambient temperature is outside manufacturer's recommended temperature range, or will be outside that range during the entire curing period, unless manufacturer's approval is obtained and instructions are followed.

G. Nonsag Sealants: Tool surface concave, unless otherwise indicated; remove masking tape immediately after tooling sealant surface.

3.04 FIELD QUALITY CONTROL

A. Remove and replace failed portions of sealants using same materials and procedures as indicated for original installation.

END OF SECTION

SECTION 08 1113
HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Non-fire-rated hollow metal doors and frames.

1.02 RELATED REQUIREMENTS

A. Section 08 7100 - Door Hardware.

1.03 REFERENCE STANDARDS

A. ANSI/SDI A250.3 - Test Procedure and Acceptance Criteria for Factory Applied Finish Coatings for Steel Doors and Frames; 2019.

B. ANSI/SDI A250.8 - Specifications for Standard Steel Doors and Frames (SDI-100); 2023.

C. ANSI/SDI A250.10 - Test Procedure and Acceptance Criteria for Prime Painted Steel Surfaces for Steel Doors and Frames; 2020.

D. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

E. ASTM A1008/A1008M - Standard Specification for Steel, Sheet, Cold-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, Required Hardness, Solution Hardened, and Bake Hardenable; 2023.

F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

G. BHMA A156.115 - Hardware Preparation in Steel Doors and Frames; 2016.

H. NAAMM HMMA 840 - Guide Specifications For Receipt, Storage and Installation of Hollow Metal Doors and Frames; 2017.

1.04 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Product Data: Materials and details of design and construction, hardware locations, reinforcement type and locations, anchorage and fastening methods, and finishes.

C. Shop Drawings: Details of each opening, showing elevations, glazing, frame profiles, and any indicated finish requirements.

1.05 QUALITY ASSURANCE

A. Doors and frames shall conform to the requirements of ANSI A 250.8 (formally SDI-100), ANSI A 151.1, and other specifications herein named. Test reports shall be submitted upon request.

B. Acoustical qualities: Doors shall have a minimum sound transmission classification of 28 as tested under ASTM E 90 and ASTM E 413.

C. Insulation properties: Doors shall have a U factor 0.363 (R factor of 2.85) for honeycomb core, U factor for polystyrene core of .263 (R factor of 3.8), U factor for polyurethane core of 0.09 (R factor of 11.1).

D. Manufacturer Qualifications: Member of the Steel Door Institute, and National Association of Architectural Metal Manufacturers.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Handle, store and protect products in accordance with the manufacturers printed instructions and the provisions of ANSI A 250.8.

B. Store doors in an upright position under cover. Store products under cover on 4 inch (102 mm) high wood sills to prevent rust or damage. Provide 1/4-inch (6 mm) space between doors to promote air circulation.

C. Store frames under cover on 4 inch (102 mm) high wood sills to prevent rust and damage. Assembled frames shall be stored in a vertical position, five units maximum in a stack. Provide 1/4-inch (6 mm) space between frames to promote air circulation.

D. Do not use non-vented plastic or canvas shelters.

E. Should wrappers become wet, remove immediately.

F. Comply with NAAMM HMMA 840 or ANSI/SDI A250.8 (SDI-100) in accordance with specified requirements.

G. Protect with resilient packaging; avoid humidity build-up under coverings; prevent corrosion and adverse effects on factory applied painted finish.

1.07 COORDINATION

A. Coordinate Work with other directly affected sections involving manufacture or fabrication of internal cutouts and reinforcement for door hardware, electric devices and recessed items.

B. Coordinate Work with frame opening construction, door and hardware installation.

C. Sequence installation to accommodate required door hardware.

D. Verify field dimensions for factory assembled frames prior to fabrication.

1.08 WARRANTY

A. See section 01 7800 - Closeout Submittals for additional warranty requirements.

B. Submit written warranty on Manufacturer's standard form signed by an official of the door and frame manufacturer, agreeing to repair or replace any door and/or frame found defective within the warranty period. Hollow metal doors and frames shall be supplied with a one (1) year warranty against defects in materials and workmanship.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Hollow Metal Doors and Frames:
   1. Ceco Door, an Assa Abloy Group company: www.assaabloydss.com.
   2. Republic Doors: www.republicdoor.com.
   3. Steelcraft, an Allegion Brand: www.steelcraft.com.
      a. Product: "B" Door
      b. Product: "F" Frame
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 DESIGN CRITERIA

A. Requirements for Hollow Metal Doors and Frames:
   1. Steel used for fabrication of doors and frames shall comply with one or more of the following requirements; Galvannealed steel conforming to ASTM A653/A653M, cold-rolled steel conforming to ASTM A1008/A1008M, or hot-rolled pickled and oiled (HRPO) steel conforming to ASTM A1011/A1011M, Commercial Steel (CS) Type B for each.
   2. Accessibility: Comply with California Building Code, Chapter 11B.
   3. Exterior Door Top Closures: Flush end closure channel, with top and door faces aligned.
   4. Door Edge Profile: Beveled, both sides.
   5. Typical Door Face Sheets: Flush.
   6. Hardware Preparation: In accordance with BHMA A156.115 and SDI-107, with reinforcement welded in place, in addition to other requirements specified in door grade standard.
   7. Zinc Coating for Typical Interior and/or Exterior Locations: Provide metal components zinc-coated (galvanized) and/or zinc-iron alloy-coated (galvannealed) by the hot-dip process in accordance with ASTM A653/A653M, with manufacturer's standard coating thickness, unless noted otherwise for specific hollow metal doors and frames.
      a. Based on SDI Standards: Provide at least A40/ZF120 (galvannealed) when necessary, coating not required for typical interior door applications, and at least A60/ZF180 (galvannealed) for corrosive locations.

8. Finish: Factory primed, for field finishing.

2.03 HOLLOW METAL DOORS

A. Exterior Doors: Thermally insulated.
   1. Grade: ANSI A250.8 Level 3, physical performance Level A, Model 2, seamless, 16 gauge.
   2. Core Material: Polystyrene, 1 lbs/cu ft minimum density.
   3. Door Thickness: 1-3/4 inch, nominal.
   4. Top Closures for Outswinging Doors: Flush with top of faces and edges.
   5. Galvanizing: All components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.

2.04 HOLLOW METAL FRAMES

A. Comply with standards and/or custom guidelines as indicated for corresponding door in accordance with applicable door frame requirements.

B. General:
   1. Comply with the requirements of grade specified for corresponding door, except:
      a. ANSI A250.8 Level 3 Doors: 14 gauge frames.
   2. Finish: Factory primed, for field finishing.

C. Exterior Door Frames: Fully welded.
   1. Galvanizing: Components hot-dipped zinc-iron alloy-coated (galvannealed) in accordance with ASTM A653/A653M, with A60/ZF180 coating.

D. Mullions for Pairs of Doors: Removable type, with profile similar to jambs.

E. Transom Bars: Fixed, of profile same as jamb and head.

F. Provide mortar guard boxes for hardware cut-outs in frames to be installed in masonry or to be grouted.

G. Frames in Masonry Walls: Size to suit masonry coursing with head member 4 inch high to fill opening without cutting masonry units.

H. Frames Wider than 48 inches: Reinforce with steel channel fitted tightly into frame head, flush with top.

2.05 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

2.06 ACCESSORIES

A. Louvers: Roll formed steel with overlapping frame; finish same as door components ; factory-installed.
   1. Style: Standard straight slat blade.

B. Removable Stops: Formed sheet steel, shape as indicated on drawings, mitered or butted corners; prepared for countersink style tamper proof screws.

C. Silencers: Resilient rubber, fitted into drilled hole; 3 on strike side of single door, 3 on center mullion of pairs, and 2 on head of pairs without center mullions.

D. Temporary Frame Spreaders: Provide for factory- or shop-assembled frames.

2.07 FRAME ANCHORS

A. Provide sufficient anchorage to attach to wall in accordance with ANSI/SDI-119 Test Compliance Level A of one million cycles, or anchorage as detailed on plans to specific wall conditions.
   1. All anchor for frame attachment to masonry construction: Masonry anchors, adjustable, flat corrugated or perforated "T" shaped anchors with leg not less than 2 Inches wide by 10 Inches long or masonry "wire" type not less than 3/16 Inch diameter.
   2. All anchors for frame attachment to wood construction: Lock-in stud anchors with #12 X 1-1/2" wood screws into framing.

3. All frame jamb anchors to be provided: one each jamb per 30 Inches of frame height or fraction thereof. Furnish anchors at headers exceeding 48 Inches.

B. Floor anchors - angle type:
   1. Minimum 16 gage.
   2. To receive 2 fasteners per jamb.
   3. Welded to the bottom of each jamb.

C. Head struts: for frames not anchored to masonry or concrete construction provide ceiling struts spot welded to jambs each side extending to building structure where called for on schedule.

2.08 HARDWARE PREPARATION

A. Reinforcements: reinforce components for hardware installation in accord with SDI-107 and ANSI-A115. Provide minimum gage hardware reinforcing for mortise or surface applied hardware as follows:
   1. Hinges - 10 gage or equivalent number of threads on doors.
   2. Hinges - 7 gage on frames.
   3. Locks - 12 gage or equivalent on threads.
   4. Panics - 12 gage.
   5. Surface Closer - 12 gage.
   6. Hold Open Device - 12 gage.
   7. Floor Check - 7 gage.

B. Punch single leaf frames to receive three (3) silencers. Double leaf frames to receive one silencer per leaf at head.

C. Factory prepared hardware locations to be in accord with "Recommended Locations for Builders' Hardware for Standard Steel Doors and Frames", as adopted by the Steel Door Institute.

2.09 FINISHES

A. Primer: Rust-inhibiting, complying with ANSI/SDI A250.10, door manufacturer's standard.

B. Bituminous Coating: Asphalt emulsion or other high-build, water-resistant, resilient coating.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify existing conditions before starting work.

B. Verify that opening sizes and tolerances are acceptable.

C. Verify that finished walls are in plane to ensure proper door alignment.

3.02 PREPARATION

A. Coat inside of frames to be installed in masonry or to be grouted, with bituminous coating, prior to installation.

3.03 INSTALLATION

A. Install doors and frames in accordance with manufacturer's instructions and related requirements of specified door and frame standards or custom guidelines indicated.

B. Coordinate frame anchor placement with wall construction.

C. Coordinate installation of hardware.

D. Coordinate installation of glazing.

E. Touch up damaged factory finishes.

3.04 SETTING FRAMES

A. Set frames in accord with SDI 105-91

B. Set welded frames in position prior to beginning partition work. Brace frames until permanent anchors are set.

C. Set anchors for frames as work progresses. Install anchors at hinge and strike levels.

D. Use temporary settings spreaders at all locations. Use intermediate spreaders to assure proper door clearances and header braces for grouted frames.

3.05 DOOR INSTALLATION

A. Install hollow metal doors in frames using hardware specified in Section 08710 Finish Hardware.

B. Install doors in accordance with manufacturer's instructions

C. Install doors accurately and squarely in frame, within clearances specified. Install hardware in accordance with manufacturer's written instruction ans associated templates. Refer to section 08710 for general installation requirements if specified.

D. Install doors to operate freely, but not loosely, free from hinge bound conditions, striking or binding. Do not install in frames that would hinder operation of doors. Hang free from rattling when in latched position.

E. Maximum clearances at edge of doors:
   1. Between door and frame at heads and jambs: 1/8 inch.
   2. At meeting edges pairs of doors and at mullions: 1/8 inch.
   3. At transom panels, without transom bars: 1/8 inch.
   4. At sills without thresholds: 5/8 inch max. Above finish floor.
   5. At sills with thresholds: 1/8 inch above threshold.

F. Jobsite finishing to be completed on all six (6) sides of doors prior to installation of finish hardware, also finishing to include under the hinges and hardware cut-outs, as needed.

3.06 TOLERANCES

A. Clearances Between Door and Frame: Comply with related requirements of specified door and frame standards or custom guidelines indicated.

B. Maximum Diagonal Distortion: 1/16 in measured with straight edge, corner to corner.

3.07 ADJUSTING & CLEANING

A. Adjust for smooth and balanced door movement.

B. Remove dirt and excess sealants, mortar or glazing compounds from exposed surfaces.

C. Adjust for smooth operation as required. Install shims as required to allow for proper closing.

D. Fill all dents, holes, and mounting bolts with metal filler and sand smooth and flush with adjacent surfaces- re-prime/paint to match finish.

E. Replace or rehang doors that are hinge bound and do not swing freely. Replace and rehang doors which are warped, twisted, or which are not in true plane.

F. Adjust door closers for full closure.

3.08 SCHEDULE

A. Refer to Door and Frame Schedule on the drawings.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 08 7100
DOOR HARDWARE

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

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

1.02 SUMMARY

A. Section includes:
   1. Mechanical and electrified door hardware for:
      a. Gates.
   2. Electronic access control system components, including:
      a. Electronic access control devices.

B. Exclusions: Unless specifically listed in hardware sets, hardware is not specified in this section for:
   1. Installation.
   2. Rough hardware.
   3. Conduit, junction boxes & wiring.

C. Related Sections:
   1. Division 01 Section “Alternates” for alternates affecting this section.
   2. Division 07 Section “Joint Sealants” for sealant requirements applicable to threshold installation specified in this section.
   3. Division 09 sections for touchup finishing or refinishing of existing openings modified by this section.
   4. Division 26 sections for connections to electrical power system and for low-voltage wiring.
   5. Division 28 sections for coordination with other components of electronic access control system.

1.03 REFERENCES

A. UL - Underwriters Laboratories
   1. UL 10B - Fire Test of Door Assemblies
   2. UL 10C - Positive Pressure Test of Fire Door Assemblies
   3. UL 1784 - Air Leakage Tests of Door Assemblies
   4. UL 305 - Panic Hardware

B. ANSI - American National Standards Institute
   1. ANSI/BHMA A156.1 - A156.29, and ANSI/BHMA A156.31 - Standards for Hardware and Specialties

C. California Code of Regulations
   1. Title 24: California Building Standards Code

1.04 SUBMITTALS

A. General:
   1. Submit in accordance with Conditions of Contract and Division 01 requirements.

B. Action Submittals:
   1. Product Data: Product data including manufacturers’ technical product data for each item of door hardware, installation instructions, maintenance of operating parts and finish, and other information necessary to show compliance with requirements.
   2. Riser and Wiring Diagrams: After final approval of hardware schedule, submit details of electrified door hardware, indicating:
      a. Wiring Diagrams: For power, signal, and control wiring and including:
         1) Details of interface of electrified door hardware and building safety and security systems.
         2) Schematic diagram of systems that interface with electrified door hardware.

3) Point-to-point wiring.
4) Risers.

3. Samples for Verification: If requested by Architect, submit production sample or sample installations of each type of exposed hardware unit in finish indicated, and tagged with full description for coordination with schedule.
   a. Samples will be returned to supplier in like-new condition. Units that are acceptable to Architect may, after final check of operations, be incorporated into Work, within limitations of key coordination requirements.
4. Door Hardware Schedule: Submit schedule with hardware sets in vertical format as illustrated by Sequence of Format for the Hardware Schedule as published by the Door and Hardware Institute. Indicate complete designations of each item required for each door or opening, include:
   a. Door Index; include door number, heading number, and Architects hardware set number.
   b. Opening Lock Function Spreadsheet: List locking device and function for each opening.
   c. Type, style, function, size, and finish of each hardware item.
   d. Name and manufacturer of each item.
   e. Fastenings and other pertinent information.
   f. Location of each hardware set cross-referenced to indications on Drawings.
   g. Explanation of all abbreviations, symbols, and codes contained in schedule.
   h. Mounting locations for hardware.
   i. Door and frame sizes and materials.
   j. Name and phone number for local manufacturer's representative for each product.
   k. Operational Description of openings with any electrified hardware (locks, exits, electromagnetic locks, electric strikes, automatic operators, door position switches, magnetic holders or closer/holder units, and access control components). Operational description should include how door will operate on egress, ingress, and fire and smoke alarm connection.
      1) Submittal Sequence: Submit door hardware schedule concurrent with submissions of Product Data, Samples, and Shop Drawings. Coordinate submission of door hardware schedule with scheduling requirements of other work to facilitate fabrication of other work that is critical in Project construction schedule.
5. Key Schedule:
   a. Initiate and conduct meeting(s) with Owner representatives and hardware supplier to determine system keyway(s), keybow styles, structure, stamping, degree of physical security and degree of geographic exclusivity. Furnish Owner’s written approval of the system; do not order keys or cylinders without written confirmation of actual requirements from the Owner.
   b. After Keying Conference, provide keying schedule listing levels of keying as well as explanation of key system's function, key symbols used and door numbers controlled.
   c. Use ANSI/BHMA A156.28 “Recommended Practices for Keying Systems” as guideline for nomenclature, definitions, and approach for selecting optimal keying system.
   d. Provide 3 copies of keying schedule for review prepared and detailed in accordance with referenced DHI publication. Include schematic keying diagram and index each key to unique door designations.
   e. Index keying schedule by door number, keyset, hardware heading number, cross keying instructions, and special key stamping instructions.
   f. Provide one complete bitting list of key cuts and one key system schematic illustrating system usage and expansion.
      1) Forward bitting list, key cuts and key system schematic directly to Owner, by means as directed by Owner.
6. Templates: After final approval of hardware schedule, provide templates for doors, frames and other work specified to be factory prepared for door hardware installation.

C. Informational Submittals:
   1. Qualification Data: For Supplier and Installer.
   2. Product Certificates for electrified door hardware, signed by manufacturer:
      a. Certify that door hardware approved for use on types and sizes of labeled fire-rated doors complies with listed fire-rated door assemblies.
   3. Certificates of Compliance:
      a. Electrified Hardware Coordination Conference Certification: Letter of compliance, signed by Contractor, attesting to completion of electrified hardware coordination conference, specified in “QUALITY ASSURANCE” article, herein.
   4. Warranty: Special warranty specified in this Section.

D. Closeout Submittals:
   1. Operations and Maintenance Data : Provide in accordance with Division 01 and include:
      a. Complete information on care, maintenance, and adjustment; data on repair and replacement parts, and information on preservation of finishes.
      b. Catalog pages for each product.
      c. Name, address, and phone number of local representative for each manufacturer.
      d. Final approved hardware schedule, edited to reflect conditions as-installed.
      e. Final keying schedule
      f. As-installed wiring diagrams for each opening connected to power, both low voltage and 110 volts.
      g. Copy of warranties including appropriate reference numbers for manufacturers to identify project.

1.05 QUALITY ASSURANCE

A. Product Substitutions: Comply with product requirements stated in Division 01 and as specified herein.
   1. Where specific manufacturer’s product is named and accompanied by “Owner Standard,” including make or model number or other designation, provide product specified. (Note: Certain products have been selected for their unique characteristics and particular project suitability.)
      a. Where no additional products or manufacturers are listed in product category, requirements for “Owner Standard” govern product selection.
   2. Where products indicate “acceptable manufacturers” or “acceptable manufacturers and products”, provide product from specified manufacturers, subject to compliance with specified requirements and “Single Source Responsibility” requirements stated herein.

B. Supplier Qualifications and Responsibilities: Recognized architectural hardware supplier with record of successful in-service performance for supplying door hardware similar in quantity, type, and quality to that indicated for this Project.
   1. Scheduling Responsibility: Preparation of door hardware and keying schedules.
   2. Engineering Responsibility: Preparation of data for electrified door hardware, including Shop Drawings, based on testing and engineering analysis of manufacturer's standard units in assemblies similar to those indicated for this Project.
   3. Coordination Responsibility: Coordinate installation of electronic security hardware with Architect and electrical engineers and provide installation and technical data to Architect and other related subcontractors.
      a. Upon completion of electronic security hardware installation, inspect and verify that all components are working properly.

C. Installer Qualifications: Qualified tradesmen, skilled in application of commercial grade hardware with record of successful in-service performance for installing door hardware similar in quantity, type, and quality to that indicated for this Project.

D. Single Source Responsibility: Obtain each type of door hardware from single manufacturer.
   1. Provide electrified door hardware from same manufacturer as mechanical door hardware, unless otherwise indicated.

2. Manufacturers that perform electrical modifications and that are listed by testing and inspecting agency acceptable to authorities having jurisdiction are acceptable.

E. Fire-Rated Door Openings: Provide door hardware for fire-rated openings that complies with NFPA 80 and requirements of authorities having jurisdiction. Provide only items of door hardware that are listed and are identical to products tested by Underwriters Laboratories, Intertek Testing Services, or other testing and inspecting organizations acceptable to
   1. authorities having jurisdiction for use on types and sizes of doors indicated, based on testing at positive pressure and according to NFPA 252 or UL 10C and in compliance with requirements of fire-rated door and door frame labels.

F. Electrified Door Hardware: Listed and labeled as defined in NFPA 70, Article 100, by testing agency acceptable to authorities having jurisdiction.

G. Means of Egress Doors: Latches do not require more than 5 lbs (67 N) to release latch. Locks do not require use of key, tool, or special knowledge for operation.

H. Accessibility Requirements: For door hardware on doors in an accessible route, comply with governing accessibility regulations cited in “REFERENCES” article, herein.
   1. Provide operating devices that do not require tight grasping, pinching, or twisting of wrist and that operate with force of not more than 5 lbs (22.2 N).
   2. Maximum opening-force requirements:
      a. Interior, Non-Fire-Rated Hinged Doors: 5 lbs (22.2 N) applied perpendicular to door.
      b. Sliding or Folding Doors: 5 lbs (22.2 N) applied parallel to door at latch.
      c. Fire Doors: The minimum opening force allowable by the appropriate administrative authority, not to exceed 15 lbs (66.7N).
   3. Bevel raised thresholds with slope of not more than 1:2. Provide thresholds not more than 1/2 inch (13 mm) high.
   4. Adjust closer so that the time required to move the door from the 90 degree position to 12 degrees from the latch is 5 seconds minimum.

I. Pre-installation Conference: Conduct conference at Project site to comply with requirements in Division 01.
   1. Review and finalize construction schedule and verify availability of materials, Installer's personnel, equipment, and facilities needed to make progress and avoid delays.
   2. Inspect and discuss preparatory work performed by other trades.
   3. Inspect and discuss electrical roughing-in for electrified door hardware.
   4. Review sequence of operation for each type of electrified door hardware.
   5. Review required testing, inspecting, and certifying procedures.

J. Coordination Conferences:
   1. Installation Coordination Conference: Prior to hardware installation, schedule and hold meeting to review questions or concerns related to proper installation and adjustment of door hardware.
      a. Attendees: Door hardware supplier, door hardware installer, Contractor.
      b. After meeting, provide letter of compliance to Architect, indicating when meeting was held and who was in attendance.
   2. Electrified Hardware Coordination Conference: Prior to ordering electrified hardware, schedule and hold meeting to coordinate door hardware with security, electrical, doors and frames, and other related suppliers.
      a. Attendees: electrified door hardware supplier, doors and frames supplier, electrified door hardware installer, electrical subcontractor, Owner, Owner’s security consultant, Architect and Contractor.
      b. After meeting, provide letter of compliance to Architect, indicating when coordination conference was held and who was in attendance.

1.06 DELIVERY, STORAGE, AND HANDLING

A. Inventory door hardware on receipt and provide secure lock-up for hardware delivered to Project site.

B. Tag each item or package separately with identification coordinated with final door hardware schedule, and include installation instructions, templates, and necessary fasteners with each item or package.
   1. Deliver each article of hardware in manufacturer's original packaging.

C. Project Conditions:
   1. Maintain manufacturer-recommended environmental conditions throughout storage and installation periods.
   2. Provide secure lock-up for door hardware delivered to Project, but not yet installed. Control handling and installation of hardware items so that completion of Work will not be delayed by hardware losses both before and after installation.

D. Protection and Damage:
   1. Promptly replace products damaged during shipping.
   2. Handle hardware in manner to avoid damage, marring, or scratching. Correct, replace or repair products damaged during Work.
   3. Protect products against malfunction due to paint, solvent, cleanser, or any chemical agent.

E. Deliver keys and permanent cores to Owner by registered mail or overnight package service.

1.07 COORDINATION

A. Coordinate layout and installation of floor-recessed door hardware with floor construction. Cast anchoring inserts into concrete. Concrete, reinforcement, and formwork requirements are specified in Division 03.

B. Installation Templates: Distribute for doors, frames, and other work specified to be factory prepared. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing door hardware to comply with indicated requirements.

C. Security: Coordinate installation of door hardware, keying, and access control with Owner's security consultant.

D. Electrical System Roughing-In: Coordinate layout and installation of electrified door hardware with connections to power supplies and building safety and security systems.

E. Existing Openings:
   1. Prior to submittal, carefully inspect existing conditions to verify finish hardware required to complete Work, including sizes, quantities, existing hardware scheduled for re-use, and sill condition material. If conflict between the specified/scheduled hardware and existing conditions, submit request for direction from Architect. Include date of jobsite visit in the submittal.
   2. Submittals prepared without thorough jobsite visit by qualified hardware expert will be rejected as non-compliant.

F. Direct shipments not permitted, unless approved by Contractor.

1.08 WARRANTY

A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of door hardware that fail in materials or workmanship within specified warranty period.
   1. Warranty Period: Years from date of Substantial Completion, for durations indicated.
      a. Closers:
         1) Mechanical: 30 years.
         2) Electrified: 2 years.
      b. Exit Devices:
         1) Mechanical: 3 years.
         2) Electrified: 1 year.
      c. Locksets:
         1) Mechanical: 3 years.
         2) Electrified: 1 year.

d. Continuous Hinges: Lifetime warranty.
e. Key Blanks: Lifetime

2. Warranty does not cover damage or faulty operation due to improper installation, improper use or abuse.

1.09 MAINTENANCE

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

B. REGULATORY REQUIREMENTS: (DELETE THIS ARTICLE IN ENTIRETY FOR PROJECTS NOT UNDER DSA'S OR OSHPD'S AUSPICES)(CODE CITATIONS ARE CBC 2022)

C. Locate latching hardware between 34 inches to 44 inches above the finished floor, per 2022 California Building Code, Section 11B-404.2.7.
1. Panic hardware: locate between 36 inches to 44 inches above the finished floor.

D. Handles, pull, latches, locks, other operable parts:
1. Readily openable from egress side with one hand and without tight grasping, tight pinching, or twisting of the wrist to operate. 2022 California Building Code Section 11B-309.4.
2. Force required to activate the operable parts: 5.0 pounds maximum, per 2022 California Building Code Section 11B-309.4.

E. Adjust doors to open with not more than 5.0-pounds pressure to open at exterior doors and 5.0-pounds at interior doors. As allowed per 2022 California Building Code Section 11B-
1. .9, local authority may increase the allowable pressure for fire doors to achieve positive latching, but not to exceed 15-pounds.
2. 1. Exception: exterior doors' pressure-to-open may be increased to 8.5-pounds if: at a single location, and one of a bank of eight leafs or fraction of eight, and one leaf of this bank is fitted with a low- or high-energy operator.

F. Low-energy powered doors: comply with ANSI/BHMA A156.19. Reference: 2022 California Building Code Section 11B-404.2.9, Exception 2.
1. Where powered door serves an occupancy of 150 or more, provide back-up battery power or stand-by generator power, capable of supporting a minimum of 100 cycles.
2. Actuators, vertical bar type: minimum 2-inches wide, 30-inches high, bottom located minimum 5-inches above floor or ground, top located minimum 35-inches above floor or ground. Displays International Symbol of Accessibility, per 2022 California Building Code Section 11B-703.7.
3. Actuators, plate type: use two at each side of the opening. Minimum 4-inches diameter or 4-inches square. Displays International Symbol of Accessibility, per 2022 California Building Code Section 11B-703.7. Locate centerline of lower plate between 7- and 8-inches above floor or ground, and upper plate between 30- and 44-inches above floor or ground.
4. Actuator location: conspicuously located, clear and level floor/ground space for forward or parallel approach.

G. Adjust door closer sweep periods so that from an open position of 90 degrees, the door will take at least 5 seconds to move to a point 12 degrees from the latch, measured to the landing side of the door, per 2022 California Building Code Section 11B-404.2.8.
1. Spring hinges: adjust for 1.5 seconds minimum for 70 degrees to fully-closed.

H. Smooth surfaces at bottom 10 inches of push sides of doors, facilitating push-open with wheelchair footrests, per 2022 California Building Code Section 11B-404.2.10.
1. Applied kickplates and armor plates: bevel the left and right edges; free of sharp or abrasive edges.

I. Door opening clear width no less than 32 inches, measured from face of frame stop, or edge of inactive leaf of pair of doors, to door face with door opened to 90 degrees. Hardware projection not a factor in clear width if located above 30 inches and below 80 inches, and the hardware projects no more than 4 inches. 2022 California Building Code Section 11B- 404.2.3.

1. Exception: In alterations, a projection of 5/8 inch (15.9 mm) maximum into the required clear width shall be permitted for the latch side stop.
2. Door closers and overhead stops: not less than 78 inches above the finished floor or ground, per 2022 California Building Code 11B-307.4.

J. Thresholds: floor or landing no more than 0.50 inches below the top of the threshold of the doorway, per 2022 California Building Code Section 11B-404.2.5. Vertical rise no more than
   1. inches, change in level between 0.25 inches and 0.50 inches: beveled to slope no greater than 1:2 (50 percent slope). 2022 California Building Code Section 11B-303.2 & ~.3.

K. Pairs of doors with independently-activated hardware both leafs: limit swing of right-hand or right-hand-reverse leaf to 90 degrees to protect persons reading wall-mounted tactile signage, per 2022 California Building Code Section 11B-703.4.2.

L. Door and door hardware encroachment: Doors, when fully open, shall not reduce the required width by more than 7 inches. Doors in any position shall not reduce the required width by more than one-half. 2022 California Building Code, Section 1005.7.1.
   1. In I-2 occupancies, surface mounted latch release hardware is not permitted to project in the required egress width, regardless of its mounting height, per 2022 California Building Code, Section 1005.7.1 at Exception 1.

PART 2 - PRODUCTS

2.01 MANUFACTURERS

A. Where “Owner Standard” is noted, submittals and substitution requests for other products will not be considered.

B. Approval of manufacturers and/or products other than those listed as “Scheduled Manufacturer” or “Acceptable Manufacturer” in the individual article for the product category shall be in accordance with QUALITY ASSURANCE article, herein.

C. Approval of products from manufacturers indicated in “Acceptable Manufacturers” is contingent upon those products providing all functions and features and meeting all requirements of scheduled manufacturer’s product.

D. Hand of Door: Drawings show direction of slide, swing, or hand of each door leaf. Furnish each item of hardware for proper installation and operation of door movement as shown.

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

2.02 MATERIALS

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

B. Provide screws, bolts, expansion shields, drop plates and other devices necessary for hardware installation.
   1. Where fasteners are exposed to view: Finish to match adjacent door hardware material.

C. Cable and Connectors: Hardwired Electronic Access Control Lockset and Exit Device Trim:
   1. Data: 24AWG, 4 conductor shielded, Belden 9843, 9841 or comparable.

2. DC Power: 18 AWG, 2 conductor, Belden 8760 or comparable.
3. Provide type of data and DC power cabling required by access control device manufacturer for this installation.

2.03 HINGES

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

B. Requirements:
   1. Provide five-knuckle ball bearing hinges conforming to ANSI/BHMA A156.1.
   2. 1-3/4 inch (44 mm) thick doors, up to and including 36 inches (914 mm) wide:
      a. Exterior: Standard weight, bronze or stainless steel, 4-1/2 inches (114 mm) high
   3. 1-3/4 inch (44 mm) thick doors over 36 inches (914 mm) wide:
      a. Exterior: Heavy weight, bronze/stainless steel, 5 inches (127 mm) high
   4. 2 inches or thicker doors:
      a. Exterior: Heavy weight, bronze or stainless steel, 5 inches (127 mm) high
   5. Provide three hinges per door leaf for doors 90 inches (2286 mm) or less in height, and one additional hinge for each 30 inches (762 mm) of additional door height.
   6. Hinge Pins: Except as otherwise indicated, provide hinge pins as follows:
      a. Steel Hinges: Steel pins
      b. Non-Ferrous Hinges: Stainless steel pins
      c. Out-Swinging Exterior Doors: Non-removable pins
   7. Width of hinges: 4-1/2 inches (114 mm) at 1-3/4 inch (44 mm) thick doors, and 5 inches (127 mm) at 2 inches (51 mm) or thicker doors. Adjust hinge width as required for door, frame, and wall conditions to allow proper degree of opening.
   8. Doors 36 inches (914 mm) wide or less furnish hinges 4-1/2 inches (114 mm) high; doors greater than 36 inches (914 mm) wide furnish hinges 5 inches (127 mm) high, heavy weight or standard weight as specified.
   9. Provide hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric function of specified hardware. Locate electric hinge at second hinge from bottom or nearest to electrified locking component.
   10. Provide mortar guard for each electrified hinge specified.
   11. Provide spring hinges where specified. Provide two spring hinges and one bearing hinge per door leaf for doors 90 inches (2286 mm) or less in height. Provide one additional bearing hinge for each 30 inches (762 mm) of additional door height.

2.04 CONTINUOUS HINGES

A. Stainless Steel
   1. Manufacturers:
      a. Scheduled Manufacturer: Ives
      b. Acceptable Manufacturers: Hager
   2. Requirements:
      a. Provide pin and barrel continuous hinges conforming to ANSI/BHMA A156.26, Grade 2.
      b. Provide pin and barrel continuous hinges fabricated from 14 gauge, type 304 stainless steel.
      c. Provide twin self-lubricated nylon bearings at each hinge knuckle, with 0.25-inch (6 mm) diameter stainless steel pin.
      d. Provide hinges capable of supporting door weights up to 600 pounds, and successfully tested for 1,500,000 cycles.
      e. On fire-rated doors, provide pin and barrel continuous hinges that are classified for use on rated doors by testing agency acceptable to authority having jurisdiction.
      f. Provide pin and barrel continuous hinges with electrified options as scheduled in the hardware sets. Provide with sufficient number and wire gage to accommodate electric

function of specified hardware.

g. Install hinges with fasteners supplied by manufacturer.
h. Provide hinges 1 inch (25 mm) shorter in length than nominal height of door, unless otherwise noted or door details require shorter length and with symmetrical hole pattern.

2.05 ELECTRIC POWER TRANSFER

A. Manufacturers:
   a. a. Scheduled Manufacturer: Von Duprin EPT-10

B. Provide power transfer with electrified options as scheduled in the hardware sets. Provide with number and gage of wires sufficient to accommodate electric function of specified hardware.

C. Locate electric power transfer per manufacturer's template and UL requirements, unless interference with operation of door or other hardware items.

2.06 EXIT DEVICES

A. Manufacturers and Products:
   1. Scheduled Manufacturer and Product: Von Duprin 99/33 series
   2. Acceptable Manufacturers and Products: Owner Standard

B. Requirements:
   1. Provide exit devices tested to ANSI/BHMA A156.3 Grade 1, and UL listed for Panic Exit or Fire Exit Hardware. Cylinders: Refer to "KEYING" article, herein.
   2. Provide touchpad type exit devices, fabricated of brass, bronze, stainless steel, or aluminum, plated to standard architectural finishes to match balance of door hardware.
   3. Touchpad: Extend minimum of one half of door width. Match exit device finish, stainless steel for US26, US26D, US28, US32, and US32D finishes; and for all other finishes, provide compatible finish to exit device. No plastic inserts are allowed in touchpads.
   4. Provide exit devices with dead-latching feature for security and for future addition of alarm kits and/or other electrified requirements.
   5. Provide flush end caps for exit devices.
   6. Provide exit devices with manufacturer's approved strikes.
   7. Provide exit devices cut to door width and height. Install exit devices at height recommended by exit device manufacturer, allowable by governing building codes, and approved by Architect.
   8. Mount mechanism case flush on face of doors, or provide spacers to fill gaps behind devices. Where glass trim or molding projects off face of door, provide glass bead kits.
   9. Provide cylinder dogging at non-fire-rated exit devices.
   10. Removable Mullions: 2 inches (51 mm) x 3 inches (76 mm) steel tube. Where scheduled as keyed removable mullion, provide type that can be removed by use of a keyed cylinder, which is self-locking when re-installed.
   11. Where lever handles are specified as outside trim for exit devices, provide heavy-duty lever trims with forged or cast escutcheon plates. Provide vandal-resistant levers that will travel to 90-degree down position when more than 35 pounds of torque are applied, and which can easily be re-set.
      a. Lever Style: Match lever style of locksets.
      b. Tactile Warning (Knurling): Where required by authority having jurisdiction. Provide on levers on exterior (secure side) of doors serving rooms considered to be hazardous.
   12. Accessibility: Maximum 5lbs force to retract latch bolt per CBC Chapter 11B.
      a. "AX" feature: touchpad directly retracts the latchbolt with 5 lb or less of force. Provide testing lab certification confirming that the mechanical device is independent third-party tested to meet this 5 lb requirement.
   13. Provide factory drilled weep holes for exit devices used in full exterior application, highly corrosive areas, and where noted in hardware sets.
   14. Provide electrified options as scheduled.

2.07 ELECTRIC STRIKES

A. Manufacturers and Products:
   1. Scheduled Manufacturer and Product: Von Duprin 6000 series

B. Requirements:
   1. Provide electric strikes designed for use with type of locks shown at each opening.
   2. Provide electric strikes UL Listed as burglary-resistant.
   3. Where required, provide electric strikes UL Listed for fire doors and frames.
   4. Provide fail-secure type electric strikes, unless specified otherwise.
   5. Coordinate voltage and provide transformers and rectifiers for each strike as required.

2.08 POWER SUPPLIES

A. Manufacturers and Products:
   1. Scheduled Manufacturer and Product: Schlage or Von Duprin PS900 series
   2. Acceptable Manufacturers and Products: Precision ELR series, Sargent 3500 series, Dynalock 5000 series, Securitron BPS series, Security Door Controls 600 series

B. Requirements:
   1. Provide power supplies, recommended and approved by manufacturer of electrified locking component, for operation of electrified locks, electrified exit devices, magnetic locks, electric strikes, and other components requiring power supply.
   2. Provide appropriate quantity of power supplies necessary for proper operation of electrified locking components as recommended by manufacturer of electrified locking components with consideration for each electrified component using power supply, location of power supply, and approved wiring diagrams. Locate power supplies as directed by Architect.
   3. Provide regulated and filtered 24 VDC power supply , and UL class 2 listed.
   4. Options:
      a. Provide power supply, where specified, with internal capability of charging sealed backup batteries 24 VDC, in addition to operating DC load.
      b. Provide sealed batteries for battery back-up at each power supply where specified.
      c. Provide keyed power supply cabinet.
   5. Provide power supply in an enclosure, complete, and requiring 120VAC to fused input.
   6. Provide power supply with emergency release terminals, where specified, that allow release of all devices upon activation of fire alarm system complete with fire alarm input for initiating “no delay” exiting mode.

2.09 CYLINDERS

A. Manufacturers:
   1. Scheduled Manufacturer: Schlage
   2. Acceptable Manufacturers: Owner Standard

B. Requirements:
   1. Provide interchangeable cylinders/cores to match Owner’s existing key system, compliant with ANSI/BHMA A156.5; latest revision, Section 12, Grade 1; permanent cylinders; cylinder face finished to match lockset, manufacturer’s series as indicated. Refer to “KEYING” article, herein.
   2. Replaceable Construction Cores.
      a. Provide temporary construction cores replaceable by permanent cores, furnished in accordance with the following requirements.
         1) 3 construction control keys
         2) 12 construction change (day) keys.
      b. Owner or Owner’s Representative will replace temporary construction cores with permanent cores.
         1) KEYING

C. Provide a factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

D. Provide cylinders/cores keyed into Owner's existing factory registered keying system, complying with guidelines in ANSI/BHMA A156.28, incorporating decisions made at keying conference.

E. Requirements:
   1. Provide permanent cylinders/cores keyed by the manufacturer according to the following key system.
      a. Master Keying system as directed by the Owner.
   2. Forward bitting list and keys separately from cylinders, by means as directed by Owner. Failure to comply with forwarding requirements shall be cause for replacement of cylinders/cores involved at no additional cost to Owner.
   3. Provide keys with the following features:
      a. Material: Nickel silver; minimum thickness of .107-inch (2.3mm)
      b. Patent Protection: Keys and blanks protected by one or more utility patent(s) until the year, 2029.
   4. Identification:
      a. Mark permanent cylinders/cores and keys with applicable blind code per DHI publication "Keying Systems and Nomenclature" for identification. Blind code marks shall not include actual key cuts.
      b. Identification stamping provisions must be approved by the Architect and Owner.
      c. Stamp cylinders/cores and keys with Owner's unique key system facility code as established by the manufacturer; key symbol and embossed or stamped with "DO NOT DUPLICATE" along with the "PATENTED" or patent number to enforce the patent protection.
      d. Failure to comply with stamping requirements shall be cause for replacement of keys involved at no additional cost to Owner.
      e. Forward permanent cylinders/cores to Owner, separately from keys, by means as directed by Owner.
   5. Quantity: Furnish in the following quantities.
      a. Change (Day) Keys: 3 per cylinder/core.
      b. Permanent Control Keys: 3.
      c. Master Keys: 6.
         1) KEY CONTROL SYSTEM

F. Manufacturers:
   1. Scheduled Manufacturer: Telkee
   2. Acceptable Manufacturers: HPC, Lund

G. Requirements:
   1. Provide key control system, including envelopes, labels, tags with self-locking key clips, receipt forms, 3-way visible card index, temporary markers, permanent markers, and standard metal cabinet, all as recommended by system manufacturer, with capacity for 150% of number of locks required for Project.
      a. Provide complete cross index system set up by hardware supplier, and place keys on markers and hooks in cabinet as determined by final key schedule.
      b. Provide hinged-panel type cabinet for wall mounting.
         1) DOOR CLOSERS

H. Manufacturers and Products:
   1. Scheduled Manufacturer and Product: LCN 4040XP series.
   2. Acceptable Manufacturers and Products: Owner Standard.

I. Requirements:
   1. Provide door closers conforming to ANSI/BHMA A156.4 Grade 1 requirements by BHMA certified independent testing laboratory. ISO 9000 certify closers. Stamp units with date of manufacture code.
   2. Provide door closers with fully hydraulic, full rack and pinion action with high strength cast iron cylinder, and full complement bearings at shaft.

3. Cylinder Body: 1-1/2-inch (38 mm) diameter piston with 5/8-inch (16 mm) diameter double heat-treated pinion journal. QR code with a direct link to maintenance instructions.
4. Hydraulic Fluid: Fireproof, passing requirements of UL10C, and requiring no seasonal closer adjustment for temperatures ranging from 120 degrees F to -30 degrees F.
5. Spring Power: Continuously adjustable over full range of closer sizes, and providing reduced opening force as required by accessibility codes and standards. Provide snap-on cover clip, with plastic covers, that secures cover to spring tube.
6. Hydraulic Regulation: By tamper-proof, non-critical valves, with separate adjustment for latch speed, general speed, and backcheck. Provide graphically labelled instructions on the closer body adjacent to each adjustment valve. Provide positive stop on reg valve that prevents reg screw from being backed out.
7. Provide closers with solid forged steel main arms and factory assembled heavy-duty forged forearms for parallel arm closers.
8. Pressure Relief Valve (PRV) Technology: Not permitted.
9. Finish for Closer Cylinders, Arms, Adapter Plates, and Metal Covers: Powder coating finish which has been certified to exceed 100 hours salt spray testing as described in ANSI Standard A156.4 and ASTM B117, or has special rust inhibitor (SRI).
10. Provide special templates, drop plates, mounting brackets, or adapters for arms as required for details, overhead stops, and other door hardware items interfering with closer mounting.
    1) DOOR TRIM

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

K. Requirements:
1. Provide push plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick and beveled 4 edges. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
2. Provide push bars of solid bar stock, diameter and length as scheduled. Provide push bars of sufficient length to span from center to center of each stile. Where required, mount back to back with pull.
3. Provide offset pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
4. Provide flush pulls as scheduled. Where required, provide back-to-back mounted model.
5. Provide pulls of solid bar stock, diameter and length as scheduled. Where required, mount back to back with push bar.
6. Provide pull plates 4 inches (102 mm) wide by 16 inches (406 mm) high by 0.050 inch (1 mm) thick, beveled 4 edges, and prepped for pull. Where width of door stile prevents use of 4 inches (102 mm) wide plate, adjust width to fit.
7. Provide wire pulls of solid bar stock, diameter and length as scheduled.
8. Provide decorative pulls as scheduled. Where required, mount back to back with pull.
    1) PROTECTION PLATES

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

M. Requirements:
1. Provide kick plates, mop plates, and armor plates minimum of 0.050 inch (1 mm) thick, beveled four edges as scheduled. Furnish with sheet metal or wood screws, finished to match plates.
2. Sizes of plates:
    a. Kick Plates: 10 inches (254 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
    b. Mop Plates: 4 inches (102 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs

c. Armor Plates: 36 inches (914 mm) high by 2 inches (51 mm) less width of door on single doors, 1 inch (25 mm) less width of door on pairs
1) DOOR STOPS AND HOLDERS

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

O. Provide door stops at each door leaf:
1. Provide wall stops wherever possible. Provide convex type where mortise type locks are used and concave type where cylindrical type locks are used.
2. Where a wall stop cannot be used, provide universal floor stops for low or high rise options.
3. Where wall or floor stop cannot be used, provide medium duty surface mounted overhead stop.
1) THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING

P. Manufacturers:
1. Scheduled Manufacturer: Zero International
2. Acceptable Manufacturers: National Guard, Pemko

Q. Requirements:
1. Provide thresholds, weather-stripping (including door sweeps, seals, and astragals) and gasketing systems (including smoke, sound, and light) as specified and per architectural details. Match finish of other items.
2. Size of thresholds:
a. Saddle Thresholds: 1/2 inch (13 mm) high by jamb width by door width
b. Bumper Seal Thresholds: 1/2 inch (13 mm) high by 5 inches (127 mm) wide by door width
3. Provide door sweeps, seals, astragals, and auto door bottoms only of type where resilient or flexible seal strip is easily replaceable and readily available.
1) SILENCERS

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

S. Requirements:
1. Provide "push-in" type silencers for hollow metal or wood frames.
2. Provide one silencer per 30 inches (762 mm) of height on each single frame, and two for each pair frame.
3. Omit where gasketing is specified.
1) FINISHES

T. Finish: BHMA 626/652 (US26D); except:
1. Hinges at Exterior Doors: BHMA 630 (US32D)
2. Continuous Hinges: BHMA 630 (US32D)
3. Continuous Hinges: BHMA 628 (US28)
4. Push Plates, Pulls, and Push Bars: BHMA 630 (US32D)
5. Protection Plates: BHMA 630 (US32D)
6. Overhead Stops and Holders: BHMA 630 (US32D)
7. Door Closers: Powder Coat to Match
8. Wall Stops: BHMA 630 (US32D)
9. Latch Protectors: BHMA 630 (US32D)
10. Weatherstripping: Clear Anodized Aluminum
11. Thresholds: Mill Finish Aluminum

PART 3 - EXECUTION

3.01 EXAMINATION

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

B. Examine roughing-in for electrical power systems to verify actual locations of wiring connections before electrified door hardware installation.

C. Proceed with installation only after unsatisfactory conditions have been corrected.

D. Existing frames and doors to be retrofitted with new hardware:
   1. Field-verify conditions and dimensions prior to ordering hardware. Fill existing hardware cut outs not being reused by the new hardware. Remove existing hardware not being reused, return to Owner unless directed otherwise.
   2. Remove existing floor closers not scheduled for reuse, fill cavities with non-shrinking concrete and finish smooth.
   3. Cut and weld existing steel frames currently prepared with 2.25 inch height strikes. Cut an approximate 8 inch section from the strike jamb and weld in a reinforced section to accommodate specified hardware's strike.
   4. Provide wrap-around repair plates at doors where required to cover the original preparation and allow installation of new hardware.

3.02 PREPARATION

A. Where on-site modification of doors and frames is required:
   1. Prepare hardware locations and reinstall in accordance with installation requirements for new door hardware and with:
      a. Steel Doors and Frames: For surface applied door hardware, drill and tap doors and frames according to ANSI/SDI A250.6.

3.03 INSTALLATION

A. Mounting Heights: Mount door hardware units at heights to comply with the following, unless otherwise indicated or required to comply with governing regulations.
   1. Standard Steel Doors and Frames: ANSI/SDI A250.8.
   2. Custom Steel Doors and Frames: HMMA 831.

B. Install each hardware item in compliance with manufacturer's instructions and recommendations, using only fasteners provided by manufacturer.

C. Do not install surface mounted items until finishes have been completed on substrate. Protect all installed hardware during painting.

D. Set units level, plumb and true to line and location. Adjust and reinforce attachment substrate as necessary for proper installation and operation.

E. Drill and countersink units that are not factory prepared for anchorage fasteners. Space fasteners and anchors according to industry standards.

F. Install operating parts so they move freely and smoothly without binding, sticking, or excessive clearance.

G. Hinges: Install types and in quantities indicated in door hardware schedule but not fewer than quantity recommended by manufacturer for application indicated or one hinge for every 30 inches (750 mm) of door height, whichever is more stringent, unless other equivalent means of support for door, such as spring hinges or pivots, are provided.

H. Lock Cylinders: Install construction cores to secure building and areas during construction period.
   1. Replace construction cores with permanent cores as indicated in keying section.

I. Wiring: Coordinate with Division 26, ELECTRICAL sections for:
   1. Conduit, junction boxes and wire pulls.
   2. Connections to and from power supplies to electrified hardware.

3. Connections to fire/smoke alarm system and smoke evacuation system.
4. Connection of wire to door position switches and wire runs to central room or area, as directed by Architect.
5. Testing and labeling wires with Architect's opening number.

J. Key Control System: Tag keys and place them on markers and hooks in key control system cabinet, as determined by final keying schedule.

K. Door Closers: Mount closers on room side of corridor doors, inside of exterior doors, and stair side of stairway doors from corridors. Closers shall not be visible in corridors, lobbies and other public spaces unless approved by Architect.

L. Closer/Holders: Mount closer/holders on room side of corridor doors, inside of exterior doors, and stair side of stairway doors.

M. Power Supplies: Locate power supplies as indicated or, if not indicated, above accessible ceilings or in equipment room, or alternate location as directed by Architect.
1. Coordination: Coordinate provision with the security systems provider to mitigate excessive or redundant purchase.
2. Configuration: Provide least number of power supplies required to adequately serve doors with electrified door hardware.

N. Thresholds: Set thresholds in full bed of sealant complying with requirements specified in Division 07 Section "Joint Sealants."

O. Stops: Provide floor stops for doors unless wall or other type stops are indicated in door hardware schedule. Do not mount floor stops where they may impede traffic or present tripping hazard.

P. Perimeter Gasketing: Apply to head and jamb, forming seal between door and frame.

Q. Meeting Stile Gasketing: Fasten to meeting stiles, forming seal when doors are closed.

R. Door Bottoms: Apply to bottom of door, forming seal with threshold when door is closed.

S. Field-verify existing conditions and measurements prior to ordering hardware. Fill existing hardware cut outs not being used by the new hardware.

T. Remove existing hardware not being reused. Tag and bag removed hardware, turn over to Owner.

U. Provide manufacturer's recommended brackets to accommodate the mounting of closers on doors with flush transoms.

3.04 ADJUSTING

A. Initial Adjustment: Adjust and check each operating item of door hardware and each door to ensure proper operation or function of every unit. Replace units that cannot be adjusted to operate as intended. Adjust door control devices to compensate for final operation of heating and ventilating equipment and to comply with referenced accessibility requirements.
1. Spring Hinges: Adjust to achieve positive latching when door is allowed to close freely from an open position of 30 degrees.
2. Electric Strikes: Adjust horizontal and vertical alignment of keeper to properly engage lock bolt.
3. Door Closers: Adjust sweep period to comply with accessibility requirements and requirements of authorities having jurisdiction.

B. Occupancy Adjustment: Approximately three months after date of Substantial Completion, Installer shall examine and readjust each item of door hardware, including adjusting operating forces, as necessary to ensure function of doors, door hardware, and electrified door hardware.

3.05 CLEANING AND PROTECTION

A. Clean adjacent surfaces soiled by door hardware installation.

B. Clean operating items as necessary to restore proper function and finish.

C. Provide final protection and maintain conditions that ensure door hardware is without damage or deterioration at time of Substantial Completion.

3.06 DEMONSTRATION

A. Provide training for Owner's maintenance personnel to adjust, operate, and maintain door hardware and door hardware finishes. Refer to Division 01 Section "Demonstration and Training."

3.07 DOOR HARDWARE SCHEDULE

A. Locksets, exit devices, and other hardware items are referenced in the following hardware sets for series, type and function. Refer to the above-specifications for special features, options, cylinders/keying, and other requirements.

B. Do not order material until submittal has been reviewed, stamped, and signed by Architect’s door hardware consultant.

C. Hardware Sets:

HARDWARE GROUP NO. 1 FOR USE ON DOOR #(S):

4.01 G01

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
2	EA	CONT. HINGE	700	□	630	IVE
1	EA	REMOVABLE MULLION	KR4954 X BLANK X 299	□	689	VON
1	EA	PANIC HARDWARE	LD-PA-AX-99-EO	□	626	VON
1	EA	PANIC HARDWARE	LD-PA-AX-99-NL-OP-110MD	□	626	VON
1	EA	RIM CYLINDER	20-057 ICX	□	626	SCH
1	EA	MORTISE CYLINDER	20-061 ICX (MULLION)	□	626	SCH
2	EA	FSIC FINAL CORE	MATCH CAMPUS STANDARD	□	626	SCH
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC	□	630	VON
1	EA	DOOR PULL	VR910 DT SNB	□	630	IVE
1	EA	DOOR PULL	VR910 NL SNB	□	630	IVE
2	EA	SURFACE CLOSER	4040XP SHCUSH SRI	□	689	LCN
2	EA	KICK PLATE	8400 10" X 2" LDW B-CS	□	630	IVE
1	EA	* CREDENTIAL READER	BY SECURITY CONTRACTOR			AIP
1	EA	* POWER SUPPLY	BY SECURITY CONTRACTOR			B/O

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

Hardware Group No. 2

For use on Door #(s):
G03

QTY		DESCRIPTION	CATALOG NUMBER		FINISH	MFR
1	EA	CONT. HINGE	700		630	IVE
1	EA	PANIC HARDWARE	LD-PA-AX-99-NL-OP-110MD		626	VON
1	EA	RIM CYLINDER	20-057 ICX		626	SCH
1	EA	FSIC FINAL CORE	MATCH CAMPUS STANDARD		626	SCH
1	EA	ELECTRIC STRIKE	6300 FSE 12/24 VAC/VDC		630	VON
1	EA	DOOR PULL	VR910 NL SNB		630	IVE
1	EA	SURFACE CLOSER	4040XP SHCUSH SRI		689	LCN
1	EA	KICK PLATE	8400 10" X 2" LDW B-CS		630	IVE
1	EA	* CREDENTIAL READER	BY SECURITY CONTRACTOR OFCI			AIP
1	EA	* POWER SUPPLY	BY SECURITY CONTRACTOR OFCI			B/O

BALANCE OF HARDWARE BY GATE MANUFACTURER. CONFIRM HARDWARE WITH GATE MANUFACTURER BEFORE ORDERING.
* = BY ACCESS CONTROL CONTRACTOR. (SHOWN HERE FOR COORDINATION AND TEMPLATING PURPOSES)
CONDUIT, JUNCTION BOXES BY ELECTRICAL CONTRACTOR.
CARD READER, LOW VOLTAGE WIRING AND CONNECTIONS BY SECURITY CONTRACTOR.

DOOR NORMALLY CLOSED AND LOCKED. PRESENTING VALID CREDENTIALS TO THE READER WILL MOMENTARILY UNLOCK THE DOOR, ALLOWING ACCESS. DOOR LOCKS ONCE THE DOOR CLOSES. DOOR LOCK STATUS CAN BE SET ACCORDING TO SCHEDULE IN ACCESS CONTROL SOFTWARE. DOOR CAN BE REMOTELY LOCKED VIA ACCESS CONTROL SYSTEM. FREE EGRESS AT ALL TIMES. UPON LOSS OF POWER, THE DOOR WILL REMAIN LOCKED AND WILL CONTINUE TO ALLOW FREE EGRESS.

END OF SECTION

SECTION 31 2200
GRADING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Removal and storage of topsoil.

B. Rough grading the site for buildings and site improvements.

C. Finish grading .

1.02 RELATED REQUIREMENTS

A. Section 31 1000 - Site Clearing.

B. Section 31 2316.13 - Trenching: Trenching and backfilling for utilities.

1.03 REFERENCES

A. ASTM D 1556-90 -- Standard Test Method for Density and Unit Weight of Soil in Place by the Sand-Cone Method; 1990.

B. ASTM D 1557-91 -- Test Methods for Laboratory Compaction Characteristics of Soils Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 1991.

C. ASTM D 2167-94 -- Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 1994.

D. ASTM D 2487-93 -- Standard Classification of Soils for Engineering Purposes (Unified Soil Classification System); 1993.

E. ASTM D 2922-91 -- Standard Test Methods for Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth); 1991.

1.04 SUBMITTALS

A. Project Record Documents: Accurately record actual locations of utilities remaining by horizontal dimensions, elevations or inverts, and slope gradients.

1.05 QUALITY ASSURANCE

A. Perform Work in accordance with State of California, Public Works Department standards.

1.06 PROJECT CONDITIONS

A. Protect above- and below-grade utilities that remain.

B. Protect plants, lawns, and other features to remain as a portion of final landscaping.

C. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from grading equipment and vehicular traffic.

1.07 SITE CONDITIONS

A. The owner makes no representation as to the existing soil or sub-surface conditions or it's suitability for the proposed/intended use. The Contractor shall take all necessary measures required to verify and substantiate the existing site conditions, and incorporate in his bid the required materials, methods and labor required to provide an acceptable finished product based on the provisions and requirements of this section.

B. Site Utilities:
   1. Advise utility companies of excavation activities before starting excavations. Locate and identify underground utilities passing through work area before starting work.
   2. If underground utilities are encountered in locations other than indicated, immediately advise utility owners before proceeding. Amend project record documents to show actual locations.
   3. Protect existing utilities indicated to remain.
   4. Do not interrupt existing utilities without advance notice to and written approval from the owner.

5. Repair or replace any existing utilities that are damaged due to the work of this contract at no cost to the owner.

PART 2 PRODUCTS

2.01 MATERIALS

A. Where sufficient approved materials are not available from required excavations on site, obtain and pay for materials from approved sources off site without charge to the owner.

B. Obtain approval of the architect / geotechnical engineer for each soil material.

C. Satisfactory Topsoil: Fertile agricultural soil, typical for locality, capable of sustaining vigorous plant growth; free of subsoil, rocks larger than 1 inches in diameter, clay, toxic matter, plants, weeds, and roots.

D. Backfill and Fill Materials: Materials classified as satisfactory.

E. Satisfactory Fill Material (ASTM D 2487): Clean deposits free of roots, stumps, vegetation, deleterious matter, trash, debris, and unsuitable materials as approved in the field by the project geotechnical consultant and classified as follows:
   1. GW (well-graded gravel).
   2. GP (poorly graded gravel).
   3. GM (silty gravel).
   4. SW (well-graded sand).
   5. SM (silty sand).

F. Unsatisfactory Fill Material (ASTM D 2487):
   1. GC (clayey gravel).
   2. SP (poorly graded sand).
   3. SC (clayey sand).
   4. CL (clean clay).
   5. ML (silt).
   6. OL (organic clay).
   7. OL (organic silt).
   8. CH (fat clay).
   9. MH (elastic silt).
   10. OH (organic clay).
   11. OH (organic silt).
   12. PT (peat).

G. Subbase Materials: Well-graded, clean, sound, durable particles of crushed stone or crushed gravel, and screenings. Obtain the architect's / soil engineer's approval of source, quality, and gradation.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench mark and intended elevations for the Work are as indicated.

B. Verify the absence of standing or ponding water.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum.

B. Stake and flag locations of known utilities.

C. Protection: Provide markers indicating limits of work and clear identification of items and areas requiring protection.

D. Provide barricades, temporary fences, warning signs, and warning lights around open excavations as necessary to prevent injury to persons.

E. The contractor is solely responsible for determining the potential for injury to persons and damage to property. Any indication of temporary fencing delineated on the drawings is a minimum requirement, and does not relieve the contractor of the responsibility of providing

adequate protection of the work.

1. Where such potential is present, take appropriate protective measures.
2. Protect persons from injury and protect existing and new improvements from damage caused directly or indirectly by construction operations.

F. Do not allow excavation subgrades and soil at foundations to be subjected to effects of rain or other sources of excessive moisture. Provide protective covering materials and divert site drainage and run off as necessary. Should prepared, compacted subgrades be damaged by rain or excessive moisture, remove soil materials to the depth required by the Soils Engineer and replace with acceptable materials and recompact in conformance with specified requirements.

G. Locate, identify, and protect from damage above- and below-grade utilities to remain.

H. Provide temporary means and methods to remove all standing or ponding water from areas prior to grading.

I. Protect site features to remain, including but not limited to bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs, from damage by grading equipment and vehicular traffic.

J. Protect plants, lawns, and other features to remain as a portion of final landscaping.

3.03 EROSION CONTROL

A. To the maximum extent practicable, prevent erosion or displacement of soils and discharge of soil-bearing water runoff to adjacent properties and waterways.

B. Provide erosion control during the entire project in accordance with applicable regulations.

3.04 COMPLIANCE WITH STATE STORM WATER PERMIT FOR CONSTRUCTION

A. Contractor shall be required to comply with all conditions of the State Water Resources Control Board (State Water Board) National Pollutant Discharge Elimination System General Permit for Waste Discharge Requirements for Discharges of Storm Water Runoff Associated with Construction Activity (the "Permit") for all construction activity which results in the disturbance of in excess of five acres of total land area or which is part of a larger common area development or sale. It shall be the Contractor's responsibility to evaluate cost of compliance with the Storm Water Pollution Prevention Program (SWPPP) in bidding on this contract. Contractor shall comply with all requirements of the State Water Resources Control Board. Contractor shall include all costs of compliance with specified requirements in the contract amount.

B. Contractor shall be responsible for implementing and complying with the provisions of the Permit and the SWPPP, including the standard provisions, monitoring and reporting requirements as required by Permit. Contractor shall provide copies of all reports and monitoring information to the Owner.

C. Contractor shall comply with the lawful requirements of any applicable municipality, the County, drainage district, and other local agencies regarding discharges of storm water to separate storm drain system or other watercourses under their jurisdiction, including applicable requirements in municipal storm water management programs.

D. Failure to comply with the Permit is in violation of federal and state law. Contractor hereby agrees to idemnify and hold harmless the Owner, its officers, agents, and employees from and against any and all claims, demands, losses or liabilities of any kind or nature which Owner, its officers, agents, and employees may sustain or incur for noncompliance with Permit arising out of or in connection with the project, except for liability resulting from the negligence or wilful misconduct of Owner, its officers, agents or employees. Owner may seek damages from Contractor for delay in completing the contract in accordance with Article 6 of the General Conditions, caused by the Contractor's failure to comply with Permit.

3.05 PROTECTION OF TREES

A. Provide temporary guards to protect trees and vegetation to remain. Place guards so as to prevent all forms of vehicular traffic or parking within drip lines.

1. Do not allow excess foot traffic within drip lines.

2. Do not stockpile construction materials, soil, or aggregates within drip lines.
3. Water trees and other vegetation to remain within limits of the area of construction activities as required to maintain their health during course of construction operations.

B. Engage a qualified arborist to remove branches or roots to the extent required by this specification or shown on the drawings.

C. Excavate within drip line of trees only where indicated.

D. Where underground utilities must pass within drip line, hand-dig tunnels to avoid cutting main lateral roots and taproots. Minor roots may be cut only when necessary.
1. Where root system is damaged or cut back, prune branches to maintain root/branch balance.

E. Immediately protect exposed roots until re-establishment in backfill. Cover with approved mulching material and keep continuously moist.

F. Where cutting is required, cut branches and roots using properly sharpened tools and without breaking members.

G. Promptly repair any damaged trees to prevent death or loss of vigor.
1. Where the contractor's operations result in dead or severely damaged trees, remove trees and provide new trees of similar size, except provide 6 inch-caliper trees to replace existing trees over 6 inches caliper.
a. Species as selected by the architect.

3.06 DEWATERING

A. Do not allow surface or ground water to flow into or accumulate in excavations.

B. Do not allow water to flow in an uncontrolled fashion across the project site or to erode slopes or to undermine foundations. Do not allow water to be diverted onto adjacent properties. Arrange excavation operations so as to provide continual and effective drainage of excavations.

C. Provide and maintain temporary diversion ditches, dikes, and grading as necessary; do not use trench excavations for this purpose. When required by surface or subsurface water conditions, provide sumps, wellpoints, French drains, pumps, and other control measures necessary to keep excavations free of water. When existence of ground water near or above final excavation level is indicated or suspected, provide control measures prior to excavating to lower water level and maintain water level continuously below working level.

3.07 EXCAVATIONS

A. General: Excavation includes the removal of any and all materials necessary to achieve the required subgrade elevations and includes any required over-excavation necessary to achieve the required sub-grade compaction, and the reuse or disposal of such materials.

B. Unnecessary Excavation: The expense of excavation of materials outside of limits indicated and the correction thereof to the satisfaction of the soils engineer shall be borne by the contractor.
1. Unnecessary excavation under footings: Either deepen footings to bear on actual subgrade elevation without changing top elevations or place concrete fill up to required elevation, as required by the Soils Engineer.
2. Unnecessary excavation other than under footings: Either place compacted fill or otherwise correct conditions, as required by the Soils Engineer.

C. Excavation for Structures:
1. Excavate beyond footings and foundations so as to allow proper construction and inspection of concrete formwork and other materials. Excavate to the required elevation.
a. Tolerance: Plus or minus 0.10 foot.

D. Excavation for Footings and Foundations:
1. Delay excavation to final grade and final compaction until just before concrete will be placed.

2. Remove any loose or sloughed material and adjust excavations to conform to required lines, grades, and tolerances and to form a suitable bearing surface. Do not disturb bottom of completed excavations.

3.08 STORAGE

A. Stockpile materials to be used for filling and backfilling, including excavated materials classified as satisfactory soil materials, at locations indicated or as directed. Stockpile in a manner to freely drain surface water; cover if necessary to prevent wind-blown dust.
   1. Store soil materials without intermixing. Protect from contamination with other soils or debris.
   2. Do not stockpile materials inside of drip line of trees to remain.

3.09 FILLING AND BACKFILLING

A. Preparation: Backfill excavations as soon as practicable. Complete the following operations before backfilling:
   1. Inspection and acceptance of below-grade construction.
   2. Inspection, testing, and approval of underground utilities.
   3. Surveying of underground utilities for record documents.
   4. Concrete formwork removal.
   5. Removal of loose material, muck, debris, and trash from excavation.
   6. Installation of temporary or permanent horizontal bracing for structures to receive backfill.

3.10 PAVEMENT SUBBASE / SUBGRADE PLACEMENT

A. Place lifts such that compaction true to grade and level is accomplished with a minimum of surface disturbance and segregation or degradation of materials. Maintain moisture content within prescribed limits during placing and compacting.

3.11 BUILDING AREAS

A. Place fill or backfill lifts such that compaction true to grade and level is accomplished with a minimum of surface disturbance and segregation or degradation of materials as specified in the project preliminary soils report. Maintain grade control and cross section by means of line and grade stakes. Maintain moisture content within prescribed limits during placing and compacting.

3.12 COMPACTION

A. Place materials used in backfilling and filling in layers not exceeding loose depths as follows:
   1. Heavy equipment compaction: 8 inches.

B. Place material simultaneously on opposite sides of walls, small structures, utility lines, etc. to avoid displacement or overstressing.

C. In-Place Density Requirements: Compact soil to not less than the values given below, expressed as a percentage of maximum density at optimum moisture content.
   1. Unpaved areas: Top 12 inches of bottom of over-excavation and subsequent lifts:
      a. 90 percent.
   2. Paved areas: Top 12 inches of bottom of over-excavations and subsequent lifts, except the upper one foot from rough finish grade:
      a. 95 percent.
      b. 95 percent within upper one foot below base coarse.
   3. Utility trenches: Compact backfill and fill materials to in-place density specified for applicable area of trench, but in no case less than 90 percent.

D. Moisture Control: During compaction, control moisture of bottom of over-excavations and subsequent lifts to within tolerances from optimum moisture content as recommended by testing laboratory. Wet surface with water when additional moisture is required. Aerate soil to aid in drying or replace soil when excessive moisture is present.

3.13 ROUGH GRADING

A. General: Smooth grade to a uniform surface that complies with compaction requirements and required lines, grades, and cross sections and is free from irregular surface changes.

B. Provide smooth transition between existing adjacent grades and changed grades. Cut out soft spots, fill low spots, and cut down high spots to conform to required surfaces tolerances.

C. Remove topsoil from areas to be further excavated, re-landscaped, or re-graded, without mixing with foreign materials.

D. Do not remove topsoil when wet.

E. Remove subsoil from areas to be further excavated, re-landscaped, or re-graded.

F. Do not remove wet subsoil , unless it is subsequently processed to obtain optimum moisture content.

G. When excavating through roots, perform work by hand and cut roots with sharp axe.

H. Stability: Replace damaged or displaced subsoil to same requirements as for specified fill.

I. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack surface water control.

J. Slope grades to direct water away from structures and to prevent ponding. Finish subgrade to required elevations within the following tolerance:
   1. Unpaved areas: Plus or minus 0.10 foot.
   2. Paved areas: Plus or minus 0.05 foot.
   3. Exterior steps and ramps: Plus or minus 0.05 foot.
   4. Inside building lines: 1/2 inch in 10 horizontal feet.

3.14 FINISH GRADING

A. Before Finish Grading:
   1. Trench backfilling has been inspected.
   2. Verify subgrade has been contoured and compacted.

B. Remove debris, roots, branches, stones, in excess of 1/2 inch in size. Remove soil contaminated with petroleum products.

C. In areas where vehicles or equipment have compacted soil, scarify surface to depth of 3 inches.

D. Place topsoil where required to level finish grade.

E. Place topsoil during dry weather.

F. Remove roots, weeds, rocks, and foreign material while spreading.

G. Near plants spread topsoil manually to prevent damage.

H. Fine grade topsoil to eliminate uneven areas and low spots. Maintain profiles and contour of subgrade.

I. Lightly compact placed topsoil.

J. Maintain stability of topsoil during inclement weather. Replace topsoil in areas where surface water has eroded thickness below specifications.

3.15 TOLERANCES

A. Top Surface of Subgrade: Plus or minus 0.10 foot (1-3/16 inches) from required elevation.

B. Top Surface of Finish Grade: Plus or minus 0.04 foot (1/2 inch).

3.16 REPAIR AND RESTORATION

A. Existing Facilities, Utilities, and Site Features to Remain: If damaged due to this work, repair or replace to original condition.

B. Trees to Remain: If damaged due to this work, trim broken branches and repair bark wounds; if root damage has occurred, obtain instructions from Architect as to remedy.

C. Other Existing Vegetation to Remain: If damaged due to this work, replace with vegetation of equivalent species and size.

3.17 MAINTENANCE

A. Completed Areas: Protect from damage by pedestrian or vehicular traffic, freezing, erosion, and contamination with foreign materials.
   1. Repair and re-establish grades to specified tolerances in settled, eroded, or rutted areas.

B. Damaged Areas: Where completed or partially completed surfaces become eroded, rutted, settled, or lose compaction and whether due to subsequent construction operations or weather conditions, restore materials to required conditions: Scarify or remove and replace to the required depth, return to optimum moisture content, and compact materials to the required density before continuing construction.

C. Correction: Should settling occur within the project correction period, remove finished surfacing, add additional approved material, compact material, and reconstruct surfacing. Construct surfacing to match and blend in with adjacent surfacing as nearly as practicable.

3.18 CLEANING

A. Spread any excess satisfactory topsoil in locations on site as directed by the architect and District. Properly dispose of unsatisfactory topsoil off site.

B. Spread any excess satisfactory soil in location on site as directed by the architect and District.

C. Remove any unsatisfactory soil, trash, debris, and other materials not required for use on the project and legally dispose of it off the owner's property.

D. On-site burning is not permitted.

E. Leave site clean and raked, ready to receive landscaping.

END OF SECTION

SECTION 31 2316.13
TRENCHING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Backfilling and compacting for utilities outside the building _____.

1.02 REFERENCES

A. AASHTO T 180 - Standard Method of Test for Moisture-Density Relations of Soils Using a 4.54-kg (10-lb) Rammer and a 457-mm (18-in.) Drop; 2022, with Errata .

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012 (Reapproved 2021).

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN-m/m3)); 2012 (Reapproved 2021).

E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2015.

F. ASTM D 3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.03 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: 30 inches below finish grade elevations indicated on drawings to the top of the utility, unless otherwise indicated.

1.04 SUBMITTALS

A. See Section 01 3000 - Administrative Requirements, for submittal procedures.

B. Compaction Density Test Reports.

1.05 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need.

B. Verify that survey bench marks and intended elevations for the Work are as indicated.

C. Protect plants, lawns, and other features to remain.

D. Protect bench marks, survey control points, existing structures, fences, sidewalks, paving, and curbs from excavating equipment and vehicular traffic.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Conforming to State of California Public Works Department standard.

B. Granular Fill: Coarse aggregate, conforming to State of California Public Works Department standard.

C. Sand: Conforming to State of California Public Works Department _____ standard.

2.02 PLASTIC WARNING TAPE

A. Acid and alkali-resistant polyethylene film specifically manufactured for marking and identifying underground utilities.
   1. Minimum width, 6 inches; minimum thickness, 4 mils.
   2. Metallic core encased in protective jacket resistant to corrosion and detectable by metal detector when tape is buried 3-feet deep.

B. Continuous printed inscription shall describe utility. Tape color:
   1. Electric: Red.

2. Gas: Yellow.
3. Telephone: Orange.
4. CATV: Orange.
5. Water System: Blue.
6. Sewer: Green.

2.03 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that survey bench marks and intended elevations for the work are as indicated.

3.02 PREPARATION

A. Identify required lines, levels, contours, and datum locations.

B. Locate, identify, and protect utilities that remain and protect from damage.

C. Grade top perimeter of trenching area to prevent surface water from draining into trench. Provide temporary means and methods, as required, to maintain surface water diversion until no longer needed, or as directed by the Architect.

3.03 TRENCHING

A. Notify Architect of unexpected subsurface conditions and discontinue affected Work in area until notified to resume work.

B. Slope banks of excavations deeper than 4 feet to angle of repose or less until shored.

C. Do not interfere with 45 degree bearing splay of foundations.

D. Cut trenches wide enough to allow inspection of installed utilities.

E. Hand trim excavations. Remove loose matter.

F. Remove large stones and other hard matter that could damage piping or impede consistent backfilling or compaction.

G. Remove excavated material that is unsuitable for re-use from site.

H. Stockpile excavated material to be re-used in area designated on site.

I. Remove excess excavated material from site.

J. Provide temporary means and methods, as required, to remove all water from trenching until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

K. Determine the prevailing groundwater level prior to trenching. If the proposed trench extends less than 1 foot into the prevailing groundwater, control groundwater intrusion with perimeter drains routed to sump pumps, or as directed by the Architect.

3.04 PREPARATION FOR UTILITY PLACEMENT

A. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

B. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

C. Until ready to backfill, maintain excavations and prevent loose soil from falling into excavation.

3.05 BACKFILLING

A. Backfill and compact in 12" maximum lifts to contours and elevations indicated using specified materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Correct areas that are over-excavated.
   1. Thrust bearing surfaces: Fill with concrete.
   2. Other areas: Use general fill, flush to required elevation, compacted to minimum 90 percent of maximum dry density.

G. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving and similar construction: 95 percent of maximum dry density.
   2. At other locations: 90 percent of maximum dry density.

3.06 BEDDING AND FILL AT SPECIFIC LOCATIONS

A. Utility Piping, Conduits, and Duct Bank:
   1. Bedding: Use Fill Type sand gravel crushed aggregate or native free draining granual material having sand equivelant of not less than 50 and expansion coefficient of not more than .5 of 1%.
   2. Cover with general fill.

3.07 TOLERANCES

A. Top Surface of General Backfilling: Plus or minus 1 inch from required elevations.

B. Top Surface of Backfilling Under Paved Areas: Plus or minus 1 inch from required elevations.

3.08 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D 1557 ("modified Proctor"), or ASTM D 698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.09 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION

SECTION 32 1216
ASPHALT PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Asphalt Concrete Paving.

B. Herbicide Treatment.

C. Pavement-marking paint.

D. Redwood Headers.

E. Surface sealer.

1.02 REFERENCE STANDARDS

A. AI MS-2 - Asphalt Mix Design Methods; 2015.

B. AI MS-19 - Basic Asphalt Emulsion Manual; 2008.

C. Standard Specifications for Public Works Construction ("Greenbook") - 1997 Edition.

D. Standard Specifications, State of California, Department of Transportation (Caltrans).

1.03 SUBMITTALS

A. Mix Design:
   1. Submit for approval each job-mix formula proposed for work of this section.

B. Approved Mix:
   1. Furnish licensed weighmaster certificates with each load of asphalt concrete delivered to project. Yield of asphalt concrete material shall be twenty four (24) pounds per square foot of paving area based on two inch thickness after rolling. A five (5) percent tolerance will be allowed between total calculated weight and actual weight incorporated in the work.

1.04 QUALITY ASSURANCE

A. Perform Work in accordance with State of California Public Work's standard.
   1. Provide aggregate base asphalt concrete and installation complying with Standard Specifications for Public Works Construction (PWC Specifications), current edition, and the Regional Supplement Amendments to the Standard Specifications for Public Works Construction, current edition, and as herein specified.

B. Mixing Plant: Conform to State of California Public Work's standard.

C. Obtain materials from same source throughout.

D. Installer's Qualifications: Firm specializing in paving installation, with not less than 5 years of experience in installation of paving similar to that required for this project.

E. Testing and Inspection:
   1. The owner will engage an independent testing and inspection agency to perform quality control procedures and to prepare test reports.

1.05 REGULATORY REQUIREMENTS

A. Conform to applicable code for paving work on public property.

1.06 FIELD CONDITIONS

A. Do not place asphalt when ambient air or base surface temperature is less than 40 degrees F, or surface is wet or frozen.

B. Place bitumen mixture when temperature is not more than 15 F degrees below bitumen supplier's bill of lading and not more than maximum specified temperature.

PART 2 PRODUCTS

2.01 MATERIALS

A. Aggregate for Base Course : Angular crushed washed stone; free of shale, clay, friable material and debris.

B. Aggregate for Binder Course: In accordance with State of California Public Work's standards.

C. Aggregate for Wearing Course: In accordance with State of California Public Work's standards.

D. Fine Aggregate: In accordance with State of California Public Work's standards.

E. Mineral Filler: Finely ground particles of limestone, hydrated lime or other mineral dust, free of foreign matter.

F. Seal Coat:
   1. Parking area, driveways, asphalt walks and ramps: Fog seal of slow breaking asphalt emulsion, grade SS-1H per PWC Specifications 203-3.
   2. Playground areas and adjacent access drives, walks and ramp transitions: Seal coat shall be "Plush-Tex", as manufactured by Koch Asphalt Co., or an approved equal.

G. Herbicide: United States EPA-registered chemical herbicide suitable for application indicated.
   1. Manufacturer: Provide products complying with requirements of the contract documents and made by one of the following:
      a. Ciba-Geigy Corporation.
      b. DowElanco.
      c. E. I. du Pont de Nemours and Company, Inc.

H. Pavement-Marking Paint: Chlorinated rubber-alkyd paint (FS TT-P-115, Type III); factory-mixed, quick-drying, and non-bleeding.

I. Wood Headers, Stakes, Benders and Splices: "Foundation" grade redwood as graded by Redwood Inspection Service. Minimum 2" thick lumber for headers and stakes and minimum 1" thick boards for splices. Use galvanized nails for fastening.

2.02 ASPHALT PAVING MIXES AND MIX DESIGN

A. Base Course: 3.0 to 6 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

B. Binder Course: State of California Public Work's standards.

C. Wearing Course: 5 to 7 percent of asphalt cement by weight in mixture in accordance with AI MS-2.

D. Submit proposed mix design of each class of mix for review prior to beginning of work.

E. Asphalt Concrete:
   1. Top course in playground areas: PWC Specifications, Section 203-6, Class E-PG 64-10. Rolled thickness shall be 1".
   2. Parking areas, driveways and first course of playground areas: PWC Specifications, Section 203-6, Class C1-PG 64-10. Rolled thickness in parking areas and driveway shall be as shown on the plans. Rolled thickness of first course in playground areas shall be specified thickness as shown on plans minus the 1" top course.

2.03 SOURCE QUALITY CONTROL

A. Test mix design and samples in accordance with AI MS-2.

PART 3 EXECUTION

3.01 GENERAL

A. Comply with cross sections, elevations, and grades indicated on the drawings.

B. Prepare and install pavement structures in accordance with practices recommended in the "Asphalt Paving Manual"; Publication MS-8; Asphalt Institute, except to the extent that such practices are superseded by specific requirements of this section.

3.02 EXAMINATION

A. Verify that compacted subgrade is dry and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

C. Notify architect in writing of any unsatisfactory conditions. Do not begin paving installation until these conditions have been satisfactorily corrected.

D. Commencement of paving work shall constitute acceptance of subbase conditions.

3.03 PREPARATION

A. General: Immediately before placing asphalt concrete mix, remove all loose or deleterious material from surface over which pavement will be placed. Ensure that subbase is properly prepared to receive paving.
   1. Aggregate subbase:
      a. Sweep loose granular particles from surface of aggregate course. Do not dislodge or disturb in any way the aggregate embedded in compacted surface of subbase course.
      b. Proof roll prepared sub-base surface to check for unstable areas and areas requiring additional compaction. Repair these areas as required. Do not begin paving work until deficient sub-base areas have been corrected and are ready to receive paving.

B. General Surface Applications to Prepared Subbase:
   1. Herbicide application over subbase:
      a. Apply herbicide treatment over dry compacted subbase, adhering strictly to herbicide manufacturer's instructions.
      b. Take extreme precaution to confine weed killer to only those areas to be covered by asphalt concrete and provide all necessary protection to prevent injury or damage to life and property.

3.04 INSTALLATION

A. Techniques:
   1. Placing the mix:
      a. Spread mix at minimum temperature of 225 degrees F.
      b. Place asphalt concrete mix on prepared surface and strike off. Place inaccessible and small areas using hand tools.
         1) Check mat frequently during placement, to verify correct thickness.
      c. Before rolling operations begin, check surface using template and straightedge, and correct irregularities.
      d. Width of paving strips:
         1) Place mix in paving strips at least 10 feet wide.
         2) Roll first paving strip after placement. Place subsequent paving strips, extending rolling operation to overlap preceding strips.
      e. Coursing requirements:
         1) Lifts:
            (a) Base Course:
               (1) Place plant-mixed asphalt concrete base course in single lift.
               (2) Compact to 95 percent.
               (3) Moisture Content: Use only the amount of moisture needed to achieve the specified compaction.
   2. Joints:
      a. General: Construct joints to form continuous bond between adjoining portions of work. Ensure that texture and density of pavement are continuous across the joint. Surface across joint shall form smooth, uninterrupted plane and shall not pond water.
      b. Joint locations include the following:
         1) Between pavements laid on successive days.
         2) At any point in paving where material already laid has become cold because of delay.

c. Clean by brushing, or cut fresh vertical face using power saw if necessary, wherever contact surface of previously constructed pavement has become coated by dust, sand, or other objectionable material.
d. Apply thin tack coat on vertical contact surface before beginning placement of new material.

3. Rolling:
   a. Start rolling operation as soon as hot mix will bear weight of roller and can be compacted without unacceptable displacement of material.
   b. Comply with roller manufacturer's recommended rolling speed, but in no case exceed 3 miles per hour.
   c. Avoid sharp turns and abrupt starts and stops.
   d. Compact mixture in areas inaccessible to rollers using hot hand tampers or vibrating plate compactors.
   e. Breakdown rolling:
      1) If grade is not absolutely level, begin breakdown rolling on low side of spread. Progress toward high side.
      2) Execute initial breakdown pass with drive wheel forward toward the direction of paving.
      3) Examine surface immediately after breakdown rolling. Repair as necessary by loosening material in defective areas and filling with hot material.
   f. Second (intermediate) rolling:
      1) Execute second rolling as soon as possible after breakdown rolling, while mixture is still hot enough to achieve maximum density.
      2) Continue repeating the pattern until mixture has been compacted thoroughly.
   g. Finish rolling:
      1) Execute finish rolling while mixture is sufficiently warm to allow removal of roller marks.
      2) Continue rolling operation until maximum density is achieved and roller marks are entirely eradicated.

4. Seal Coat:
   a. Parking Areas, Driveways, Walkways and Ramps: Dilute the asphalt emulsion with water at the rate of 1 part emulsion to 1 part water and apply at a rate of 0.1 gallons (of diluted material) per square yard. Emulsion shall be applied uniformly over entire area, and extreme care must be exercised so there will be no spots with excess material which would remain tacky.
   b. Playground Areas:
      1) Prior to application of Plush-Tex, the asphalt concrete pavement surface shall be clean and free of all dust, dirt, debris and foreign matter. The pavement surface can be cleaned by use of power vacuums, compressed air and/or washing with water. If washed with water, allow surface of pavement to dry prior to application.
      2) Minor depressions and "bird baths" shall be located and leveled prior to application of seal coat. Locate minor depressions and "bird baths" which need to be filled by flooding area with water. All depressions of more than 1/8" under a 10 foot straight edge and all damaged areas such as foot prints, animal tracks or tire tracks are to be filled.
         (a) Depressions of 1/4" or less shall be filled with undiluted Plush-Tex and struck off with a straight edge. Care should be taken to blend the outside edge of the area leveled into the existing pavement surface so as not to create an unsightly ridge or shadow.
         (b) Depressions greater than 1/4" in depth may be filled with a mixture of one-part Plush-Tex to one-part clean sand by volume. For depressions greater than 1/4" in depth, the leveling may have to be done in multiple applications. After the area leveled has cured dry, it shall be rolled with a mechanical roller.
      3) Application: (Minimum of two.)

(a) Plush-Tex should be mixed thoroughly to an even consistency prior to application. Plush-Tex may be diluted up to 20 percent by volume with clean fresh water. Care should be taken to thoroughly mix the water with Plush-Tex so that the material is of an even consistency.
(b) Apply Plush-Tex to the surface by pouring from a can or wheeled container in continuous parallel lines and spreading immediately with rubber faced squeegees or with long-handled hair brooms. Pull the squeegee or broom on an angle from the line of spread so as to continually roll the material toward the operator and not overflow or "spill" on its forward edge away from the operator. After each coat has dried, remove any ridges or shadows with scrapers.
(c) Plush-Tex shall be applied in two or more applications. A minimum total of undiluted Plush-Tex for two applications should be 0.54 gallons per square yard. The controlling factor, however, shall not be the number of applications nor the quantity of Plush-Tex, but shall be the following specified result:
(1) After the final coat of Plush-Tex has been applied and allowed to dry thoroughly, its surface shall be smooth and uniform, showing no evidence of course or uneven texture.
(2) The completed surface shall not vary more than 1/8" from a 10-foot straight edge.

5. Thickness:
   a. 3 inches minimum.
6. Patching:
   a. Remove paved areas which are contaminated with foreign materials or which are defective in any way. Replace removed material with fresh, hot mix. Compact by rolling until maximum density and smoothness are achieved and there is no detectable variation between patch and adjacent paving.
   b. Patch or re-pave area as required as a result of reconstruction or adjusting manholes, cleanouts, vaults, grates, etc. to proper grade.
7. Restriction of traffic:
   a. Upon completion of rolling operations, do not permit vehicular traffic on pavement until it has cooled and hardened sufficiently.
   b. Erect clearly-visible barricades and take other measures as required to protect pavement.
8. Wood Headers:
   a. Install along all edges of asphalt concrete paving except where concrete paving, walks and curbs occur. Set top edge of header to conform to grade of asphalt paving. Benders of lesser thickness may be used to form returns.
   b. Space stakes not exceed 4' on centers, unless otherwise noted. Drive stakes to a depth of 1" below the top of the header and nail to headers.
   c. Splice joints between individual header boards with a 1" thick board same height as header and not less than 24" long.
9. Interface with Other Products:
10. Pavement marking:
    a. Do not begin application of pavement-marking paint until architect has approved marking placement.
       1) Verify proper placement of each color of marking paint.
    b. Sweep and clean pavement surface thoroughly, immediately before application of marking paint. Pavement shall be dry and in proper condition to receive paint.
    c. Use mechanical paint applicator to create pavement marks with consistently even edges. Apply 2 coats at paint manufacturer's recommended spreading rates.
    d. Layout play courts to exact requirements of owner. Verify layout line widths and color prior to painting.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for quality control.

B. General: Test in-place asphalt concrete courses for compliance with requirements for thickness, surface smoothness and density. Repair or remove and replace unacceptable paving as directed by Architect.

C. Thickness: In-place compacted thickness will not be acceptable if exceeding following allowable variation from required thickness.
   1. Base Course: Specified thickness minus 1/2".
   2. Surface Course: Specified thickness plus or minus 1/4".

D. Surface Smoothness: Test unfinished surface of each asphalt concrete course for smoothness, using 10' straight edge applied parallel with, and at right angles to centerline of paved area. Surface will not be acceptable if exceeding the following tolerances for smoothness.
   1. Base Course Surface: 1/4".
   2. Wearing Course Surface: 1/8".

E. Flood Test: Prior to application of seal coats, perform a flood test in the presence of the Owner's representative.
   1. Method:
      a. Flood the entire asphalt concrete paved areas with water by use of a tank truck or hoses.
      b. If a depression occurs, where water ponds to a depth of more than 1/8", fill or otherwise correct to provide proper drainage.
      c. Feather and smooth the edges of fill so that the joint between fill and original surface is invisible.

F. Densities:
   1. Density of the asphalt concrete after rolling shall be 95 percent of the density obtained with the California Kneading Compactor per California Test 304.
      a. Density of the aggregate base course shall be 95 percent of maximum relative density.

3.06 PROTECTION

A. Immediately after placement, protect pavement from mechanical injury for 7 days or until surface temperature is less than 140 degrees F.

END OF SECTION

SECTION 32 1313
CONCRETE PAVING

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Concrete walks and area paving.

1.02 RELATED REQUIREMENTS

A. Section 03 2000 - Concrete Reinforcing.

B. Section 03 3000 - Cast-in-Place Concrete.

C. Section 07 9200 - Joint Sealants: Sealing joints.

1.03 REFERENCE STANDARDS

A. 2022 California Building Code, Chapter 11-B and 19A.

B. ACI 211.1 - Selecting Proportions for Normal-Density and High Density-Concrete - Guide; 2022.

C. ACI 301 - Specifications for Concrete Construction; 2020.

D. ACI 304R - Guide for Measuring, Mixing, Transporting, and Placing Concrete; 2000 (Reapproved 2009).

E. ACI 305R - Guide to Hot Weather Concreting; 2020.

F. ACI 306R - Guide to Cold Weather Concreting; 2016.

G. ASTM A185/A185M - Standard Specification for Steel Welded Wire Reinforcement, Plain, for Concrete; 2007.

H. ASTM A615/A615M - Standard Specification for Deformed and Plain Carbon-Steel Bars for Concrete Reinforcement; 2022.

I. ASTM A1064/A1064M - Standard Specification for Carbon-Steel Wire and Welded Wire Reinforcement, Plain and Deformed, for Concrete; 2022.

J. ASTM C33/C33M - Standard Specification for Concrete Aggregates; 2023.

K. ASTM C39/C39M - Standard Test Method for Compressive Strength of Cylindrical Concrete Specimens; 2023.

L. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.

M. ASTM C150/C150M - Standard Specification for Portland Cement; 2022.

N. ASTM C173/C173M - Standard Test Method for Air Content of Freshly Mixed Concrete by the Volumetric Method; 2023.

O. ASTM C309 - Standard Specification for Liquid Membrane-Forming Compounds for Curing Concrete; 2019.

P. ASTM C618 - Standard Specification for Coal Ash and Raw or Calcined Natural Pozzolan for Use in Concrete; 2023, with Editorial Revision.

Q. ASTM D1751 - Standard Specification for Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Asphalt Types); 2023.

R. ASTM D1752 - Standard Specification for Preformed Sponge Rubber, Cork, and Recycled PVC Expansion Joint Fillers for Concrete Paving and Structural Construction; 2018 (Reapproved 2023).

1.04 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Design Data: Indicate pavement thickness, designed concrete strength, reinforcement, and typical details.

1.05 QUALITY ASSURANCE

A. Perform work in accordance with ACI 301.

B. Obtain cementitious materials from same source throughout.

C. Follow recommendations of ACI 305R when concreting during hot weather.

D. Follow recommendations of ACI 306R when concreting during cold weather.

E. Portland cement concrete paving shall be stable, firm, and slip-resistant, and shall comply with CBC sections 11B-302 and 11B-403.

1.06 ENVIRONMENTAL REQUIREMENTS

A. Do not place concrete when base surface temperature is less than 40 degrees F, or surface is wet or frozen.

PART 2 PRODUCTS

2.01 PAVING ASSEMBLIES

A. Comply with applicable requirements of ACI 301.

B. Concrete Walks and Paving: 3,500 psi 28 day concrete, 4 inches thick minimum, unless noted otherwise on the drawings.

2.02 FORM MATERIALS

A. Wood form material, profiled to suit conditions.

B. Joint Filler: Preformed; non-extruding bituminous type (ASTM D1751) or sponge rubber or cork (ASTM D1752).
   1. Thickness: 1/2 inch.

2.03 REINFORCEMENT

A. Reinforcing Steel: ASTM A615/A615M, Grade 40 (40,000 psi) yield strength; deformed billet steel bars; unfinished.

B. Steel Welded Wire Reinforcement: Plain type, ASTM A1064/A1064M; in flat sheets; unfinished.

C. Dowels: ASTM A615/A615M, Grade 40 - 40,000 psi yield strength; deformed billet steel bars; unfinished finish.

2.04 CONCRETE MATERIALS

A. Obtain cementitious materials from same source throughout.

B. Cement: ASTM C150/C150M Normal - Type I portland type, grey color.

C. Fine and Coarse Mix Aggregates: ASTM C33/C33M.

D. Fly Ash: ASTM C618, Class C or F.

E. Water: Clean, and not detrimental to concrete.

2.05 ACCESSORIES

A. Curing Compound: ASTM C 309, Type 1, Class A.

B. Joint Sealer: Type as specified in Section 07 9200.

2.06 CONCRETE MIX DESIGN

A. Proportioning Normal Weight Concrete: Comply with the 2022 California Building Code, Chapter 19A.

B. Admixtures: Add acceptable admixtures as recommended in ACI 211.1 and at rates recommended by manufacturer.

C. Concrete Properties:
   1. Compressive strength, when tested in accordance with ASTM C39/C39M at 28 days; 3,500 psi. or as otherwise noted on the drawings and details.
   2. Fly Ash Content: Maximum 15 percent of cementitious materials by weight.

3. Minimum cement content per cubic yard: 6.5 sacks.
4. Maximum water-cement ratio per 94-pound sack of cement (gallons): 6.75.
5. Total Air Content: 4 percent, determined in accordance with ASTM C173/C173M.
6. Maximum Slump: 3 inches.
7. Maximum Aggregate Size: 1 inch.

2.07 MIXING

A. Transit Mixers: Comply with ASTM C94/C94M.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify compacted subgrade is acceptable and ready to support paving and imposed loads.

B. Verify gradients and elevations of base are correct.

3.02 SUBBASE

A. Prepare subbase in accordance with State of California Public Works standards.

3.03 PREPARATION

A. Moisten base to minimize absorption of water from fresh concrete.

3.04 FORMING

A. Place and secure forms to correct location, dimension, profile, and gradient.

B. Assemble formwork to permit easy stripping and dismantling without damaging concrete.

C. Place joint filler vertical in position, in straight lines. Secure to formwork during concrete placement.

3.05 REINFORCEMENT

A. Place reinforcement at midheight of slabs-on-grade.

B. Interrupt reinforcement at contraction joints.

C. Place dowels to achieve pavement and curb alignment as detailed.

3.06 PLACING CONCRETE

A. Place concrete in accordance with ACI 304R.

B. Ensure reinforcement, inserts, embedded parts, formed joints are not disturbed during concrete placement.

C. Place concrete continuously over the full width of the panel and between predetermined construction joints. Do not break or interrupt successive pours such that cold joints occur.

D. Apply surface retarder to all exposed surfaces in accordance with manufacturer's instructions.

3.07 JOINTS

A. Align curb, gutter, and sidewalk joints.

B. Place 3/8 inch wide expansion joints at 20 foot intervals and to separate paving from vertical surfaces and other components and in pattern indicated.
   1. Form joints with joint filler extending from bottom of pavement to within 1/2 inch of finished surface.
   2. Secure to resist movement by wet concrete.

C. Provide scored joints.
   1. At 5 feet intervals, or as indicated on the drawings.
   2. Between sidewalks and curbs.
   3. Between curbs and pavement.

3.08 FINISHING

A. Sidewalk Paving: (Surfaces less than 6% slope): medium broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.

B. Sidewalk / Ramp Paving: (Surfaces greater than 6% slope): heavy broom, texture perpendicular to direction of travel with troweled and radiused edge 1/4 inch radius.

C. Curbs: Light broom, texture parallel to pavement direction.

D. Place curing compound on exposed concrete surfaces immediately after finishing. Apply in accordance with manufacturer's instructions.

E. Portland cement concrete paving shall be stable, firm, and slip resistant and shall comply with CBC Sections 11B-302 and 11B-403.

3.09 JOINT SEALING

A. See Section 07 9005 for joint sealer requirements.

3.10 TOLERANCES

A. Maximum Variation of Surface Flatness: 1/4 inch in 10 ft.

B. Maximum Variation From True Position: 1/4 inch.

3.11 CONCRETE CURING

A. Comply with requirements of ACI 308. Immediately after placement, protect concrete from premature drying, excessively hot or cold temperatures, and mechanical injury.

B. Moist cure and maintain concrete with minimal moisture loss at relatively constant temperature for period necessary for hydration of cement and hardening of concrete.
   1. Normal concrete: Not less than 5 days.

C. Surfaces Not in Contact with Forms:
   1. Start initial curing as soon as free water has disappeared and before surface is dry. Keep continuously moist for not less than three days by water ponding, water-saturated sand, water-fog spray, or saturated burlap.
   2. Begin final curing after initial curing but before surface is dry.
      a. Curing compound: Apply in two coats at right angles, using application rate recommended by manufacturer.

3.12 PROTECTION

A. Immediately after placement, protect pavement from premature drying, excessive hot or cold temperatures, and mechanical injury.

B. Do not permit pedestrian traffic over pavement for 7 days minimum after finishing.

END OF SECTION

SECTION 32 3113
CHAIN LINK FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Fence framework, fabric, and accessories.

B. Excavation for post bases; concrete foundation for posts.

C. Manual gates and related hardware.

1.02 REFERENCE STANDARDS

A. ASTM A123/A123M - Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products; 2017.

B. ASTM A153/A153M - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware; 2023.

C. ASTM A392 - Standard Specification for Zinc-Coated Steel Chain-Link Fence Fabric; 2011a (Reapproved 2022).

D. ASTM A491 - Standard Specification for Aluminum-Coated Steel Chain-Link Fence Fabric; 2011 (Reapproved 2022).

E. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

F. ASTM A1011/A1011M - Standard Specification for Steel, Sheet and Strip, Hot-Rolled, Carbon, Structural, High-Strength Low-Alloy, High-Strength Low-Alloy with Improved Formability, and Ultra-High Strength; 2023.

G. ASTM C94/C94M - Standard Specification for Ready-Mixed Concrete; 2023.

H. ASTM F567 - Standard Practice for Installation of Chain-Link Fence; 2023.

I. ASTM F1043 - Standard Specification for Strength and Protective Coatings on Steel Industrial Fence Framework; 2018 (Reapproved 2022).

J. ASTM F1083 - Standard Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures; 2018 (Reapproved 2022).

K. CLFMI CLF 2445 - Product Manual - Drawings; 2012.

L. Standard Specifications for Public Works Construction (Greenbook), Current Edition, Section 206-6.

1.03 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Product Data: Provide data on fabric, posts, accessories, fittings and hardware.

C. Shop Drawings: Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, and schedule of components.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section, with not less than three years of documented experience.

1.05 REGULATORY REQUIREMENTS

A. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with CBC Section 11B-404, and shall comply with CBC Chapter 10.

B. The levers of lever actuated latches or locks for accessible gates shall be curved with a return to within 1/2" of the gate surfaces to prevent catching on the clothing or persons. California Referenced Standards Code. T-24 Part 12, Section 12-10-202, Item (F).

C. Swing doors and gate surfaces within 10" of the finish floor or ground shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal

or vertical joints in these surfaces shall be within 1/16" of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. CBC Section 11B-404.2.10.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Chain Link Fences:
   1. Master-Halco, Inc.: www.masterhalco.com.
   2. Merchants Metals: www.merchantsmetals.com.
   3. Reeves Southeastern Corp: www.reevesse.com.
   4. Substitutions: See Section 01 6000 - Product Requirements.

2.02 MATERIALS

A. Posts, Rails, and Frames: ASTM F 1083 Schedule 40 hot-dipped galvanized steel pipe, welded construction, minimum yield strength of 25 ksi.

B. Wire Fabric: ASTM A 392 zinc coated steel chain link fabric.

C. Concrete: Ready-mixedcomplying with ASTM C 94/C 94M; normal Portland cement; 2,500 psi strength at 28 days, 3 inch slump; 3/4 inch nominal size aggregate.

D. Provide panic hardware on gates in required exit pathways to public right-of-way or safe dispersal areas per CBC 1010.1.10 and 1010.2. See details on drawings.

E. Panic hardware shall be in compliance with SFM Standard 12-10-3, Section 12-10-302, as follows:
   1. The cross bar shall extend across not less than one-half the width of the door/gate.
   2. The ends of the cross bar shall be curved, guarded or otherwise designed to prevent catching on the clothing of persons during egress.

2.03 COMPONENTS

A. Line Posts:
   1. 1.90" O.D. (1-1/2 NPS) for fences less than 72 inches in height.
   2. 2.375" O.D. (2 NPS) for fences 72 inches and higher.

B. Line Posts: 1.9 inch diameter.

C. Corner and Terminal Posts:
   1. 2.375" O.D. (2 NPS) for fences less than 72 inches in height.
   2. 2.875" O.D. (2-1/2 NPS) for fences 72 inches and higher.

D. Corner and Terminal Posts: 2.38 inch.

E. Gate Posts:
   1. Up to 6'-0" Leaf Width: 2.875" O.D. (2-1/2 NPS) ; 5.79 lbs./ft.
   2. Over 6'-0" to 13'-0" Leaf Width: 4.0" O.D. (3-1/2 NPS); 9.11 lbs./ft.
   3. Over 13'-0" to 18'-0" Leaf Width: 6.625" O.D. ((6 NPS); 18.97 lbs./ft.

F. Gate Posts: 3.5 inch diameter.

G. Top and Brace Rail: 1.66 inch diameter, plain end, sleeve coupled.

H. Gate Frame: 1.66 inch diameter for welded fabrication.

I. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top and bottom selvage knuckle / knuckle, bottom selvage knuckle end closed.

J. Fabric: 2 inch diamond mesh interwoven wire, 9 gage thick, top and bottom selvage knuckle / knuckle.

K. Tension Wire: 6 gage, 0.1620 inch thick steel, single strand.

L. Tie Wire: Aluminum alloy steel wire.

2.04 ACCESSORIES

A. Caps: Cast steel galvanized; sized to post diameter, set screw retainer.

B. Fittings: Sleeves, bands, clips, rail ends, tension bars, fasteners and fittings; steel.

C. Hardware for Single Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; balance of hardware as shown on drawings .

D. Hardware for Double Swinging Gates: 180 degree hinges, 2 for gates up to 60 inches high, 3 for taller gates; balance of hardware as shown on drawings .

2.05 FINISHES

A. Components (Other than Fabric): Galvanized in accordance with ASTM A123/A123M, at 1.7 oz/sq ft.

B. Components and Fabric: Galvanized where noted on drawings.

C. Components and Fabric: Vinyl coated over coating of 1.8 oz/sq ft galvanizing where noted on drawings.

D. Hardware: Hot-dip galvanized to weight required by ASTM A153/A153M.

E. Accessories: Same finish as framing.

F. Color(s): Black vinyl where noted on the drawings.

PART 3 EXECUTION

3.01 EXAMINATION

A. Verify that line of fence has been properly identified.

B. Verify that proper grade has been established.

C. Verify location of underground utilities and structures.

D. Begin fence construction only after adequate clearance on both sides of fence is available.

3.02 INSTALLATION

A. Install framework, fabric, accessories and gates in accordance with ASTM F 567.

B. Place fabric on outside of posts and rails.

C. Set intermediate posts plumb , in concrete footings with top of footing 2 inches above finish grade. Slope top of concrete for water runoff.

D. Line Post Footing Depth Below Finish Grade: ASTM F 567.

E. Corner, Gate and Terminal Post Footing Depth Below Finish Grade: ASTM F 567.

F. Brace each gate and corner post to adjacent line post with horizontal center brace rail and diagonal truss rods. Install brace rail one bay from end and gate posts.

G. Provide top rail through line post tops and splice with 6 inch long rail sleeves.

H. Install center brace rail on corner gate leaves.

I. Do not stretch fabric until concrete foundation has cured 28 days.

J. Stretch fabric between terminal posts or at intervals of 100 feet maximum, whichever is less.

K. Position bottom of fabric 2 inches above finished grade.

L. Fasten fabric to top rail, line posts, braces, and bottom tension wire with tie wire at maximum 15 inches on centers.

M. Attach fabric to end, corner, and gate posts with tension bars and tension bar clips.

N. Provide concrete center drop to footing depth and drop rod retainers at center of double gate openings.

3.03 TOLERANCES

A. Maximum Variation From Plumb: 1/4 inch.

B. Maximum Offset From True Position: 1 inch.

C. Components shall not infringe adjacent property lines.

END OF SECTION

SECTION 32 3119
DECORATIVE METAL FENCES AND GATES

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Decorative steel fences.

1.02 REFERENCE STANDARDS

A. ASTM A653/A653M - Standard Specification for Steel Sheet, Zinc-Coated (Galvanized) or Zinc-Iron Alloy-Coated (Galvannealed) by the Hot-Dip Process; 2023.

B. ASTM F2408 - Standard Specification for Ornamental Fences Employing Galvanized Steel Tubular Pickets; 2016 (Reapproved 2023).

1.03 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Shop Drawings:
   1. Indicate plan layout, spacing of components, post foundation dimensions, hardware anchorage, gates, and schedule of components.
   2. Foundation details, concrete design mix and reinforcing schedule for anti-ram barrier system.

C. Installer's Qualification Statement.

1.04 QUALITY ASSURANCE

A. Manufacturer Qualifications: Company specializing in manufacturing products specified in this section with minimum five years documented experience.

B. Installer Qualifications: Experienced with type of construction involved and materials and techniques specified.

1.05 REGULATORY REQUIREMENTS

A. Gates that are part of the accessible route shall meet all the requirements of an accessible door in compliance with CBC Section 11B-404, and shall comply with CBC Chapter 10.

B. The levers of lever actuated latches or locks for accessible gates shall be curved with a return to within 1/2" of the gate surfaces to prevent catching on the clothing or persons. California Referenced Standards Code. T-24 Part 12, Section 12-10-202, Item (F).

C. Swing doors and gate surfaces within 10" of the finish floor or ground shall have a smooth surface on the push side extending the full width of the door or gate. Parts creating horizontal or vertical joints in these surfaces shall be within 1/16" of the same plane as the other and be free of sharp or abrasive edges. Cavities created by added kick plates shall be capped. CBC Section 11B-404.2.10.

D. Panic hardware shall be in compliance with SFM Standard 12-10-3, Section 12-10-302, as follows:
   1. The cross bar shall extend across not less than one-half the wifth of the door/gate.
   2. The ends of the cross bar shall be curved, guarded or otherwise designed to prevent catching on the clothing of persons during egress.

E. Gates across an exit to a public way or to a safe dispersal area shall have panic hardware.

PART 2 PRODUCTS

2.01 MANUFACTURERS

A. Decorative Metal Fences and Gates:
   1. Ameristar Perimeter Security, USA; _____: www.ameristarfence.com/#sle.
   2. Substitutions: See Section 01 6000 - Product Requirements.

2.02 FENCES

A. Fences: Complete shop-fabricated system of posts and panels, accessories, fittings, and fasteners; hot dipped galvanized, and having the following performance characteristics:
   1. Capable of resisting vertical load, horizontal load and infill performance requirements for fence categories defined in ASTM F2408.

B. Electro-Deposition Coating: Multistage pretreatment/wash with zinc phosphate, followed by epoxy primer and acrylic topcoat.
   1. Total Coating Thickness: 2 mils, minimum.

C. Steel: ASTM A653/A653M; tensile strength 45,000 psi, minimum.
   1. Hot-dip galvanized; ASTM A653/A653M, G90.
   2. 62 percent recycled steel, minimum.

2.03 WELDED STEEL FENCE

A. Provide fence meeting requirements for Industrial class as defined by ASTM F2408.

B. Fence Panels: Welded; 8 feet high by 6 feet long.
   1. Panel Style: As detailed on the Drawings.
   2. Attach panels to posts with manufacturer's standard panel brackets.

C. Rails: Steel tube 2 inch square by 7 gage, 3/16 inch.
   1. Picket Retaining Rods: 0.125 inch galvanized steel.
   2. Picket-to-Rail Intersection Seals: PVC grommets.

D. Pickets: Steel tube.
   1. Spacing: 3-3/4 inch clear.
   2. Size: 3/4 inch square by 12 gage, 7/64 inch.
   3. Style: As detailed on the Drawings.
   4. Finial: Spear point.

E. Flexibility: Capable of following variable slope of up to 1:2.

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 Architect of unsatisfactory preparation before proceeding.

3.02 INSTALLATION

A. Install in accordance with manufacturer's instructions.

B. Set fence posts in accordance with the manufacturer recommended spacing.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 0100

ELECTRICAL GENERAL PROVISIONS

PART 1 GENERAL

SUMMARY

1.1 This Division of the specification outlines the provisions of the contract work to be performed under this Division.

1.2 This Section applies to and forms a part of each section of specifications in Division 26 and all work performed under Division 26 and 28.

1.3 In addition, work in this Division is governed by the provisions of the bidding requirements, contract forms, general conditions and all sections under general requirements.

1.4 These specifications contain statements which may be more definitive or more restrictive than those contained in the General Conditions. Where these statements occur, they shall take precedence over the General Conditions.

1.5 Where the words 'provide' or 'provision' are used, it shall be definitely interpreted as 'furnishing and installing complete in operating condition'. Where the words 'as indicated' or 'as shown' are used, it shall mean as shown on contract drawings.

1.6 Where items are specified in the singular, this Division shall provide the quantity as shown on drawings plus any spares or extras mentioned on drawings or specifications. All specified and supplied equipment shall be new.

CONTRACTOR QUALIFICATIONS

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

CODES, PERMITS AND FEES

1.8 Comply with all applicable laws, ordinances, rules, regulations, codes, or rulings of governmental units having jurisdiction as well as standards of CEC and serving utility requirements.

1.9 Obtain permits, fees, inspections, meter and the like, associated with work in each section of this Division.

1.10 Installation procedures, methods and conditions shall comply with the latest requirements of the Federal Occupational Safety and Health Act (OSHA).

EXAMINATION OF PREMISES

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

STANDARDS

1.12 The following standard publications of the latest editions enforced, and supplements thereto shall form a part of these specifications. All electrical work must, as a minimum, be in accordance with these standards.

1.12.1 2022 California Electrical Code (CEC), Part 3 Title 24 CCR.
1.12.2 National Fire Protection Association.
1.12.3 Underwriters' Laboratories, Inc. (UL).

DEFINITIONS

1.13 Concealed: Hidden from sight, as in trenches, chases, hollow construction, or above furred spaces, hung ceilings - acoustical or plastic type, or exposed to view only in tunnels, attics, shafts, crawl spaces, unfinished spaces, or other areas solely for maintenance and repair.

1.14 Exposed, Non-Concealed, Unfinished Space: A room or space that is ordinarily accessible only to building maintenance personnel, a room noted on the 'finish schedule' with exposed and unpainted construction for walls, floors, or ceilings or specifically mentioned as 'unfinished'.

1.15 Finish Space: Any space ordinarily visible, including exterior areas.

WORK AND MATERIALS

1.16 Unless otherwise specified, all materials must be new and of the best quality. Materials previously incorporated into other projects, salvaged, or refurbished are not considered new. Perform all labor in a thorough and workmanlike manner.

1.17 All materials provided under the contract must bear the UL label where normally available. Note that this requirement may be repeated under equipment specifications. In general, such devices as will void the label should be provided in separate enclosures and wired to the labeled unit in proper manner.

SHOP DRAWINGS AND SUBMITTALS

1.18 Submit shop drawings and all data in accordance with Division 1 of these specifications and as noted below for all equipment provided under this Division.

1.19 Shop drawings submittal demonstrate to the Architect that the Contractor understands the design concept. The Contractor demonstrates their understanding by indicating which equipment and material they inten to furnish and install and by detailing the fabrication and installation methods of material and equipment he intends to use. If deviations, discrepancies, or conflicts etween submittals and specifications are discovered either prior to or after submittals are processed, notify the Architect immediately.

1.20 Manufacturer’s data and dimension sheets shall be submitted giving all pertinent physical and engineering data including weights, cross sections and maintenance instructions. Standard items of equipment such as receptacles, switches, plates, etc., which are cataloged items, shall be listed by manufacturer.

1.21 Index all submittals and reference them to these specifications. All submittal items shall be assembled and submitted, one for each specification section. (Multiple specification sections may be grouped together in one common submittal binder, as long as each

individual section is clearly identified.) Partial or incomplete submittal sections will not be reviewed.

EQUIPMENT PURCHASES

1.22 Arrange for purchase and delivery of all materials and equipment within 20 days after approval of submittals. All materials and equipment must be ordered in ample quantities for delivery at the proper time. If items are not on the project in time to expedite completion, the Owner may purchase said equipment and materials and deduct the cost from the contract sum.

1.23 Provide all materials of similar class or service by one manufacturer.

COOPERATIVE WORK

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

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

VERIFICATION OF DIMENSIONS

1.26 Scaled and figured dimensions are approximate only. Before proceeding with work, carefully check and verify dimensions, etc., and be responsible for properly fitting equipment and materials together and to the structure in spaces provided.

1.27 Drawings are essentially diagrammatic, and many offsets, bends, pull boxes, special fittings, and exact locations are not indicated. Carefully study drawings and premises in order to determine best methods, exact location, routes, building obstructions, etc. and install apparatus and equipment in manner and locations to avoid obstructions, preserve headroom, keep openings and passageways clear, and maintain proper clearances.

CLOSING-IN OF UNINSPECTED WORK

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

EXCAVATION AND BACKFILL

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

1.30 Perform all necessary excavation, shoring, and backfilling required for the proper laying of all conduits inside the building and premises, and outside as may be necessary.

1.31 Excavate all trenches open cut, keep trench banks as nearly vertical as practicable, and sheet and brace trenches where required for stability and safety. Excavate trenches true to line and make bottoms no wider than necessary to provide ample work room. Grade trench bottoms accurately. Machine grade only to the top line of the conduits, doing the remainder by hand. Do not cut any trench near or under footings without first consulting

the Architect. All trenches shall be done in accordance with OSHA standards and regulations.

1.32 Backfilling shall be done with each layer compacted before another layer is added. No stones or coarse lumps shall be laid directly on a conduit or conduits.

1.33 Trenches shall be filled with the specified material. Sod, if any, shall be removed in cut sections and replaced in same manners.

1.34 Provide pumps and drainage of all open trenches for purposes of installing electrical duct and wiring.

1.35 Perform all backfilling in accordance with the requirements of and under the direction of the Geotechnical Engineer.

1.36 Where new underground trenching is required on sites or in any area where existing underground utilities exist, the Contractor shall provide an independent professional utility locating service to locate exact vertical and horizontal locations of all existing utilities. Where existing utilities are found the Contractor shall hand dig those areas to avoid disruption. The Contractor shall be responsible for immediate repairs to existing underground utilities damaged during construction. The Contractor shall repair all existing asphalt, concrete and landscape surfaces damaged or removed during construction to match their original conditions. Where trenching extends through public streets or roadways, the Contractor shall notify underground service alert in addition to the independent locating service 48 hours before start of construction to determine location of existing utilities by calling (800) 422-4133.

CONCRETE

1.37 Where used for structures to be provided under the contract such as bases, etc., concrete work, and associated reinforcing shall be as specified under Division 3 of these specifications.

1.38 See other sections for additional requirements for underground vaults, cable ducts, etc.

ACCESSIBILITY

1.39 Install all control devices or other specialties requiring reading, adjustment, inspection, repairs, removal, or replacement conveniently and accessibly throughout the finished building.

1.40 All required access doors or panels in walls and ceilings are to be furnished and installed as part of the work under this Section. Refer to Division 1 of these specifications and as noted below.

1.41 Where located in fire rated assemblies, provide doors which match the rating of the assembly and are approved by the jurisdictional authority.

1.42 Refer to 'finish schedule' for types of walls and ceilings in each area and the architectural drawings for rated wall construction.

1.43 Coordinate work of the various sections to locate specialties requiring accessibility with others to avoid unnecessary duplication of access doors.

FLASHING

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

IDENTIFICATION OF EQUIPMENT

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

1.45.1 General:

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

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

1.45.2 Lighting and Local Panelboards:

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

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

1.45.3 Distribution Switchboards and Feeders Sections:

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

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

1.45.4 Disconnect Switches, Motor Starters and Transformers:

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

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

CONSTRUCTION FACILITIES

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

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

GUARANTEE

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

PATENTS

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

EQUIPMENT ROUGH-IN

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

OWNER FURNISHED AND OTHER EQUIPMENT

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

EQUIPMENT FINAL CONNECTIONS

1.52 Provide all final connections for the following:

1.52.1 All equipment furnished under this Division.

1.52.2 Electrical equipment furnished under other sections of the specification.

1.52.3 Owner furnished equipment as specified under this Division.

INSERTS, ANCHORS, AND MOUNTING SLEEVES

1.53 Inserts and anchors must be:

1.53.1 Furnished and installed for support of work under this Division.

1.53.2 Mounting of equipment that is of such size as to be free standing and that equipment which cannot conveniently be located on walls, such as motor starters, etc., shall be rigidly supported on a framework of galvanized steel angle of Unistrut or B-line systems with all unfinished edges painted.

1.53.3 Furnish and install all sleeves as required for the installation of all work under all Sections of this Division and for all communication systems including any

communication systems described in this Section which are bid to the General Contractor. Sleeves through floors, roof, and walls shall be as described in "Conduit and Fittings" Section 26 05 33.

SEISMIC ANCHORING

1.54 All switchgear and other free-standing electrical equipment or enclosures shall be anchored to the floor and braced at the top of the equipment to the structure. The Contractor shall submit drawings signed by the Contractors registered structural Engineer indicating method of compliance prior installation.

1.55 All sound systems, communication, signal or data networking equipment or enclosures shall be anchored to the structure. The Contractor shall submit drawings signed by the Contractors registered Structural Engineer indicating method of compliance prior to installation.

RUST PROOFING

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

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

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

GENERAL WIRING

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

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

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

SEPARATE CONDUIT SYSTEMS

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

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

CLEANUP

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

1.63 Use steel brushes on exposed metal work to carefully remove rust, etc., and leave smooth and clean.

1.64 During the progress of the work, keep the premises clean and free of debris.

PAINTING

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

1.66 Paint all exposed conduit locations in finished spaces to match the finish on the surfaces they are attached to. Verify all color selections with the Architect prior to painting.

GENERAL DEMOLITION REQUIREMENTS

1.67 Remove existing work and items which are required to be removed in such manner that minimum damage and disturbance is caused to adjacent and connection work scheduled to remain. Repair or replace existing work schedule.

1.68 Include preparation of existing areas to receive new materials and removal of materials and equipment to alter or repair the existing building as indicated and as specified.

1.69 Perform demolition exercising proper care to prevent injury to the public, workmen and adjoining property.

1.70 Perform the removal, cutting, drilling of existing work with extreme care and use small tools in order not to jeopardize the structural integrity of the building.

1.71 Rebuild to existing condition or better, existing work which has to be removed to allow the installation of new work as required.

1.72 Remove, protect and reinstall existing items as indicated. Replace materials scheduled for reuse which are damaged by the Contractor to the extent that they cannot be reused, with equal quality material, and installation.

1.73 Do not reuse in this project materials and items removed from existing site or building, except with specific written approval by the Architect in each case, unless such removed material or item is specifically indicated or specified to be reused.

1.74 Remove materials and equipment indicated to be salvaged for reinstallation and store to prevent damage and reinstall as the work progresses. Do not reuse in this project, other materials and equipment removed from existing site or building, except with specific written approval by the Architect in each case.

1.75 Patch areas requiring patching, including damage caused by removing, relocating or adding fixtures and equipment, damages caused by demolition at adjacent materials.

1.76 Do not stockpile debris in the existing building, without the approval of the Architect. Remove debris as it accumulates from removal operations to a legal disposal area.

1.77 Contractor to assume existing oil filled and dry transformers, oil switches, ballasts, lamps, wooden poles, cross arms, computers, computer monitors, and conductor insulation containing materials considered hazardous. Comply with local, state and federal regulations, laws, and ordinances concerning removal, handling and protection against exposure or environmental pollution. Contractor shall be responsible for removal of the above hazardous materials where encountered. Include all costs for such removal as part of this contract.

PROJECT CLOSEOUT

1.78 Prior to completion of project, compile a complete equipment maintenance manual for all equipment supplied under sections of this Division, in accordance with Division 1 of these specifications and as described below.

1.79 Equipment Lists and Maintenance Manuals:

1.79.1 Prior to completion of job, Contractor shall compile a complete equipment list and maintenance manuals. The equipment list shall include the following items for every piece of material equipment supplied under this Section of the specifications:

1.79.1.1 Name, model, and manufacturer.

1.79.1.2 Complete parts drawings and lists.

1.79.1.3 Local supply for parts and replacement and telephone number.

1.79.1.4 All tags, inspection slips, instruction packages, etc., removed from equipment as shipped from the factory, properly identified as to the piece of equipment it was taken from.

1.80 Maintenance manuals shall be furnished for each applicable section of the specifications and shall be suitably bound with hard covers and shall include all available manufacturers' operating and maintenance instructions, together with "as-built" drawings to properly operate and maintain the equipment. The equipment lists and maintenance manuals shall be submitted in duplicate to the Architect for approval not less than 10 days prior to the completion of the job. The maintenance manuals shall also include the name, address, and phone numbers of all subcontractors involved in any of the work specified herein. Four copies of the maintenance manuals bound in single volumes shall be provided.

RECORD DRAWINGS

1.81 The Division 26 Contractor shall maintain record drawings as specified in accordance with Division 1 of these specifications, and as noted below.

1.82 Drawings shall show locations of all concealed underground conduit runs, giving the number and size of conduit and wires. Underground ducts shall be shown with cross section elevations and shall be dimensioned in relation to permanent structures to indicate their exact location. Drawing changes shall not be identified only with referencing CORs and RFIs, the drawings shall reflect all of the actual additions or changes made. All as-built drawing information shall be prepared by the contractor in AutoCAD, updating the contract computer files as needed to reflect actual installed conditions for all site plans, lighting, power, communication, networking, audio visual, security or fire alarms systems included in the scope of work for this project.

1.83 One set of these record drawings shall be delivered to the Architect. The engineer will review documents for completeness and will not be responsible for editing contractor computer files.

CHANGES AND EXTRA WORK

1.84 When **changes** in work are requested, the Division 26 Contractor shall provide unit prices for the work involved in accordance with Division 1 of these specifications, and the following:

1.84.1 The material Costs shall **not exceed** the latest edition of the "Trade Service" end column "C" price list. The materials prices may be higher only where the Contractor can produce invoices to substantiate higher material costs. The Contractor shall submit a print out copy of the trade service sheets with the change order to substantiate these values.

1.84.2 The labor Costs shall **not exceed** the latest edition of the "NECA Manual of Labor Units" **normal column**.

1.85 When **credits** in work are requested, the Division 26 Contractor shall provide unit prices for the work involved in accordance with Division 1 of these specifications, and the following:

1.85.1 The Material Costs shall **not be less than 80% of** the latest edition of the "Trade Service" end column price list. The materials prices may be lower only where the Contractor can produce invoices to substantiate lower material costs. Restocking fees may also be included in this amount where applicable.

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

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

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

1.86.1 Couplings.

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

1.86.3 Conduit straps and associated screws or nails.

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

1.87 Wire pricing for all types and sizes.

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

1.87.1 Locknuts, Bushings, tape, wire markers.

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

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

1.88.2 Locknuts, washers, tape.

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

1.89.1 Change orders with 1 to 30 total labor hours

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

1.89.2 Change orders with 31 to 100 total labor hours

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

1.89.3 Change orders with over 100 total labor hours

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

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

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

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

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

1.92.2 Description of quantity for each item.

1.92.3 Description of (material cost per / quantity).

1.92.4 Description of (labor cost per / quantity).

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

ELECTRONIC FILES

1.93 The Contractor shall make a ***written*** request directly to Johnson Consulting Engineers for electronic drawing files. As a part of the written request, please include the following information:

1.93.1 Clearly indicate each drawing sheet needed (i.e., E1.1, E2.1, etc.).

1.93.2 Identify the name, phone number, mailing address and e-mail address of the person to receive the files.

1.93.3 Provide written confirmation and agreement with the requirements described for payment of computer files, as described below.

1.94 Detail or riser diagram sheets, or any other drawings other than floor plans or site plans, ***will not be made available to the Contractor***.

1.95 Files will only be provided in the AutoCAD format in which they were created.

1.96 Requests for files will be processed as soon as possible; a minimum of 7 working days should be the normal processing time. The Contractor shall be completely responsible for requesting the files in time for their use.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 0519

POWER CONDUCTORS

PART 1 GENERAL

1.1 Furnish and install wire and cable for branch circuits and feeders specified herein and as shown on the electrical drawings.

1.2 Submittals: Submit manufacturers' data for the following items:

1.2.1 All cables and terminations

1.3 <u>Common submittal mistakes which will result in the submittals being rejected:</u>

1.3.1 Not including all items listed in the above itemized description.

1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining, or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.3.3 Not including actual manufacturer's catalog information of proposed products.

1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed

PART 2 PRODUCTS

2.1 Wire and cable Rated 120 volt to 600 volt.

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

2.1.2 Aluminum conductors will be permitted (only where specifically identified on the drawings. See "600 Volt Feeder Schedule") in sizes 2/0 or larger. Conductors shall be listed by Underwriters Laboratories (UL) and suitable for operation at 600 volts or less, at a maximum operating temperature of 90N C maximum in wet or dry locations. Conductors shall be marked "SUN-RES". Aluminum alloy conductors shall be compact stranded conductors of STABILOY® (AA-8030) as manufactured by Alcan Cable or Listed equal. AA-8000 Series aluminum alloy conductor material shall be recognized by The Aluminum Association.

2.1.3 MC type armored cable not permitted

2.2 Wire and cable for systems below120 volts.

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

PART 3 EXECUTION

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

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

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

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

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

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

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

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

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

3.4 All wiring throughout shall be color coded as follows:

	480 volt system	208 or 240 volt system
A Phase	Brown	Black
B Phase	Orange	Red
C Phase	Yellow	Blue
Neutral	Grey	White

Ground	Green	Green

3.5 Wiring must be color coded throughout its entire length, except feeders may have color coded plastic tape at both ends and any other accessible point.

3.6 All control wiring in a circuit shall be color coded, each phase leg having a separate color, and with all segments of the control circuit, whether in apparatus or conduit, utilizing the same color coding.

3.7 At all terminations of control wiring, the wiring shall have a numbered T&B or Brady plastic wire marker.

3.8 Cables when installed are to be properly trained in junction boxes, etc., and in such a manner as to prevent any forces on the cable which might damage the cable.

3.9 All conductors to be installed into a common raceway, shall be pulled into the raceway at the same time.

3.10 All conductors shall be installed in such a manner as to not exceed the manufacturers' recommended pulling tension and bending radius. The equipment used for pulling must be specifically designed for the purpose. Motorized vehicles such as pickup trucks, are not acceptable.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 0526

GROUNDING

PART 1 GENERAL

1.1 Furnish and install grounding and grounding conductors and electrodes as specified herein and as shown on the drawings.

1.2 Submit catalog data for all components.

1.3 **Common submittal mistakes which will result in the submittals being rejected:**

1.3.1 Not including all items listed in the above itemized description.

1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.3.3 Not including actual manufacturer's catalog information of proposed products.

1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 EXECUTION

2.1 Grounding

2.1.1 All panelboard cabinets, equipment, enclosures, and complete conduit system shall be grounded securely in accordance with pertinent sections of CEC Article 250. Conductors shall be copper. All electrically operated equipment shall be bonded to the grounded conduit system. All non-current carrying conductive surfaces that are likely to become energized and subject to personal contact shall be grounded by one or more of the methods detailed in CEC Article 250. All ground connections shall have clean contact surfaces. Install all grounding conductors in conduit and make connections readily accessible for inspection.

2.1.2 Provide an insulated equipment grounding conductor in all branch circuit and feeder raceway systems, sized in accordance with CEC 250-1122.

2.1.3 Provide an additional individual insulated grounding conductor for each circuit which contains an isolated ground receptacle or surge suppression receptacle.

2.1.4 Grounding of metal raceways shall be assured by means of provisions of grounding bushings on feeder conduit terminations at the panelboard, and by means of insulated continuous stranded copper grounding wire extended from the ground bus in the panelboard to the conduit grounding bushings.

2.1.5 Except for connections which access for periodic testing is required, make grounding connections which are buried or otherwise inaccessible by exothermite type process.

2.1.6 The following ohmic values shall be test certified for each item listed. A written report signed and witnessed by the project IOR shall be provided to the engineer.

If the ohmic value listed cannot be obtained additional grounding shall be installed to reach the value listed.

2.1.6.1 Service. . . . . .10 ohms.

2.1.6.2 Step down transformers and non-current carrying metal parts
. . . . . 25 ohms.

2.1.6.3 Manholes, handholes, etc.
. . . . . 10 ohms.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 0533

CONDUIT AND FITTINGS

PART 1 GENERAL

1.1 Furnish and install conduit and fittings as shown on the drawings and as specified herein.

1.2 Submit Manufacturer's data on the following:

1.2.1 Conduit.

1.2.2 Fittings

1.2.3 Fire stopping Material.

1.3 **Common submittal mistakes which will result in the submittals being rejected:**

1.3.1 Not including all items listed in the above itemized description.

1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.3.3 Not including actual manufacturer's catalog information of proposed products.

1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 PRODUCTS

2.1 Rigid steel conduit, intermediate metal conduit (IMC), electrical metallic tubing (EMT) and flexible metallic conduit shall be steel, hot dipped galvanized after fabrication.

2.2 PVC conduit shall be Carlon or approved equal.

2.3 Liquid tight flexible metal conduit shall be Anaconda Sealtite type UA or approved equal. Fittings shall be Appleton, Crouse-Hinds, Steel City, T&B, or equivalent.

2.4 MC type armored cable, not permitted

2.5 Fire stopping material shall provide an effective seal against fire, heat, smoke and fire gases. Fire stopping material shall be tested to comply with ASTME 814 and UL 1479. The submittal for this product shall include the UL listed system number and installation requirements for each type of penetration seal required for this project.

2.6 Each length of conduit shall be stamped with the name or trademark of the manufacturer and shall bear the UL label.

2.7 All plastic conduit shall be rigid, schedule 40, heavy wall PVC. All PVC conduit shall be UL listed. Underground utility company conduits shall comply with local utility co. requirements.

2.8 Plastic conduit shall be stored on a flat surface, and protected from the direct rays of the sun.

PART 3 FITTINGS

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

3.2 Locknuts shall be steel or malleable iron with sharp clean cut threads.

3.3 Entrance seals shall be 0.Z. type FSK or equivalent.

3.4 Bushings and locknuts: Where conduits enter boxes, panels, cabinets, etc., they shall be rigidly clamped to the box by locknuts on the outside, and a lock nut and plastic bushing on the inside of the box. All conduits shall enter the box squarely.

3.5 Furnish and install insulated bushings as per CEC article No. 300 - 4 (F) on all conduits. The use of insulated bushings does not exclude the use of double locknuts to fasten conduit to the box.

3.6 Transition from plastic to steel conduits shall be with PVC female threaded adaptors.

3.7 Couplings and connectors for rigid steel or IMC conduit must be threaded, or compression type (set screw fittings are not permitted).

3.8 Couplings and connectors for EMT shall be compression, watertight. Set screw connectors are not acceptable, except for systems below 120 volts.

3.9 Connectors for flexible metal conduit shall be steel or malleable iron with screw provided to clinch the conduit into the adapter body. For sizes up to ¾" a screw-in, "Jake type," fitting may be used.

3.10 Install approved expansion fittings, or liquid tight flex conduit with a minimum 6" slack for conduits passing through all expansion and seismic joints.

PART 4 EXECUTION

4.1 All branch circuits shall be installed concealed in walls or above ceilings or in concrete floor slabs. PVC conduits installed in concrete floor slabs shall transition to PVC coated rigid steel where conduits penetrate above finished grade or finished floor.

4.2 Conduit sizes for various numbers and sizes of wire shall be as required by the CEC, but not smaller than ½" for power wiring and ¾" for communications and fire alarm systems unless otherwise noted. Conduit in slab or below grade shall be ¾" minimum trade size, unless otherwise identified.

4.3 Conduit size shall be such that the required number and sizes of wires can be easily pulled in and the Contractor shall be responsible for the selection of the conduit sizes to facilitate the ease of pulling. Conduit sizes shown on the drawings are minimum sizes in accordance with appropriate tables in the CEC. If because of bends or elbows a larger conduit size is required, the Contractor shall so furnish without further cost to the Owner.

4.4 The Contractor shall be entirely responsible for the proper protection of this work from the other trades on the job. When conduit becomes bent or holes are punched through

same, or outlets moved after being roughed-in, the Contractor shall replace same, without additional cost to the Owner.

4.5 Rigid steel conduit or IMC shall be used as follows:

4.5.1 Exposed exterior locations.

4.5.2 Exposed interior locations below eight feet above floor, except in electrical rooms and closets.

4.5.3 In hazardous or classified areas as required by CEC.

4.6 EMT conduit shall be used for areas as follows:

4.6.1 All interior communications, signal, and data networking systems.

4.6.2 All interior power wiring systems where not required to be in rigid steel, IMC or flexible conduit.

4.7 Flexible conduit shall be used for areas as follows:

4.7.1 To connect motors, transformers, and other equipment subjected to vibration or where specifically detailed on the drawings.

4.7.2 Flexible conduit shall not be used to replace EMT in other locations where the conduit will be exposed.

4.7.3 Flexible metal conduit shall be ferrous. Installation shall be such that considerable slack is realized. The conduit shall contain separate code sized grounding conductor.

4.7.4 Liquid tight flexible conduit shall be used in conformance with CEC in lengths not to exceed 4'. For equipment connections, route the conduit at 90 degrees to the adjacent path for point of connection. The conduit shall contain separate code sized grounding conductor. Use liquid tight flexible conduit for all equipment connections exposed in possible wet, corrosive or oil contaminated areas, e.g., shops and outside areas.

4.8 Plastic conduit shall be used for all exterior underground, in slab, and below slab on grade conduit installations. Install bell ends at all conduit terminations in manholes and pull boxes. Where plastic conduit transitions from below grade to above grade, no plastic conduit shall extend above finished exterior grade, or above interior finished floor level.

4.9 Plastic conduit joints shall be made up in accordance with the manufacturer's recommendations for the particular conduit and coupling selected. Conduit joint couplings shall be made watertight. Plastic conduit joints shall be made up by brushing a plastic solvent cement on the inside of a plastic fitting and on the outside of the conduit ends. The conduit and fitting shall then be slipped together with a quick one-quarter turn twist to set the joint tightly.

4.10 All underground conduit depths shall be as detailed on the drawings or a minimum of 30" below finished grade (when not specifically detailed otherwise), for all exterior underground conduits. Where concrete slurry or concrete encasement is provided, include “Red” color dye in mixture.

4.11 All underground conduits for power systems (600v and higher), shall be concrete encased and a minimum of 48" below grade or as detailed on the drawings. Where concrete slurry or concrete encasement is provided, include "Red" color dye in mixture.

4.12 Conduit shall be continuous from outlet to outlet, cabinet or junction box, and shall be so arranged that wire may be pulled in with the minimum practical number of junction boxes.

4.13 All conduits shall be concealed wherever possible. All conduit runs may be exposed in mechanical equipment rooms, electrical equipment rooms, electrical closets, and in existing or unfinished spaces. No conduit shall be run exposed in finished areas without the specific approval of the Architect.

4.14 All raceways which are not buried or embedded in concrete shall be supported by straps, clamps, or hangers to provide a rigid installation. Exposed conduit shall be run in straight lines at right angles to or parallel with walls, beams, or columns. In no case shall conduit be supported or fastened to other pipes or installed to prevent the ready removal of other trades piping. Wire shall not be used to support conduit.

4.15 It shall be the responsibility of the Contractor to consult the other trades before installing conduit and boxes. Any conflict between the location of conduit and boxes, piping, duct work, or structural steel supports, shall be adjusted before installation. In general, large pipe mains, waste, drain, and steam lines shall be given priority.

4.16 Conduits above lay-in grid type ceilings shall be installed in such a manner that they do not interfere with the "lift-out" feature of the ceiling system. Conduit runs shall be installed to maintain the following minimum spacing wherever practical.

4.16.1 Water and waste piping not less than 3".

4.16.2 Steam and steam condensate lines not less than 12".

4.16.3 Radiation and reheat lines not less than 6".

4.17 Provide all necessary sleeves and chases required where conduits pass through floors or walls as part of the work of this section. Core drilling will only be permitted where approved by the Architect.

4.18 All empty conduits and surface mounted raceways shall be provided with a ¼" polypropylene plastic pull cord and threaded plastic or metal plugs over the ends. Fasten plastic "Dymo" tape label to exposed spare conduit to identify "power" or "communication" system, and to where it goes.

4.19 The ends of all conduits shall be securely plugged, and all boxes temporarily covered to prevent foreign material from entering the conduits during construction. All conduit shall be thoroughly swabbed out with a dry swab to remove moisture and debris before conductors are drawn into place.

4.20 Bending: Changes in direction shall be made by bends in the conduit. These shall be made smooth and even without flattening the pipe or flaking the finish. Bends shall be of as long a radius as possible, and in no case smaller than CEC requirements.

4.20.1 For power conduits for conductors (600v and below), provide minimum 36" radius (vertical) and 72" radius (horizontal) bends.

4.20.2 For power conduits for conductors (greater than 600v), provide minimum 72" radius (vertical) and 72" radius (horizontal) bends.

4.21 Supports: Conduit shall be supported at intervals as required by the California Electrical Code. Where conduits are run individually, they shall be supported by approved conduit straps or beam clamps. Straps shall be secured by means of toggle bolts on hollow masonry, machine screws or bolts on metal surfaces, and wood screws on wood construction. **[No perforated straps or wire hangers of any kind will be permitted. Where individual conduits are routed, or above ceilings, they shall be supported by hanger rods and hangers.]** Conduits installed exposed in damp locations shall be provided with clamp backs under each conduit clamp, to prevent accumulation of moisture around the conduits.

4.22 Where a number of conduits are to be run exposed and parallel, one with another, they shall be grouped and supported by trapeze hangers. Hanger rods shall be fastened to structural steel members with suitable beam clamps or to concrete inserts set flush with surface. A reinforced rod shall be installed through the opening provided in the concrete inserts. Beam clamps shall be suitable for structural members and conditions. Rods shall be galvanized steel 3/8" diameter minimum. Each conduit shall be clamped to the trapeze hanger with conduit clamps.

4.23 All concrete inserts and pipe clamps shall be galvanized. All steel bolts, nuts, washers, and screws shall be galvanized or cadmium plated. Individual hangers, trapeze hangers and rods shall be prime-coated.

4.24 Openings through fire rated floors/walls and/or smoke walls through which conduits pass shall be sealed by Fire stopping material to comply with Division 1 to seal off flame, heat, smoke and fire gases. Sleeves shall be provided for power or communication system cables which are not installed in conduits, and shall be sealed inside and out to comply with manufacturers UL system design details. Where multiple conduits and/or cable tray systems pass thru fire-rated walls at one location, the Contractor shall submit copies of the manufacturers UL system design details proposed for use on this project. All Fire stopping material shall have an hourly fire-rating equal to or higher than the fire rating of the floor or wall through which the conduit, cables, or cable trays pass.

4.25 Provide cap or other sealing type fitting on all spare conduits. Conduits stubbed into buildings from underground where cable only extends to equipment, the conduit/cable end shall be sealed to prevent moisture from entering the room or space.

4.26 All conduits which are part of a paralleled feeder or branch circuit shall be installed underground.

4.27 All conduits which are required as a part of systems specified in Divisions 27 or 28, or any other low voltage communication systems, shall be furnished and installed by the Division 26 Contractor.

4.27.1 The Contractor shall coordinate all conduit requirements with each system supplier prior to bid to determine special conduit system requirements.

4.27.2 The Contractor shall provide a pull rope in all conduits for these systems.

4.27.3 The Contractor shall provide conduit sleeves for all open cable installations thru rated walls or block walls. Provide conduit from each building main termination cabinet or backboard to the nearest accessible ceiling for access into all electrical or communications rooms.

4.28 In addition to the above requirements, the following requirements shall apply to all data networking conduits:

4.28.1 Flexible metal conduit may only be used where required at building seismic and/or expansion joints.

4.28.2 All underground conduits shall be provided with minimum 24" radius elbows (vertical) and 60” (horizontal).

4.28.3 No length of conduit above grade shall be installed to exceed 150 feet between pull boxes, or points of connection, unless where specifically detailed on the drawings.

4.28.4 No length of conduit shall be installed to exceed two 90 degree bends between pull boxes, or points of connection, unless where specifically detailed on the drawings.

4.29 Where surface raceways are installed in interior spaces, the Contractor shall take care to route in straight lines at right angles to or parallel with walls, beams, or columns. All raceways and device boxes shall be securely screwed to the finish surface with zinc screw “Auger” anchors Stk #ZSA1K by Gray Bar Electric or equal. Tape adhesive application will not be permitted.

4.30 The Contractor who installs surface raceway systems shall provide and install complete with wire retention clips, one for every (8) vertical feet or (5) horizontal feet or portion thereof. This Contractor shall also provide each raceway channel with pull strings.

4.31 It shall be the responsibility of the Contractor installing the raceway to coordinate the installation of raceway device plates and inserts with the communications or data contractors.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 0534

OUTLET AND JUNCTION BOXES

PART 1 GENERAL

1.1 Furnish and install electrical wiring boxes as specified and as shown on the electrical drawings.

1.2 Submit manufacturer's data for all items.

1.3 <u>Common submittal mistakes which will result in the submittals being rejected:</u>

1.3.1 Not including all items listed in the above itemized description.

1.3.2 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.3.3 Not including actual manufacturer's catalog information of proposed products.

1.3.4 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

PART 2 PRODUCTS

2.1 Boxes shall be as manufactured by Steel City, Appleton, Raco, or approved equal.

2.2 All boxes must conform to the provisions of Article 370 of the CEC. All boxes shall be of the proper size to accommodate the quantity of conductors enclosed in the box. Minimum box size shall be 4" square x 1-½" deep.

2.3 Boxes generally shall be hot dipped galvanized steel with knockouts. Boxes on exterior surfaces or in damp locations shall be corrosion resistant, cast feraloy and shall have threaded hubs for rigid conduit and neoprene gaskets for their covers. Boxes shall be Appleton Type FS, Crouse-Hinds, or the approved equal. Conduit bodies shall be corrosion resistant, cast malleable iron. Conduit bodies shall have threaded hubs for rigid conduit and neoprene gaskets for their covers. Conduit bodies shall be Appleton Unilets, Crouse-Hinds, or the approved equal. Where recessed, boxes shall have square cut corners.

2.4 Deep boxes shall be used in wall covered by wainscot or paneling and in walls or glazed tile, brick, or other masonry which will not be covered with plaster. Through the wall type boxes shall not be used unless specifically called for. All boxes shall be nongangable. Boxes in concrete shall be of a type to allow the placing of conduit without displacing the reinforcing bars. All lighting fixture outlet boxes shall be equipped with the proper fittings to support and attach a light fixture.

2.5 All light, switch, receptacle, fire alarm devices and similar outlets shall be provided with approved boxes, suitable for their function. Back boxes shall be furnished and installed as required for the equipment and/or systems under this contract.

2.6 Pull and junction boxes shall be code gauge boxes with screw covers. Boxes shall be rigid under torsional and deflecting forces and shall be provided with angle from framing

where required. Boxes shall be 4" square with a blank cover in unfinished areas and with a plaster ring and blank cover in finished areas. Covers for flush mounted oversize boxes shall extend ¾" past boxes all around. Covers for 4" square boxes shall extend ¼" past box all around.

2.7 All terminal cabinets and junction boxes or equipment back boxes which are required as a part of systems specified in Divisions 27 or 28, or any other low voltage communication systems, shall be furnished and installed by the Division 26 Contractor.

2.7.1 The Division 26 Contractor shall coordinate all box requirements with each system supplier prior to bid to determine special cabinet or back box requirements. The Contractor shall also provide stainless steel blank cover plates for all low voltage systems installed for future equipment.

2.7.2 The Contractor shall provide all plywood backboards indicated on walls or inside equipment enclosures. All backboards shall be a minimum of ¾" thick fire rated type plywood.

2.7.3 The Contractor shall coordinate exact rough in locations and requirements with each system supplier.

2.8 In addition to the above requirements, boxes for data networking wiring and equipment shall comply with the following:

2.8.1 All boxes shall be a minimum of 4-11/16" square x 2-1/8" deep.

2.8.2 Where pull boxes are required on individual conduits 1-¼" or smaller, provide 4-11/16" square x 2-1/8" deep boxes. Where pull boxes are required on conduits larger than 1-¼" for straight pull through, provide eight times the conduit trade size for box length. Where pull boxes are required on conduits larger than 1-¼" for an angle or a U-pull through installation, provide a minimum distance of six times the conduit trade size between the entering and exiting conduit run for each cable.

2.9 Recessed boxes installed in fire rated floors/walls and /or smoke walls shall be sealed by Fire stopping material to comply with Division 1 to seal off flame, heat, smoke and fire gases. The Contractor shall submit copies of the manufacturers UL system design details proposed for use on this project. All Fire stopping material shall have an hourly fire-rating equal to or higher than the fire rating of the floor or wall through which the conduit, cables, or cable trays pass.

PART 3 EXECUTION

3.1 Boxes shall be installed where required to pull cable or wire, but in finished areas only by approval of the Architect. Boxes shall be rigidly attached to the structure, independent of any conduit support. Boxes shall have their covers accessible. Covers shall be fastened to boxes with machine screws to ensure continuous contact all around. Covers for surface mounted boxes shall line up evenly with the edges of the boxes.

3.2 Outlets are only approximately located on the plans and great care must be used in the actual location of the outlets by consulting the various detailed drawings and specifications. Outlets shall be flush with finished wall or ceiling, boxes installed symmetrically on such trim or fixture. Refer to drawings for location and orientation of all outlet boxes.

3.3 Furnish and install all plaster rings as may be required. Plaster rings shall be installed on all boxes where the boxes are recessed. Plaster rings shall be of a depth to reach the finished surface. Where required, extension rings shall be installed so that the plaster ring is flush with the finished surface.

3.4 All cabinets and boxes shall be secured by means of toggle bolts on hollow masonry; expansion shields and machine screws or standard precast inserts on concrete or solid masonry; machine screws or bolts on metal surfaces and wood screws on wood construction. All wall and ceiling mounted outlet boxes shall be supported by bar supports extending from the studs or channels on either side of the box. Boxes mounted on drywall or plaster shall be secured to wall studs or adequate internal structure.

3.5 Boxes with unused punched-out openings shall have the openings filled with factory-made knockout seals.

3.6 Where standby power and normal power are to be located in the same outlet box or 480V in a switch box, install partition barriers to separate the various systems.

3.7 All device boxes and junction boxes for fire alarm system shall be painted red and shall be 4-11/16” square by 2-1/8” deep. No exceptions.

END OF SECTION

SECTION 26 5114
LED LIGHTING FIXTURES AND LAMPS

PART 1 GENERAL

1.1 Furnish and install all lighting fixtures with lamps as specified and as shown on the drawings. Fixtures shall be complete including canopies, hanger, diffusers, ballasts, etc.

1.2 Submit manufacturer's data for each fixture type including the following:

1.2.1 Lighting fixture catalog data and photometry.
1.2.2 Lamp catalog data for each fixture type.
1.2.3 Driver catalog data for each fixture type.
1.2.4 Fixture warranty.

1.3 <u>Common submittal mistakes which will result in the submittal being rejected:</u>

1.3.1 Not including lamp and driver information for each fixture type.

1.3.2 Not including all items listed in the above itemized description.

1.3.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed, or crossing out the items which are not applicable.

1.3.4 Not including actual manufacturer’s catalog information of proposed products.

1.3.5 Do not include multiple manufacturers for similar products and do not indicate “or approved equal” statements, or “to be determined later” statements. The products being submitted must be the products installed.

PRODUCT SUBSTITUTION

1.4 All substitutions or alternate fixtures to those indicated on the project fixture schedule shall be submitted for approval (7) business days prior to the project bid date. Approvals <u>when</u> accepted will be issued in the form of an addendum. No consideration for substitutions will be provided after the award of the contract.

1.4.1 The substitution request must include a statement indicating the difference in price of both the specified and alternate product, both contractor and list price. The substitution request must include a comparison of the total fixture wattage, total fixture lumens, fixture efficiency and warranty comparison.

1.4.2 When proposing to substitute lighting fixture and/or fixture retrofit, a point by point photometric calculation of a typical application as used in this project shall be included. A calculation of the specified and the proposed alternate shall be included.

PART 2 PRODUCTS

2.1 All catalog numbers are given for manufacturer's identification and shall not relieve Contractor from responsibility of full conformance to all applicable written description requirements governing material and fabrication, either in the general or specific sections. Where catalog numbers are indicated as modified, no modification will be required if the

standard unit fully conforms to descriptive requirements in the Specifications and matches specified ceiling.

2.2 All fixtures of the same type shall be of one manufacturer and of identical finish and appearance. All fixtures and component parts shall bear the UL label.

2.3 All steel parts shall be phosphate treated in multistage power spray system for corrosion resistance and paint adhesion. Final finish shall be electrostatically applied baked white enamel of not less than 87 pct. reflectance on reflecting surfaces.

2.4 Each fixture shall have a continuous light-seal gasket seated in such manner as to prevent any light leak through any portion or around any edge of the trim frame.

2.5 Diffusers shall be framed in a hinged, continuous assembly. Diffuser frame latches shall be spring-loaded or cam-operated.

2.6 All recessed fixtures shall be provided with frames appropriate for the type of ceiling involved. No fixtures shall be ordered until the ceiling construction has been verified by the Contractor.

MINIMUM LUMINARY REQUIREMENTS

2.7 Electrical Components, Devices and Accessories: Listed and labeled as defined in CEC by a qualified testing agency, and marked for intended location and application.

2.8 Recessed Fixtures: Comply with NEMA LE 4.

2.9 CRI of **minimum 80 CCT of 4100 K**.

2.10 Rated lamp life of 50,000 hours minimum.

2.11 Lamps dimmable from 100 percent to 0 percent of maximum light output.

2.12 Nominal Operating Voltage: **120 V / 277 V ac**

PART 3 EXECUTION

3.1 All lighting fixtures shall be supported as follows:

3.1.1 From the outlet box by means of a metal strap where its weight is less than five pounds.

3.1.2 From its outlet box by means of a hickey or other threaded connection where its weight is from five to fifty pounds.

3.1.3 Directly from the structural slab or joists where its weight exceeds fifty pounds.

3.1.4 Lighting fixtures shall be supported independent of the ceiling system or additional ceiling support must be added to carry the weight of the lighting fixtures. Recessed lighting fixtures supported from ceiling grid tees shall be furnished with hold down clips in conformance with CEC 410 - 16, spring clips will not be permitted. All fixtures which the manufacturer has not provided UL approved clips, must be attached to the fixture and ceiling grid by metal screws.

3.2 Furnish and install supplementary blocking and support as required to support fixture from structural members. Contractor shall submit proposed blocking method for all suspended lighting fixtures for approval prior to rough in.

3.3 Suspended and/or pendant mounted fixtures shall be provided with four aircraft safety cables extending in opposite directions, attached to the fixture, and supported from a structural member. The contractor shall submit proposed fixture mounting and aircraft cable attachment methods for approval prior to fixture rough in.

3.4 Class 1 wiring to the fixture must be installed either conduit or type MC-PCS cabling no open wiring shall be permitted.

3.5 Chain suspension may be used only where specifically permitted on the drawings. Chain shall be heavy duty, nickel or cadmium plated, suitable for weight of specific fixture.

3.6 Shop drawings shall be furnished for each fixture type. Catalog cuts, illustrating conformance with specifications, will be acceptable for standard units. Shop drawings shall indicate materials, assembly, finish and dimensions.

3.7 Photometric data shall be furnished for any fixture substituted for those listed on the schedule.

3.8 Any driver which produces a greater than normal amount of noise shall be replaced by the contractor. Normal will be determined by the level of sound produced by other similar fixtures operating in the area.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 26 9090

ELECTRICAL CLOSEOUT

PART 1 GENERAL

1.1 Upon completion of the electrical work, the entire installation shall be tested by the Contractor, and demonstrated to be operating satisfactorily to the Architect, Engineer, Inspector and Owner.

1.2 All testing and corrections shall be made prior to demonstration of operation to the Architect, Engineer, Inspector and Owner.

1.3 In addition to the demonstration of operation, the Contractor is also required to review the content and quality of instructions provided on items demonstrated with the Architect, Engineer, Inspector and Owner.

PART 2 EXECUTION

2.1 Wiring shall be tested for continuity, short circuits and/or accidental grounds. All systems shall be entirely free from “grounds,” “short circuits,” and any or all defects.

2.2 Motors shall be operating in proper rotations, and control devices functioning properly. Check all motor controllers to determine that properly sized overload devices are installed, and all other electrical equipment for proper operation.

2.3 Tests and adjustments shall be made prior to acceptance of the electrical installation by the Architect, and a certificate of inspection and acceptance of the electrical installation by local inspection authorities shall be provided.

2.4 All equipment or wiring provided which tests prove to be defective or operating improperly shall be corrected or replaced promptly, at no additional cost to the Owner.

2.5 Test all motor and feeder circuits with a “megger” tester to determine that insulation values conform to Section 110-20, California Electrical Code (CED). Test reports must be submitted and approved by the engineer before final acceptance.

2.6 Test all grounding electrode connections to assure a resistance of no more than 10 ohms is achieved. Augment grounding until the ohmic value stated above is achieved. Provide certified test results to the Architect, Engineer and Inspector.

END OF SECTION

SECTION 28 0100

ELECTRONIC SAFETY AND SECURITY
GENERAL PROVISIONS

PART 1 SUMMARY

1.1 This Division of the specifications outlines the provisions of the contract work to be performed as a sub-contract under the Division 26 scope of work. Reference the Division 26 Electrical General Provisions for scope of work and general requirements.

1.2 In addition, work in this Division is governed by the provisions of the bidding requirements, contract forms, general conditions and all sections under Division 1 requirements.

END OF SECTION

TIERRA DEL SOL MIDDLE SCHOOL SECURITY
Lakeside Union School District

SECTION 28 2305

IP-BASED VIDEO CALL STATION SYSTEM

PART 1 GENERAL

1.1 The Contractor shall provide new IP-Based Video Call Station System for controlled access to the School Campus as shown on the drawings, and as described in these specifications including all mounting hardware, connectors, power supplies, and auxiliary equipment as may be required as specified herein and required by the District Facilities Department to meet all their requirements.

1.2 Related Specification Sections:

1.2.1 Section 26 01 00 - General Provisions

1.2.2 Section 26 05 19 – Power Conductors

1.2.3 Section 26 05 33 – Conduit and Fittings

1.2.4 Section 26 05 34 – Outlet and Junction Boxes

1.3 The system shall provide two-way video and audio communications capabilities. The system will be used at specific locations shown on the drawings to alert the School Administrative Office of Non-District Personnel requiring controlled access to the School Campus. The system needs to include the following functionality;

1.3.1 Two-Way Voice Communications

1.3.2 Controlled Access at designated Gate Locations

1.3.3 Two-Way Video and Camera Surveillance at Gate Locations

1.4 In summary, the system is a single unit comprised of multiple components. It shall provide interoperability in cases of emergency and direct communication to the School Administrative Offices and any other entity as directed by the District Facilities Department. The system must be expandable to address future development. In addition, the system shall be able to withstand the rigors of the outside elements.

1.5 Required Functions:

1.5.1 The requirement here is to provide a self-contained IP-Based Video Call Station wherein the following safety and security services are housed;

1.5.1.1 Direct access two-way communications appliance mounted at Gate or Door

1.5.1.2 Video camera in Vandal-Resistant Housing

1.5.1.3 Gate or Door Release of Electronic Door Hardware with Audio Notification

1.5.1.4 Direct two-Way communications with IP-Based Video Attendant Master Station at Administrative Office Reception

1.6 The IP-Based Video Call Station must be weather-resistant and designed to withstand the outside elements. The other safety and security services are described below.

1.7 Direct Access Communications - Direct access to the Administrative Office Reception for Video and Voice Communications is required. The IP-Based Video Call Station shall contain a VOIP Call Station that is activated with a single button and upon activation make a direct connection to the Campus Administrative Office Reception Desk. The VOIP Call Station must be housed in an unbreakable, tamper-resistant appliance designed to withstand the outside elements and to be installed on a Fence Gate, Fence Panel Post or adjacent Building Wall. Operation of the VOIP Call Station must be simple and obvious and upon activation, the IP-Based Video Call Station and the immediate area around the User must be fully viewed at the IP-Based Video Attendant Master Station.

1.8 IP-Based Video Call Station specifications;

1.8.1	Ethernet I/F:	10/100 BaseTX Ethernet
1.8.2	Supported Protocols:	IPv4, HTTPS, TCP, UDP, RTP, SIP, RTCP, and DHCP Compliant
1.8.3	Power Input:	PoE IEEE802.3af – Class '0' Compliant or 19–27 VDC, dedicated line-regulated power supply – Idle: 4W; Maximum: 8W
1.8.4	Regulatory Compliance:	FCC Class A, UL 60950
1.8.5	ADA/Accessibility:	(2010) Standards for Accessible Design: ANSI ICC A117.1; (2009) Accessible and Usable Buildings and Facilities

1.9 **Video Surveillance Camera at IP-Based Video Call Station** – Cameras will be integrated into the faceplate of the Video Call Station. The cameras shall serve multiple purposes:

1.9.1 The camera will target the area directly in front of the IP-Based Video Call Station identifying the Caller and the immediate surrounding area upon activation of the direct dial VOIP phone station. The camera shall be installed recessed inside the Front Panel above the built-in Speaker and Call Button. Refer to the detail drawings for additional information on location of the camera.

1.9.2 The cameras will provide a short duration live feed to the Administrative Office Reception location designated by the School Principal on the campus for monitoring of the Entrance Gate to the School Campus.

1.9.3 The Contractor shall be responsible for installation, set-up and programming of the Video Call Station and Video Attendant Master Station. Coordinate the installation with the District's IT and Facilities Departments Contacts.

Quality Assurance

1.10 All items of equipment shall be designed by the manufacturer to function as a complete All phone installation, configurations, setup, program and related work shall be performed by electronic technicians thoroughly trained by the manufacturer in the installation and service of the equipment provided.

1.11 All equipment shall be warrantied against any defects in material and workmanship under normal use for a period of twenty-four (24) months from date of installation, provided that manufacturer receives a completed "Installation Certification" certifying the date on which the system has been installed. An "Installation Certification" card shall be enclosed with every unit. In the event that no "Installation Certification" is received by manufacturer, the twenty four (24) months will commence on the date of shipment by the manufacturer.

1.12 The Contractor shall be an established Contractor that has had and currently maintains a locally run and operated business for at least five years. The Contractor shall utilize a duly authorized distributor of the equipment supplied for this project location with full manufacturer's warranty privileges.

1.13 Installation of Emergency Towers shall be furnished by a factory authorized Contractor and distributor. The Contractor shall hold a C10 or C7 license from the State of California for the purpose of installing Low Voltage Systems. The Contractor shall meet the requirement of the 28 23 05 Section for warranted installations.

1.13.1 Subcontractors shall be approved for the installation of the Data Infrastructure portion of the IP-Based Video Call Station System only. All other portions of the installation of the IP-Based Video Call Station System shall be provided by an Authorized Installation company.

1.14 The following Contractor’s are authorized dealers and installers for the specified IP-Based Video Call Station s in Southern California;

1.14.1 Electro Specialty Systems (ESS Systems) - Office (XXX)

1.14.2 Simplex Grinnell – George Honaker, (619) 249-5192, e-mail – ghonaker@simplexgrinnell.com

1.14.3 American Security Group – Preston Gregory, Office (760) 727-4020, Cell (760) 525-4899, e-mail – pgregory@amergroup.com

1.15 The Contractor shall show satisfactory evidence, upon request, that the supplier maintains a fully equipped service organization capable of furnishing adequate inspection and service to the system. The supplier shall maintain at this facility the necessary spare parts in the proper proportion as recommended by the manufacturer to maintain and service the equipment being supplied.

1.16 Electrical Component Standard: Provide work complying with applicable requirements of CEC with state amendments including, but not limited to:

1.16.1 Article 250, Grounding.
1.16.2 Article 300, Part A. Wiring Method.
1.16.3 Article 310, Conductors for General Wiring.
1.16.4 Article 725, Remote Control, Signaling Circuits.
1.16.5 Article 800, Communication Systems.

1.17 EIA Compliance: Comply with the following Electronics Industries Association Standards:

1.17.1 Sound Systems, EIA-160.
1.17.2 Loudspeakers, Dynamic Magnetic Structures, and Impedance, EIA-299-A.
1.17.3 Racks, Panels, and Associated Equipment, EIA-310-A.
1.17.4 Amplifiers for Sound Equipment, SE-101-A.
1.17.5 Speakers for Sound Equipment, SE-103

1.18 UL Compliance: Comply with requirements of UL 50. The communication system supplied shall be listed by Underwriter's Laboratories under UL Standard 1459. A copy of the UL listing card for the proposed system shall be included with the Contractor's submittal. The system shall also comply with PCC Part 68 Regulations.

1.19 Installation and start up of all systems shall be under the direct supervision of a local agency regularly engaged in installation, repair, and maintenance of such systems. The supplier shall be accredited by the proposed equipment manufacturers and be prepared to offer a service contract for system maintenance on completion of the guarantee period.

1.20 The agency providing equipment shall be responsible for providing all specified equipment and mentioned services for all equipment as specified herein. The agency must be a local authorized distributor of the specified equipment for single source of responsibility and shall provide documents proving such. The agency must provide written proof that the agency is adequately staffed with factory-trained technicians for the specified equipment.

1.21 The Contractor shall guarantee availability of local service by factory-trained personnel of all specified equipment from an authorized distributor of all equipment specified under this section. On-premises maintenance shall be provided at no cost to the purchaser for a period of two (2) years from date of installation unless damage or failure is caused by misuse, abuse, neglect, or accident.

1.22 Deliver products in factory containers. Store in clean, dry space in original containers. Protect products from fumes and construction traffic. Handle carefully to avoid damage.

1.23 The unit shall be warranted for a period of two (2) years. Reference manufacturer’s warranty for further details.

Support

1.24 Telephone Support: Free telephone support must be provided during normal business hours from the Manufacturer and Authorized Contractor.

Submittals

1.25 **Phase I Submittal** shall be made in electronic format within (20) working days after the award of the contract by the District. This submittal shall include the following:

1.25.1 Manufacturer’s authorization and Training Certifications required in the specifications for the Contractor and/or company personnel.

1.25.2 Complete Bill of Materials in Excel Spreadsheet format with bills of quantities, including all materials, components, devices, and equipment required for the work. The bills of quantities shall be tabulated respective of each and every system as specified, and shall contain the following information for each Section listed:

1.25.2.1 Description and quantity of each product.

1.25.2.2 Manufacturer's Name and Model Number.

1.25.2.3 Manufacturer's Specification Sheet or Cut Sheet.

1.25.3 Specification Item Number referenced for each required product or if not shown in the specifications, Drawing Detail Number being referenced. (ie; Spec. 28 23 05 Item 2.1 or DWG E4.15/#1, etc.)

1.25.4 Include with submittals all warranty information and a description of support and maintenance services to be provided. Also include all licenses and maintenance agreements required for continued operation of the equipment.

1.26 **Phase II Submittal** shall be provided within (20) working days after the approval of the Phase I submittals and prior to any fabrication or field conduit installations. All shop drawings shall be engineered in a CAD Software. Submission shall include electronic print copies to match the contract drawings, and Phase II submittals drawings shall include the following.

1.26.1 IP-Based Video Call Station elevations will be required to be provided including the position of all components on or near the Fence Gate or Designated Doorway.

1.26.2 Provide shop drawings showing all end device locations, local and site distribution cabling, power connections and operational diagrams.

1.27 Common submittal mistakes which will result in submittals being rejected:

1.27.1 Not including the qualifications of the installing Contractor Company and Contractor's Staff.

1.27.2 Not including all items listed in the above itemized description.

1.27.3 Including catalog cut sheets which have several items on a page, and not clearly identifying by highlighting, underlining or clouding the items to be reviewed (provided for the project) or crossing out the items which are not applicable.

1.27.4 Not including actual manufacturer's cut sheets or catalog information of proposed products.

1.27.5 Do not include multiple manufacturers for similar products and do not indicate "or approved equal" statements, or "to be determined later" statements. The products being submitted must be the products installed.

1.28 The Contractor shall make a written request directly to Johnson Consulting Engineers for electronic drawing files (CAD). As a part of the written request, please include the following information:

1.28.1 Clearly indicate Project Name and Client, Johnson Consulting Job Number (located in bottom left corner of JCE Engineering Stamp) and each drawing Sheet Number required (i.e., E1.1, E2.1, E4.1 etc.).

1.28.2 Identify the name, Company, Title, phone number, mailing address and e-mail address of the person to receive the files.

1.28.3 Detail or Riser diagram sheets, System Schematic drawings or any other drawings other than floor plans or site plans, will not be made available to the Contractor.

1.28.4 Files will only be provided in the AutoCAD format in which they were created (i.e., version 2019 or later). Files will not be made available in REVIT format.

1.28.5 Requests for files will be processed as soon as possible; a minimum of 7 working days should be the normal processing time. The Contractor shall be completely responsible for requesting the files in time for their use and delays in requesting files will not alleviate the Contractor from submitting required documents within the required timeline.

PART 2 PRODUCTS

IP-Based Video Call Station

2.1 **General Description**

2.1.1 Consist of an outdoor-rated vandal resistant ADA-compliant hands-free speakerphone communications device with a bonded marine-grade stainless steel faceplate, metal button, and IP camera;

2.1.1.1 Be full duplex in operation.

2.1.1.2 Be programmable from a remote location.

2.1.1.3 IP-Based Video Call Station shall be as manufactured by Talk-A-Phone (No Approved Equal).

2.1.1.4 Contractor shall provide in locations as shown in project drawings.

2.1.2 The phone faceplate shall:

2.1.2.1 Be constructed of an enhanced corrosion resistant 316 grade stainless steel base plate bonded with a:

2.1.2.2 Enhanced corrosion resistant #4 brushed 316 grade stainless steel signage plate.

2.1.2.3 Have a combined thickness of 0.086” (2.13mm)

2.1.2.4 Measure 4.0” W x 8.75” H.

2.1.3 The phone faceplate primary signage shall:

2.1.3.1 Be constructed of enhanced corrosion resistant 316 grade stainless steel with lettering and Braille raised for ADA compliance.

2.1.3.2 Lettering shall be raised no less than 0.03125”.

2.1.3.3 Braille shall be raised no less than 0.025”.

2.1.3.4 Read “CALL”.

2.1.3.5 Be printed red and have a UV-resistant finish.

2.1.4 The primary button shall:

2.1.4.1 Be a high quality 0.78" diameter push button (1.10" overall diameter) and switch in a single assembly.

2.1.4.2 The switch shall be mechanically rated to 50,000 cycles (typical).

2.1.4.3 Provide tactile feedback.

2.1.4.4 Have an operating temperature range of -40°F (-40°C) to +185°F (+85°C).

2.1.4.5 Have an enclosure design that is watertight as per IP67 rating.

2.1.4.6 Be constructed of an aluminum alloy, with a clear chromate finish.

2.1.4.7 Have a metal cap, painted red with a UV-resistant finish.

2.1.5 The phone shall have a 3mm diameter red light emitting diode (LED).

2.1.6 The speaker shall:

2.1.6.1 Be a 2.5" round, RoHS compliant, outdoor rated speaker.

2.1.6.2 Have an operating temperature range of -67°F (-55°C) to +185°F (+85°C).

2.1.6.3 Be capable of withstanding a total immersion for 96 hours and operating without any deterioration of sound quality.

2.1.6.4 Have a speaker cone constructed of a corrosion resistant material.

2.1.6.5 Be constructed of a neodymium magnet and a solid aluminum voice coil and shall be adequately protected from ferrous and non-ferrous particles via a sealed design.

2.1.7 The microphone shall:

2.1.7.1 Be a 6mm diameter, aluminum construction, RoHS compliant, outdoor rated microphone.

2.1.7.2 Have an IP57 type enclosure to protect from dust and water.

2.1.7.3 Have an operating temperature range of -40°F (-40°C) to +158°F (+70°C).

2.1.7.4 Operate within ±3db of initial sensitivity after being placed in a chamber at +40°C and 90±5% relative humidity for 240 hours. (Tested after 6 hours of conditioning at +25°C)

2.1.8 The IP camera shall:

2.1.8.1 Be ONVIF compliant.

2.1.8.2 Have a 2.43 Megapixel, 1/2.8" SONY Exmor CMOS sensor.

2.1.8.3 Have 2000 (W) x 1241 (H) active pixels.

2.1.8.4 Be capable of 0.1 lux @ f/2.0 minimum illumination.

2.1.8.5 Provide 30 frames-per-second (fps) continuous over MJPEG or H.264.

2.1.8.6 Utilize a 2.75mm focal length lens.

2.1.9 The phone shall weigh approximately 5 lbs.

2.1.10 The Surface Mount Backbox enclosure shall:

2.1.10.1 Measure 4.0" W x 8.75" H x 3.7" D.

2.1.10.2 Be constructed of Cold Rolled Steel (CRS).

2.1.10.3 Be painted black

2.1.10.4 Be provided with ¾" Pre-Cut Conduit Knock-Out Plug in Bottom of Backbox

2.2 AUDIO

2.2.1 The phone shall support full duplex audio using G.711, G.722, and G.729 compression.

2.2.2 The phone shall support acoustic echo cancellation.

2.2.3 The phone shall have adaptive jitter filter

2.3 FUNCTIONALITY

2.3.1 Web Server

2.3.1.1 The phone shall contain a built-in web server making configuration available to multiple clients in a standard operating system and browser environment using HTTP or HTTPS, without the need for additional software.

2.3.1.2 The web server shall require authentication with username and password.

2.3.2 IP Address

2.3.2.1 The phone shall support both fixed IP addresses and dynamically assigned IP addresses provided by a Dynamic Host Control Protocol (DHCP) server.

2.3.2.2 The phone shall support IPv4.

2.3.3 Voice over Internet Protocol (VoIP)

2.3.3.1 The phone shall be configurable with a SIP registrar. The registrar can be configured for:

2.3.3.1.1 SIP Username

2.3.3.1.2 SIP Password

2.3.3.1.3 SIP Registrar IP Address

2.3.4 Telephone Calls

2.3.4.1 The phone shall be programmable with up to six different telephone numbers for each of three telephone number lists.

2.3.4.2 If the first number does not answer or is busy, the phone shall automatically call the second number.

2.3.4.3 If the second number does not answer or is busy, the phone shall automatically call the third number.

2.3.4.4 The phone shall continue dialing in round robin fashion until the call is answered or the call conversation timer limit expires.

2.3.4.5 When the call is finished, the phone shall automatically terminate the call.

2.3.4.6 The phone shall be capable of auto answering any call placed to it from another telephone.

2.3.5 Hearing Impairment Aid (LED)

2.3.5.1 The LED shall flash when calling party has placed a call or when there is an incoming call.

2.3.5.2 The LED shall be illuminated when the remote attendant has answered the call.

2.3.6 Voice Messages

2.3.6.1 The phone shall be programmable with up to five unique voice messages.

2.3.6.2 The phone shall be capable of automatically notifying the remote attendant of the emergency phone location via a recorded message that plays at the beginning of the phone conversation.

2.3.6.3 The voice messages shall be configured as responses to event triggers.

2.3.7 Event Functionality

2.3.7.1 The phone shall be equipped with integrated event functionality which can be triggered by:

2.3.7.1.1 Call initiation

2.3.7.1.2 DTMF tone

2.3.7.1.3 Call termination

2.3.7.2 The responses to triggers shall include:

2.3.7.2.1 Activating the auxiliary output

2.3.7.2.2 Notification using TCP (ASCII format)

2.3.7.2.3 Activation of voice message

2.3.7.2.4 Event functions shall be configurable from the web interface.

2.3.8 Protocol Support

2.3.8.1 The phone shall incorporate support for at least IPv4, HTTPS, TCP, UDP, RTP, SIP, RTCP, and DHCP.

2.3.9 Installation and Maintenance

2.3.9.1 The phone shall incorporate remote automatic software (firmware) updates.

2.3.9.2 Customer-specific settings, including statically assigned IP address, the local time and date, event functionality, and audio configuration, shall be stored in non-volatile memory and shall not be lost during power cuts or soft reset.

2.4 INTERFACES

2.4.1 Inputs/Outputs

2.4.1.1 The phone shall be equipped with one Dry Contact Auxiliary Output. The Auxiliary Output Contact shall be used to make the connection to the Electric Strike at each Entry Gate where a IP-Based Video Call Station is installed. The Contact shall be used to release the Gate when activated by the User from the IP-Based Video Attendant Master Station.

2.4.1.2 The Contractor shall furnish and install the manufacturer recommended cable to the Electric Strike in the Gate. The connection shall be made at the Strike by the Division 8 Door Hardware Contractor. The Electric trike Hardware will be provided with a Buzzer to provide audio notification when the Gate Strike is released.

2.4.2 Network Interfaces

2.4.2.1 Each 220 Series Video Call Station requires (2) Category-6 Data Cable ports. One for the SIP Audio and One for the Video

2.4.2.2 The phone shall be equipped with two 10/100 Base-T Ethernet ports.

2.4.2.3 The second Ethernet port is designated a LAN port.

2.5 POWER REQUIREMENTS

2.5.1 The phone shall be powered by one of the following power sources:

2.5.1.1 Power over Ethernet according to IEEE802.3af – Class 0.

2.6 ENVIRONMENTAL

2.6.1 The phone shall:

2.6.1.1 Operate in a temperature range of -40°F (-40°C) to + 158°F (+70°C).

2.6.1.2 Operate in a humidity range up to 95% RH (non-condensing).

2.7 RELAY SETTING

2.7.1 Contractor shall coordinate with the Division 8 Door Hardware Contractor for activation and release of the Electric Strike on the Entry Gate where shown on the floor plans. The User in the Administrative Office shall have the ability to release the Gate upon use of a code or control on the IP-Based Video Attendant Master Station to allow access for the Person at the Gate. The Gate shall be allowed access for a set period of time, with enough time for the person or persons to open the gate and pass through it, then for the Electric Strike to re-engage and secure the Gate.

2.7.2 Remote Digit For Relay ON: Specify the digit entered during a conversation to activate the relay until a de-activation event occurs.

2.7.3 Remote Digit For Relay OFF: Specify the digit entered during a conversation to de-activate the relay.

2.7.4 Remote Digit For Timed Relay On: Specify the digit to turn ON the relay for a specific duration of time. When this digit will is pressed during a conversation, the replay will remain on for the duration of the time specified under the ‘Timed Relay Duration’ field.

2.7.5 Outgoing Call: Specify the relay state when the button is pressed. To activate the Talkaphone strobe light connected to the Auxiliary Output, set this value to ‘ON’.

2.7.6 Idle: Specify the relay state when the VOIP-220 returns to an idle state after the call terminates. To de-activatethe Talkaphone strobe light after the call is complete, set this value to ‘OFF’

2.8 Provide Talk-A-Phone Model VOIP-221C3 Series Surface Mounted IP-Based Video Call Station (Or Approved Equal)

IP-Based Video Attendant Master Station

2.9 General Description

2.9.1 Unit receives a basic pre-program to integrate easily with Talkaphone VOIP-220 series and includes technical support

2.9.2 Basic telephony features include: hold, transfer, call waiting and call history

2.9.3 Advanced telephony features (requires SIP-based PBX) include: forward, call park/pickup, 6-way audio conferencing, shared-call-appearance (SCA)/bridged-line-appearance (BLA), virtual MPK, boss-secretary virtual button, hot desking, flexible dial plan and server redundancy and failover

2.9.4 Also featured: flexible dial plan, personalized music ringtones, downloadable phonebook and personalized music ringtones

2.9.5 Supports up to 30 VOIP-220 Series IP Call Stations

2.10 Specifications

2.10.1 6-Line IP-Video Phone with Two Function Keys;Volume+/- and Three Dedicated Keys for “Home”, “Menu” and “Back”

2.10.2 Video Attendant Station creates a seamless integration between VOIP-220 Series Compact IP Call Stations and the attendant station. Multiple call stations can be connected to multiple master stations to create a robust access control system.

2.10.3 Contractor shall program the Master Station for activation and release of the Electric Strike on each of the Entry Gates shown on the floor plans. The User in the Administrative Office shall have the ability to release each Gate individually upon use of an individual code or control for each Gate on the IP-Based Video Attendant Master Station to allow access for the Person at the Gate. The Video Call Station Dry Contact shall release the Gate for a set period of time programmed into the Master Station Control. The code or control shall provide release of the Auxiliary Dry Contact for a minimum of 10 seconds, with enough time for the person or persons to open the gate and pass through it, then for the Electric Strike to re-engage and secure the Gate after the Person or Persons have passed through.

2.10.3.1 Adjust the time based on trial and error and input from the School Administration. Contractor shall provide 6-Man Hours for Service to provide adjustments to the Gate Operations and Control and Programming changes as required by the Client School for improved operation. Time does not include travel time to the School or additional parts. Travel Time and additional parts to the Door Release function shall be included as part of the Contractor’s bid

2.10.4 Display & Graphics:

2.10.4.1 Display Screen Type: 7" Touch Screen TFT LCD Display

2.10.4.2 Screen Resolution: 1024 x 600

2.10.4.3 Touchscreen: Yes

2.10.5 Input Voltage: 12 V DC or POE+ IEEE802.3at, Class 4

2.10.6 Additional Interfaces; RJ9 Headset Jack, 3.5mm Stereo Headset with Microphone, Dual USB Ports, SD, Mini-HDMI.

2.10.7 Network Interface; Dual switched 10/100/1000 Mbps Ports w/integrated POE

2.10.8 WiFi; Dual-Band 802.11a/b/g/n (2.1GHz & 5.0GHz)

2.10.9 Two-Year Limited Warranty

2.11 Provide Talk-A-Phone Model AVM-1 IP-Based Video Attendant Master Station (Or Approved Equal)

Training

2.12 **Contractor will provide a minimum of 4 clock hours of on-site training for site staff on the IP-Based Video Call Station Systems**. Training for personnel shall be provided by certified technology specialists. The scope of training shall encompass system operation and procedures. Technician training should include an integrated information overview, media retrieval procedures as well as operation procedures for local control configurations. The contractor shall provide a detailed written outline clearly describing the proposed plan for all training, for approval by the Engineer and Owner's representative.

2.12.1 Training for staff will include basic system concepts. Faculty and staff will need to know how to power on/off the system and how to operate both the Video Call Station and Master Attendant Console, in addition the Users shall be trained on how to release the Gates via remote control. Training should include use and operation of video devices and techniques and trouble-shooting tips. Trainers should incorporate hands-on techniques to maximize staff opportunity to incorporate and develop curriculum that is both meaningful and targeted for their student needs. Clearly written support materials should be provided to all training participants. Manual describing operation and use of the system shall also be provided.

Cable Requirements

2.13 The Contractor shall provide Category-6 UTP cables from the nearest MDF or IDF closet/cabinet to the new IP-Based Video Call Station or IP-Based Video Attendant Master Station location. All IP-Based Video Call Stations shall be by POE (Power-Over-Ethernet), so a separate power or control cable will not be required. IP-Based Video Attendant Master Station location shall be locally powered with the supplied 12VDC. All cables installed in underground conduit shall be outdoor rated for wet location installations. Provide cabling to the locations shown on the floor plans. All of the locations will require a junction box at the location for the cable termination. Refer to the floor plans for locations that require conduit by the Division 26 Contractor.

2.14 Each Talk-A-Phone 220-Series Video Call Station shall be provided with (2) Category-6 UTP Data cables/ports. Connect to the Vido Call Station per manufacturer's instructions.

2.15 Acceptable Cable Manufacturers are:

2.15.1 **LEVITON / BERK-TEK**

2.15.1.1 Installing Contractor must be LEVITON Network Solutions Premier certified to install this system.

2.15.2 **COMMSCOPE**

2.15.2.1 Installing contractor must be Commscope Certified to install this system.

2.15.2.2 Installing Contractor must be PartnerPro certified to install any of the systems under the Commscope Family of brand names

2.15.3 **Panduit/General Cable**

2.15.3.1 Installing Contractor must be PanGen certified to install this system.

2.15.4 Provide one Category-6, 4-pair unshielded twisted pair (UTP) cable from the nearest MDF or IDF location to each RJ45 data outlet port indicated on the drawings. Dual port outlets will require two such cables. Confirm color of cable jacket prior to ordering with the District IT Department. Contractor shall be responsible for providing the correct jacket color per the drawings per District Standards.

2.15.5 Where data cables are indicated to run underground, Contractor shall use a Category-6 OSP-rated cable.

2.15.6 Where open wiring cables are run through the ceiling space (only permitted where specifically noted on the drawings), the wire shall be bundled together and supported above the ceiling.

2.15.7 Where cables pass through a fire-resistant portion of the structure, conduit sleeves shall be provided to maintain the rating of the wall penetrated. Sealing of all penetrations with an approved fire barrier is required. Conduits and sleeves must remain accessible for future use. Permanent sealants may not be used to seal sleeves and conduits.

2.15.8 The minimum bending radius for all cables and the maximum pulling tension shall not exceed manufacturer's recommendations.

2.15.9 Terminate all Cat-6 UTP cable in the IDF/MDF closet on the existing data patch panels if there is sufficient space available or provide a new 24-Port Category-6 UTP patch panel to terminate the new data drops. New patch panels provided must be a minimum of 24 ports.

2.15.10 All 24-Port patch panels shall be the modular type using the same inserts as used at the Data Outlet location. Provide 24-port patch panel shall be provided fully loaded. The color of the remainder of inserts shall be determined by the District IT Department. Each patch panel port shall be labeled on the front of the panel to indicate which locations are for the IP-Based Video Call Station System.

2.15.11 Each IP-Based Video Call Station location shall be provided with (1) Category-6 UTP cable, from the MDF or IDF closet/cabinet location. The Contractor shall

terminate the data cable at the Call Station as shown in the Detail Drawings. Cable shall be terminated inside the Call Station's Backbox unless otherwise noted.

2.15.12 Each IP-Based Video Attendant Master Station location at each School shall be provided with (2) Category-6 UTP cables, from the MDF or IDF closet/cabinet location. The Contractor shall connect (1) of the UTP cables to the Master Station and the other cable shall be provided as a spare. The spare cable shall be stored in the accessible ceiling space, or in the event of a hard lid ceiling or other non-accessible location the cable shall be stored where deemed possible in the field.

2.15.12.1 Contractor may use an existing open data port at the Administrative Reception Desk location or at the location designated on the drawings. The existing data infrastructure cabling must be a minimum of Category-6 Rated. No spare port is required when using existing infrastructure cabling.

Copper Patch Cords

2.16 Copper patch cords shall be furnished and installed by the Contractor.

2.17 Category-6 patch cables installed at the MDF/IDF location (patch panel end) shall match the color of the outlet inserts on the patch panel and faceplate. The patch cables will be provided in 4-foot lengths for standard installations. Provide Patch Cables from the Approved Manufacturers in 2.12.

2.18 Category-6 patch cables installed at the workstation (outlet) location shall match the color of the outlet inserts on the faceplate. The patch cables will be provided in 12-foot lengths for standard installations. Provide Patch Cables from the Approved Manufacturers in 2.12.

2.19 Category-6 patch cables installed at the IP-Based Video Call Station locations shall (1) feet in length, color as required. The patch cables will be provided for installation within the Call Station Backbox. Provide Patch Cables from the Approved Manufacturers in 2.12.

PART 3 EXECUTION

3.1 All loudspeaker circuits and communication circuits shall operate balanced to ground.

3.2 Circuits shall be grounded as recommended by manufacturer or equipment to which they are connected unless otherwise specified.

3.3 All wiring shall test free of grounds and shorts.

3.4 All wiring for the complete system shall be new wire. Any wires pulled through in underground junction boxes shall be continuous with no splices in these boxes. The wiring shall be intact without cuts in the protective outer jacket.

3.5 All data cabling will be provided and installed by the 28 23 05 Contractor. Ethernet switches in the MDF/IDF locations shall be furnished and installed by the District IT Department. Connect the VOIP communications device to the Ethernet switch. Provide all Category-6 UTP patch cables to the Ethernet switch. Coordinate installation with the 26 00 00 Contractor.

3.6 All materials shall be delivered to the site in unbroken packages. Packages shall be inspected and approved by the District Inspector before opening.

3.7 Contractor shall submit shop drawings to the Project Engineer.

General Performance Requirements

3.8 Reproduction of speech shall be clear, high fidelity, and with all frequencies within range of system faithfully reproduced with no detectable noise, hum, or distortion.

3.9 Audio level of telephone intercommunication system shall be attained at sound levels sufficient to override noise levels typical for schools and traffic areas, to provide a thoroughly satisfactory and serviceable system. The Contractor shall adjust the speaker levels at all locations to provide optimal sound pressure levels and clarity.

Inspection and Test upon Completion

3.10 Check out and final connections to the system shall be made by a factory-trained technician in the employ of a Contractor. In addition, factory-trained technicians shall demonstrate operation of the complete system and each major component to the District.

3.11 All materials and installation shall be guaranteed to be free of defects in material and workmanship for two years after final acceptance of installation and test.

3.12 Upon completion of the installation, four (4) copies of complete operational instructions shall be furnished, complete with record drawings. Instructions shall include part numbers and names, addresses, and telephone numbers of parts source. Final payment shall not be made until operational and maintenance manuals have been received.

3.13 Upon completion of the installation of the equipment, Contractor shall provide to the District a signed statement from the equipment manufacturer that the system has been tested and functions properly according to the specifications.

Operation and Training

3.14 Contractor will provide a minimum of 4 clock hours of on-site training for site Technical and Administrative Staff on the IP-Based Video Call Station Systems. Training for personnel shall be provided by certified technology specialists. The scope of training shall encompass system operation and procedures. Technician training should include an integrated information overview, media retrieval procedures as well as operation procedures for local control configurations. The Contractor shall provide a detailed written outline clearly describing the proposed plan for all training, for approval by the Engineer and Owner's representative. Contractor shall submit at training schedule to the District to coordinate which District Technical staff shall be trained.

3.15 Warranty service calls made by telephone to this Contractor or his designated representative shall hereby be defined as proper notification that warranty service is required.

PART 4 RECORD DRAWINGS

4.1 The contractor shall maintain record drawings as specified in accordance with these specifications, and as noted below.

4.2 Drawings shall show locations of all concealed and exposed conduit runs, giving the number and size of conduit and all cabling. Underground ducts shall be shown with cross section elevations and shall be dimensioned in relation to permanent structures to indicate their exact location. Drawing changes shall not be identified only with referencing CORs and RFIs, the drawings shall reflect all the actual changes made.

4.3 Final As-Built Drawing Submittals - Provide (1) hard bound copy of “E-size” As-Built drawings and (3) copies on USB Flash Drive in AutoCAD (2019 or newer version) format. A Hand marked-up copy of the original construction drawings will not be accepted as the final As-Built drawing submittal. Final As-Builts shall include copies of the floor plan and site plan drawings, detailed elevations of IP-Based Video Call Station System equipment installations, quantities of locations, locations of all System Devices, and identification of all final cable routes.

END OF SECTION

SECTION 31 2323
FILL

PART 1 GENERAL

1.01 SECTION INCLUDES

A. Filling, backfilling, and compacting for building volume below grade, footings, slabs-on-grade, paving, and utilities within the building.

B. Backfilling and compacting for utilities outside the building to utility main connections.

C. Filling holes, pits, and excavations generated as a result of removal (demolition) operations.

1.02 RELATED REQUIREMENTS

A. Section 31 2200 - Grading: Removal and handling of soil to be re-used.

B. Section 31 2200 - Grading: Site grading.

C. Section 31 2316 - Excavation: Removal and handling of soil to be re-used.

D. Section 31 2316.13 - Trenching: Excavating for utility trenches outside the building to utility main connections.

1.03 REFERENCE STANDARDS

A. AASHTO T 180 - Standard Specification for Moisture-Density Relations of Soils Using a 4.54 kg (10-lb) Rammer and a 457 mm (18 in.) Drop; 2010.

B. ASTM D698 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft3 (600 kN-m/m3)); 2012.

C. ASTM D1556/D1556M - Standard Test Method for Density and Unit Weight of Soil in Place by Sand-Cone Method; 2015, with Editorial Revision (2016).

D. ASTM D1557 - Standard Test Methods for Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/ft3 (2,700 kN m/m3)); 2012.

E. ASTM D2167 - Standard Test Method for Density and Unit Weight of Soil in Place by the Rubber Balloon Method; 2008.

F. ASTM D2487 - Standard Practice for Classification of Soils for Engineering Purposes (Unified Soil Classification System); 2011.

G. ASTM D3017 - Standard Test Method for Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth); 2005.

1.04 DEFINITIONS

A. Finish Grade Elevations: Indicated on drawings.

B. Subgrade Elevations: As indicated on drawings and/or as determined by paving or slab sections.

1.05 SUBMITTALS

A. See Section 01 3010 - Submittals, for submittal procedures.

B. Fill Composition Test Reports: Results of laboratory tests on proposed and actual materials used.

C. Compaction Density Test Reports.

1.06 DELIVERY, STORAGE, AND HANDLING

A. When necessary, store materials on site in advance of need as indicated in Contractor's approved logistics plan.

B. When fill materials need to be stored on site, locate stockpiles where indicated.
   1. Separate differing materials with dividers or stockpile separately to prevent intermixing.
   2. Prevent contamination.
   3. Protect stockpiles from erosion and deterioration of materials.

C. Verify that survey bench marks and intended elevations for the Work are as indicated.

PART 2 PRODUCTS

2.01 FILL MATERIALS

A. General Fill: Subsoil excavated on-site.
   1. Graded.
   2. Clean deposits free of roots, stumps, vegetation, deleterious matter, trash, debris, and unsuitable materials as approved in the field by the project geotechnical consultant.

B. Concrete for Fill: Lean concrete.

C. Granular Fill: Coarse aggregate, conforming to State of California Public Works Department standard.

D. Topsoil: Topsoil excavated on-site, or imported.
   1. Graded.
   2. Free of roots, rocks larger than 1 inch, subsoil, debris, large weeds and foreign matter.

E. Bedding Material: Bedding material shall be sand, gravel, crushed aggregate or approved native material. Bedding material shall have a sand equivalent of not less than 30 or have a coefficient of permeability greater than 0.001 centimeters per second. Bedding material shall be sized within the following range:
   1. 3/4" Sieve: 100 percent passing.
   2. No. 4 Sieve: 35 to 65 percent passing.
   3. No. 200 Sieve: 0 to 10 percent passing.

2.02 SOURCE QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for testing and analysis of soil material.

B. Where fill materials are specified by reference to a specific standard, test and analyze samples for compliance before delivery to site.

C. If tests indicate materials do not meet specified requirements, change material and retest.

PART 3 EXECUTION

3.01 EXAMINATION

A. Identify required lines, levels, contours, and datum locations.

B. See Section 31 2200 for additional requirements.

C. Verify subdrainage, dampproofing, or waterproofing installation has been inspected.

D. Verify areas to be filled are not compromised with surface or ground water.

3.02 PREPARATION

A. Scarify and proof roll subgrade surface to a depth of 6 inches to identify soft spots.

B. Cut out soft areas of subgrade not capable of compaction in place. Backfill with general fill.

C. Compact subgrade to density equal to or greater than requirements for subsequent fill material.

D. Until ready to fill, maintain excavations and prevent loose soil from falling into excavation.

3.03 FILLING

A. Fill to contours and elevations indicated using specified materials.

B. Fill up to subgrade elevations unless otherwise indicated.

C. Employ a placement method that does not disturb or damage other work.

D. Systematically fill to allow maximum time for natural settlement. Do not fill over porous, wet, frozen or spongy subgrade surfaces.

E. Maintain optimum moisture content of fill materials to attain required compaction density.

F. Granular Fill: Place and compact materials in equal continuous layers not exceeding 6 inches compacted depth.

G. Slope grade away from building minimum 2 inches in 10 ft , unless noted otherwise. Make gradual grade changes. Blend slope into level areas.

H. Correct areas that are over-excavated.
   1. Load-bearing foundation surfaces: Fill with concrete.
   2. Other areas: Use general fill, flush to required elevation, compacted to minimum 95 percent of maximum dry density.

I. Compaction Density Unless Otherwise Specified or Indicated:
   1. Under paving, slabs-on-grade, _____, and similar construction: 95 percent of maximum dry density.
   2. At other locations: 90 percent of maximum dry density.

J. Reshape and re-compact fills subjected to vehicular traffic.

K. Maintain temporary means and methods, as required, to remove all water while fill is being placed as required, or until directed by the Architect. Remove and replace soils deemed unsuitable by classification and which are excessively moist due to lack of dewatering or surface water control.

3.04 TOLERANCES

A. Top Surface of General Filling: Plus or minus 1 inch from required elevations.

B. Top Surface of Filling Under Paved Areas: Plus or minus 1/2 inch from required elevations.

3.05 FIELD QUALITY CONTROL

A. See Section 01 4000 - Quality Requirements, for general requirements for field inspection and testing.

B. Evaluate results in relation to compaction curve determined by testing uncompacted material in accordance with AASHTO T 180, ASTM D 1557 ("modified Proctor"), or ASTM D 698 ("standard Proctor").

C. If tests indicate work does not meet specified requirements, remove work, replace and retest.

3.06 CLEANING

A. Remove unused stockpiled materials, leave area in a clean and neat condition. Grade stockpile area to prevent standing surface water.

END OF SECTION