



TETER
ARCHITECTS ENGINEERS CONNECTED

-

PROJECT MANUAL

CONTRACTUAL – LEGAL REQUIREMENTS
TECHNICAL SPECIFICATIONS

FOR

LODI UNIFIED SCHOOL DISTRICT TRANSPORTATION YARD – DRIVEWAY REPLACEMENT

-

Project No.: 26-13691
Client Bid No.: 0897-8097-960-52

SECTION 000107
SEALS PAGE



Project Architect
Jamie E. Hickman
Teter, Inc.
7535 North Palm Ave., Suite 201
Fresno, California 93711
Phone: (559) 437-0887
Fax: (559) 438-7554



Civil Engineer
Christopher Vanderveen
Northstar Engineering Group, Inc.
620 12th Street
Modesto, CA 95354
Phone: 209-524-3525

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END OF SECTION

SECTION 011100
SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Phased construction.
4. Access to site.
5. Coordination with occupants.
6. Work restrictions.
7. Specification and drawing conventions.
8. Preliminary Project Schedule.

- B. Related Sections:

1. Division 01 Section "Temporary Facilities and Controls" for limitations and procedures governing temporary use of Owner's facilities.

1.3 PROJECT INFORMATION

- A. Project Identification:

Lodi Unified School District – Transportation Yard Driveway Replacement
820 Cluff Avenue
Lodi, CA 95240

Architect's Project Number: 26-13697

Owner's Project Number: 0897-8097-960-52

- B. Owner:

Lodi Unified School District

Telephone: 209-331-7035

Contact: Desiree Wise

C. Architect:

TETER, Inc.
7535 North Palm Avenue, Suite 201
Fresno, California 93711

Telephone 559.437.0887
Contact: Jamie E. Hickman

1.4 WORK COVERED BY CONTRACT DOCUMENTS

- A. The Work of the Project is defined by the Contract Documents and consists of the following:
1. Scope of Work shall consist of the demolition, removal, and replacement of the existing driveways along Cluff Avenue and existing surrounding site features. Site improvements include installation of new AC Paving, Concrete Paved Walks, Concrete Curbs, Concrete gutters, Gate Sensor loop, and landscape and irrigation improvements as required for the installation of new work.
 2. Contractor Scope includes but is not limited to:
 - a. Construction Staking and Layout
 - b. City of Lodi Encroachment Permit and Approvals
 - c. Traffic Controls along Cluff Avenue
 - d. Ground Penetrating Radar Survey to be completed prior to commencement of any demolition work.
- B. Type of Contract: Project will be constructed under a single prime contract.

1.5 PHASED CONSTRUCTION

- A. The Work shall be conducted in <2> phases, with each phase substantially complete as indicated:
1. Phase <1>: Scope of work includes the completion of the Northwest Driveway on Cluff Avenue. Contractor shall replace existing non-ADA compliant driveway. Provide temporary fencing with windscreen around area of work to minimize disruption to existing parking lot. Contractor to coordinate with City of Lodi for all necessary approvals, traffic controls, and permits.
 2. Phase <2>: Scope of work includes the completion of the Southwest Driveway on Cluff Avenue. Contractor shall replace existing non-ADA compliant driveway. Provide temporary fencing with windscreen around area of work to minimize disruption to existing parking lot. Contractor to coordinate with City of Lodi for all necessary approvals, traffic controls, and permits.
- B. Before commencing Work of each phase, submit an updated copy of the Contractor's construction schedule showing the sequence, commencement and completion dates for all phases of the Work.

1.6 CONTRACTOR'S USE OF SITE AND PREMISES

- A. Limits on Use of Site: Limit use of Project site to the Project area indicated and site areas allowed for Contractor's use. Do not disturb portions of Project site beyond areas in which the Work is indicated.
 - 1. Driveways, Walkways and Entrances: Keep driveways, loading areas, and entrances serving premises clear and available to Owner, Owner's employees, and emergency vehicles at all times. Do not use these areas for parking or storage of materials.
 - a. Schedule deliveries to minimize use of driveways and entrances by construction operations.
 - b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.7 COORDINATION WITH OCCUPANTS

- A. Full Owner Occupancy: Owner will occupy site and existing adjacent building(s) during entire construction period. Cooperate with Owner during construction operations to minimize conflicts and facilitate Owner usage. Perform the Work so as not to interfere with Owner's day-to-day operations. Maintain existing exits unless otherwise indicated.
 - 1. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from Owner and approval of authorities having jurisdiction.
 - 2. Notify the Owner not less than [72] <Insert number> hours in advance of activities that will affect Owner's operations.

1.8 WORK RESTRICTIONS

- A. Work Restrictions, General: Comply with restrictions on construction operations.
 - 1. Comply with limitations on use of public streets and other requirements of authorities having jurisdiction.
- B. On-Site Work Hours: Limit work to between 7:00 a.m. to 5:00 p.m., Monday through Friday, unless otherwise indicated. Work hours may be modified to meet Project requirements if approved by Owner and authorities having jurisdiction.
 - 1. Submit a written request to the Architect for work hours outside of the indicted on-site hours; request subject to review by the Owner.
- C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:

1. Notify Architect and Owner not less than 2 days in advance of proposed utility interruptions.
 2. Obtain Architect's and Owner's written permission before proceeding with utility interruptions.
- D. Noise, Vibration, and Odors: Coordinate operations that may result in high levels of noise and vibration, odors, or other disruption to Owner occupancy with Owner.
1. Notify Architect and Owner not less than 2 days in advance of proposed disruptive operations.
 2. Obtain Architect's and Owner's written permission before proceeding with disruptive operations.
- E. Smoking and Controlled Substance Restrictions: Use of tobacco products, alcoholic beverages, and other controlled substances on Project site is not permitted.
- F. Employee Screening: Comply with Owner's requirements for drug and background screening of Contractor personnel working on Project site.
1. Maintain list of approved screened personnel with Owner's representative.

1.9 SPECIFICATION AND DRAWING CONVENTIONS

- A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
 2. Specification requirements shall be complied with by Contractor unless specifically stated otherwise.
- B. Division 00 Contracting Requirements: General provisions of the Contract, including General and Supplementary Conditions, apply to all Sections of the Specifications.
- C. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.
1. Where conflicts occur between Division 00 Contracting Requirements and Division 01 General Requirements, the most restrictive requirements shall apply; Architect shall make the final decision on which requirement(s) apply.
- D. Drawing and Specification Coordination:
1. Requirements for materials and products identified on Drawings are described in detail in the Specifications unless materials and products are described in detail on the Drawings.
 2. Generic terms are used to identify materials and products on the Drawings.

3. Specifications establish minimum quality standards for products, materials, and installation requirements unless more stringent requirements are indicated on the Drawings; Drawings establish material and product location and quantity.
4. Where requirements for materials and products indicated on the Drawings are not specified, provide heavy duty commercial grade products and materials.

1.10 MISCELLANEOUS PROVISIONS

1.11 PRELIMINARY PROJECT SCHEDULE

- A. The Preliminary Project Schedule is provided for Bidder's convenience and does not affect Contract Time requirements.

1.	Solicit Bids from Qualified Contractor	September 22, 2026
2.	Mandatory Prebid Job Walk	October 1, 2026 @ 2:00 PM
3.	Last day for submission for RFI	October 6, 2026 @ 12:00 PM
4.	Last Addenda Issuance	October 9, 2026 @ 2:00 PM
5.	Bid Opening	October 14, 2026 @ 1:00 PM
6.	Estimated Notice of Award/Board Meeting	October 23, 2026
7.	Notice to Proceed	October 30, 2026
8.	On Site Construction Commences	November 09, 2026
9.	Construction Completion	December 18, 2026

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 011103
ADDENDA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative requirements for Addenda issued prior to bid opening.
- B. Related Requirements:
 - 1. Division 00 Sections as applicable to contract requirements and modifications.
 - 2. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 3. Division 01 Section "Contract Modification Procedures" for changes to the Contract Documents after award of the Contract.

1.3 NOTICE TO BIDDERS

- A. Addenda will be issued to registered plan holders for changes to the drawings and specifications during the bidding period prior to the bid opening. Addenda shall serve to clarify, revise, and supersede information in the Project Manual, Drawings, and previously issued Addenda. Portions of the Addenda affecting the Contract Documents will be incorporated into the Contract by enumeration of the Addendum in the Owner/Contractor Agreement.
- B. The Bidder shall acknowledge receipt of this Addendum in the appropriate space on the Bid Form.

1.4 GOVERNING AGENCY REVIEW AND APPROVAL

- A. Addenda shall be submitted to the Authority having Jurisdiction (AHJ) by the project Architect and shall be approved by the AHJ in order to be officially incorporated into the construction documents.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 011105
USE OF ARCHITECT'S ELECTRONIC FILES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes Administrative and procedural requirements for use of Architect's electronic Contract Document drawing files.
- B. Related Sections:
 - 1. Division 01 Section "Project Management and Coordination."
 - 2. Division 01 Section "Submittal Procedures."
 - 3. Division 01 Section "Project Record Drawings."

1.3 USE OF ARCHITECT'S ELECTRONIC FILES

- A. Architect may make available to Contractor digital data files of Architect's Drawings for use in preparing shop drawings, coordination drawings, and project record drawings.
 - 1. Electronic files will be available without charge.
 - 2. Architect makes no representations as to the accuracy or completeness of digital data files as they relate to Drawings.
 - 3. Files will be supplied digitally via email or FTP site and will be in PDF, DWG, or similar common format.
 - 4. Waiver of Liability: Contractor, Subcontractors, and Suppliers of this Project shall each execute a waiver of liability for each use of the Architects electronic files.
 - a. Waiver of Liability form shall be submitted to the Architect at the time or request for use of Architect's electronic data files.
 - b. Waiver of Liability form shall be the "ELECTRONIC DATA FILE DISTRIBUTION WAIVER OF LIABILITY FORM" included at the end of this Specification Section.
 - c. The use of the electronic files shall only be used for this Project and for the identified purposes noted in the Waiver of Liability form.
 - 1) Each entity shall be responsible for complying with the restrictions of the Liability Waiver form.
 - 2) Electronic Contract Document drawing files received from the architect shall not be duplicated without written permission of the Architect.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

(Electronic Data File Distribution Waiver of Liability included on the following page)



TETER
ARCHITECTS ENGINEERS CONNECTED

ELECTRONIC DATA FILE DISTRIBUTION WAIVER OF LIABILITY

TETER

7535 North Palm, Suite 201
Fresno, California 93711

Project: _____

Intended Use: _____

Requested Documents: _____

Any electronic data, files or information provided under this Agreement are the property of the above listed Professionals and consultants (Team). It is understood and agreed that the information contained in these electronic data file shall not be copied or duplicated for any use other than the project for which they were created. It is understood by the undersigned that compatibility of this electronic media with other systems is not guaranteed, and conversion to other systems is done at the user's own risk.

The user hereby agrees and recognizes that designs, plans and data stored on electronic media including, but not limited to, computer disk and magnetic tape, may be subject to undetectable alteration and/or uncontrollable deterioration. It is agreed by the undersigned that the Team shall not be liable for the completeness or accuracy of any material provided on electronic media.

The undersigned agrees to defend, hold harmless and indemnify the Team and its officers, directors, employees, agents and consultants for any and all claims, losses, costs or damage whatsoever arising out of, resulting from, or in any way related to the use of electronic data files provided hereunder, whether that use is authorized or unauthorized. The user further agrees to defend, indemnify and hold harmless the Team its officers, directors, employees, agents and consultants from any and all claims, damages, losses, expenses and injuries arising out of the modification of the electronic data files by the user or by anyone obtaining said files through or from the user.

The Team bears no responsibility for the information in the electronic data files once it leaves the offices of **TETER**. The undersigned understands that the electronic data files are subject to applicable copyright laws of the United States and agrees to be bound by same. Upon our receipt of this agreement duly executed by an Officer of your firm you may request the Data files.

Name (Print/Sign): _____ Date: _____

Firm: _____

Phone and email: _____

Name (Print/Sign): _____ Date: _____

Firm: _____

Phone and email: _____

Name (Print/Sign): _____ Date: _____

Firm: _____

Phone and email: _____

SECTION 012500
SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for substitutions.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for changes to AHJ approved Construction Documents."
 - 2. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.
 - 3. Divisions 02 through 33 Sections for specific requirements and limitations for substitutions.

1.3 DEFINITIONS

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

SUBMITTALS

- A. Substitution Requests: Submit documentation identifying product or fabrication or installation method to be replaced. Include Specification Section number and title, and Drawing numbers and titles.
1. Substitution Request Form: Use form provided at the end of this Section.
 2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:
 - a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
 - b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors that will be necessary to accommodate proposed substitution.
 - c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
 - d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
 - e. Samples, where applicable or requested.
 - f. Certificates and qualification data, where applicable or requested.
 - g. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners.
 - h. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.
 - i. Research reports evidencing compliance with building code in effect for Project, from ICC-ES.
 - j. Detailed comparison of Contractor's construction schedule using proposed substitution with products specified for the Work, including effect on the overall Contract Time. If specified product or method of construction cannot be provided within the Contract Time, include letter from manufacturer, on manufacturer's letterhead, stating date of receipt of purchase order, lack of availability, or delays in delivery.
 - k. Cost information, including a proposal of change, if any, in the Contract Sum.
 - l. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
 - m. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.
 3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within 7 days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution

within 15 days of receipt of request, or 7 days of receipt of additional information or documentation, whichever is later. Architect will not act on any Post-Bid Substitutions until 7 days following the submission of the Schedule of Values per Division 01 Section "Payment Procedures."

a. Forms of Acceptance:

- 1) Substitutions Prior to Bid: Addenda will be issued for substitutions accepted prior to bid.
- 2) Substitutions After Award of Contract: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.

b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.5 QUALITY ASSURANCE

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

1.6 PROCEDURES

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

1.7 SUBSTITUTIONS

- A. Substitutions Prior to Bid: Architect will consider requests for substitution if received within 21 days prior to the submission of bids. Requests received after that time may be considered or rejected at discretion of Architect.

1. Conditions: Architect will consider bidder's request for substitution when the following conditions are satisfied.

- a. Substitutions prior to bid shall also be subject to the requirements of applicable Division 00 Specification Sections.
- b. Substitutions prior to bid shall comply with the requirements for Substitutions for Cause or Substitutions for Convenience as applicable.

2. Substitutions requested by bidders during the bidding period, and accepted by Addendum prior to award of the Contract, are considered as included in the Contract Documents.

- B. Substitutions After Award of Contract: The Contractor after award of the Contract, as allowed by the General Conditions, may submit materials and methods to be considered for substitutions.

1. The following are not considered to be substitutions:
 - a. Revisions to the Contract Documents requested by the Owner or Architect.
 - b. Specified options of products and construction methods included in the Contract Documents.
 - c. The Contractor's compliance with governing regulations and orders issued by governing authorities.
- C. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change, but not later than 21 days prior to time required for preparation and review of related submittals.
 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
 - b. Substitution request is fully documented and properly submitted.
 - c. Requested substitution will not adversely affect Contractor's construction schedule.
 - d. Requested substitution has received necessary approvals of authorities having jurisdiction.
 - e. Requested substitution is compatible with other portions of the Work.
 - f. Requested substitution has been coordinated with other portions of the Work.
 - g. Requested substitution provides specified warranty.
 - h. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.
- D. Substitutions for Convenience: Architect will consider requests for substitution if received within 60 days after the Notice to Proceed. Requests received after that time may be considered or rejected at discretion of Architect.
 1. Conditions: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:
 - a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
 - b. Requested substitution does not require extensive revisions to the Contract Documents.
 - c. Requested substitution is consistent with the Contract Documents and will produce indicated results.

- d. Substitution request is fully documented and properly submitted.
- e. Requested substitution will not adversely affect Contractor's construction schedule.
- f. Requested substitution has received necessary approvals of authorities having jurisdiction.
- g. Requested substitution is compatible with other portions of the Work.
- h. Requested substitution has been coordinated with other portions of the Work.
- i. Requested substitution provides specified warranty.
- j. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

(Substitution Request Form included on the following page)



Substitution Request Form

Corporate Headquarters
7535 N. Palm Ave. #201
Fresno, CA 93711

559.437.0887 T

559.438.7554 F

teterae.com

FOR: (Project Title)

We hereby submit for your consideration the following product instead of the specified item for the above project:

SECTION	PARAGRAPH	SPECIFIED ITEM
_____	_____	_____

Proposed Substitution: _____

Attach complete technical data, including laboratory tests, if applicable.

Include complete information on changes to Drawings and/or Specifications which proposed substitution will require for its proposed installation.

Fill in the blanks below:

- A. Does the substitution affect dimension on Drawings:

- B. Will the undersigned pay for changes to the building design, including engineering and detailing costs caused by the requested substitution?

- C. What affect does substitution have on other trades?

- D. Difference between proposed substitution and specified item?

- E. Manufacturer's guarantees of the proposed and specified items are:
_____ Same _____ Different (explain on attachment)
- F. Cost difference between proposed substitution and specified item - savings to Owner?

The undersigned states that the function, appearance and quality are equivalent or superior to the specified item and will be at no additional cost to the Owner.

Submitted to the Architect by:

Signature: _____

Firm: _____

Address: _____

Date: _____

Telephone: _____

Remarks: _____

For Use by Design Consultant

Accepted _____

Accepted as Noted _____

Not Accepted _____

Received Too Late _____

By: _____

Date: _____

SECTION 012600
CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for handling and processing Contract modifications including the following:
 - 1. Governing Agency approval.
 - 2. Bulletins.
 - 3. Architect's Supplemental Instructions.
 - 4. Architect's Change Directive.
 - 5. Requests for Proposals.
 - 6. Change Order Requests.
 - 7. Cost Change Directives.
 - 8. Change Orders.
 - 9. Weather related delays.
- B. Related Requirements:
 - 1. Division 00 Sections as applicable to contract requirements and modifications.
 - 2. Division 01 Section "Substitution Procedures" for administrative procedures for handling requests for substitutions made after the Contract award.
 - 3. Division 01 Section "Construction Progress Documentation" for contractor's construction schedule.

1.3 DEFINITIONS

- A. Contract Modification: A change to the Contract Agreement between the Owner and the Contractor affecting the Contract Documents, the Contract Time, and/or the Contract Amount.

1.4 GOVERNING AGENCY APPROVAL

1.5 BULLETINS

- A. Bulletins: A form used by the Architect for issuing Architect's Supplemental Instructions (ASI), Architect's Change Directives (ACD), and Requests for Proposals (RFP).

1.6 ARCHITECT'S SUPPLEMENTAL INSTRUCTION

- A. Architect's Supplemental Instruction (ASI): Supplemental instructions will be issued by the Architect authorizing minor changes in the Work not involving adjustment to the Contract Sum or the Contract Time.
 - 1. Architect's Supplemental Instructions will be issued via Bulletin and signed by the Architect.
 - 2. Contractor's Response: Contractor shall perform the work indicated in the Architect's Supplemental Instruction without adjustment to the Contract Sum or the Contract Time. If the Contractor determines that an adjustment to the Contract Sum or the Contract Time is necessary due to the Architect's Supplemental Instruction, the Contractor shall respond to the Architect's Supplemental Instruction as if it were an Architect/Owner initiated Request for Proposal.
- B. DSA Review and Approval: Architect's Supplemental Instructions affecting changes to the DSA Approved Construction Documents shall be subject to DSA review and approval; Architect shall submit applicable DSA CCD documentation to DSA for approval.

1.7 ARCHITECT'S CHANGE DIRECTIVE

- A. Architect's Change Directive (ACD): Architect's Change Directives will be issued by the Architect instructing the Contractor to proceed with a change in the Work for subsequent inclusion in a Change Order.
 - 1. Architect's Change Directives will be issued via Bulletin and signed by the Architect.
 - 2. Architect's Change Directives contain a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.
- B. Documentation by Contractor: Maintain detailed records on a time and material basis of work required by the Architect's Change Directive.
 - 1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

1.8 REQUEST FOR PROPOSALS

- A. Requests for Proposals: Requests for Proposals are Architect/Owner initiated requests for estimates of changes to the Contract Sum and/or Contract Time for proposed changes; Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time. The description may include supplemental or revised Drawings and Specifications.
 - 1. Requests for Proposals will be issued by the Architect via Bulletin.

2. Requests for Proposals are not authorization or instructions to either stop work in progress or execute proposed change(s).
 3. Contractor's Response: Within not more than 7 days after receipt of Request for Proposal, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
 - a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 - b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 - c. Include costs of labor and supervision directly attributable to the change.
 - d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
 - e. Quotation Form: Use forms acceptable to Architect.
- B. Architect's Response: Within 7 days after receipt of Contractor's response to Architect/Owner initiated Request for Proposal, Architect will:
1. Issue a Change Order or Cost Change Directive for accepted proposals.
 2. Notify the Contractor of unaccepted proposals.
 3. Issue an Architect's Change Directive where changes are necessary for the progress of the Work and changes to the Contract Sum and the Contract Time are in dispute.

1.9 CHANGE ORDER REQUEST

- A. Change Order Request (COR): Change Order Requests are documents initiated by the Contractor requesting a Contract Modification due to unforeseen conditions, or latent or changed conditions.
1. Change Order Request Form: Use form acceptable to Architect.
 2. Include a statement outlining reasons for the Change Order Request and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
 3. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
 4. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
 5. Include costs of labor and supervision directly attributable to the change.
 6. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.

7. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
- B. Architect's Response: Within 7 days after receipt of Contractor's Change Order Request, Architect will:
1. Issue a Cost Change Directive for accepted Change Order Requests that do not require changes to the approved Construction Documents.
 2. Issue a Change Order and/or Cost Change Directive for accepted Change Order Requests that require changes to the approved Construction Documents.
 - a. Where Change Order Requests require changes to the Contract Documents, Architect will provide a detailed description of proposed changes in the Work via Change Order.
 3. Issue an Architect's Change Directive where changes are necessary for the progress of the Work and changes to the Contract Sum and the Contract Time are in dispute.
 4. Notify the Contractor of unaccepted proposals.

1.10 COST CHANGE DIRECTIVE (CCD)

- A. Cost Change Directive: A Cost Change Directive is a document issued by the Architect notifying Contractor of Owner's acceptance of changes to the Contract Sum proposed by the Contractor.

1.11 CHANGE ORDERS

- A. Change Orders: Change orders are a document defining Contract Modifications; upon Owner's approval of proposed Contract Modifications, Architect will issue a Change Order for signatures of Owner and Contractor on form provided by Architect.

1.12 WEATHER RELATED DELAYS

- A. Extensions of contract time for delays caused by the effects of weather are justified only when rain or other weather conditions or related adverse soil conditions prevent the Contractor from productively performing controlling items of work resulting in the Contractor being unable to work at least 50% of the normal work day on predetermined controlling work items or the contractor must make major repairs to work damaged by weather provided the damage was not attributable to a failure to perform or neglect by the contractor.
- B. Justification for weather related delays shall demonstrate the following:
1. The delay is within the terms and time frame of the contract.
 2. The activity delayed had a direct effect on the project end date (The work item(s) affected is on the critical path).

3. The weather event occurred in excess of the anticipated weather for the season for the project location.
 4. There is documentation of which specific activities were delayed on each weather occurrence.
- C. Compensation: The Contractor will be granted a time extension only for justified weather-related delays for the number of days as accepted by the Architect, no monetary compensation will be granted (Weather event related delays are outside of the control of the Contractor and the Owner, and both parties share in the cost of time and expense).

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 012613
REQUEST FOR INFORMATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for preparation, submittal and response to Contractor's Request for Information (RFI's) during construction of project.

1.3 DEFINITIONS

- A. RFI, Request for Information: Request from Contractor seeking information required by or clarification of the Contract Documents.

1.4 SUBMITTALS

- A. RFI Submittals: Submit RFI's via email as PDF electronic files; include attachments in PDF electronic file format.

1.5 REQUESTS FOR INFORMATION (RFIs)

- A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
 - 1. Architect will return without response those RFIs submitted to Architect by other entities controlled by Contractor.
 - 2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

- B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
1. Project name.
 2. Project number.
 3. Date.
 4. Name of Contractor.
 5. Name of Architect
 6. RFI number, numbered sequentially.
 7. RFI subject.
 8. Specification Section number and title and related paragraphs, as appropriate.
 9. Drawing number and detail references, as appropriate.
 10. Field dimensions and conditions, as appropriate.
 11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
 12. Contractor's signature.
 13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.
 - a. Include dimensions, thicknesses, structural grid references, and details of affected materials, assemblies, and attachments on attached sketches.
- C. RFI Form: Use RFI form included at end of this Section or form acceptable to Architect. Upon request from the Contractor, the form at the end of this section will be made available in WORD format from the Architect.
- D. Architect's Action: Architect will review each RFI, determine action required, and respond.
1. Allow 10 working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
 2. Architect will not act on any RFI's until 7 days following the submission of the Schedule of Values per Division 01 Section "Payment Procedures."
 3. The following RFIs will be returned without action:
 - a. Requests for approval of submittals.
 - b. Requests for approval of substitutions.
 - c. Requests for approval of Contractor's means and methods.
 - d. Requests for coordination information already indicated in the Contract Documents.
 - e. Requests for adjustments in the Contract Time or the Contract Sum.
 - f. Requests for interpretation of Architect's actions on submittals.
 - g. Incomplete RFIs or inaccurately prepared RFIs.
 4. Architect's action may include a request for additional information, in which case Architect's time for response will date from time of receipt of additional information.
 5. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."

- a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within 10 days of receipt of the RFI response.
- 6. Distribution: The Architect shall distribute one electronic copy of each completed RFI review to the Contractor and the Owner.
- E. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the sequential RFI number. Submit log weekly unless otherwise directed in writing by Architect. Include the following:
 - 1. Project name.
 - 2. Name and address of Contractor.
 - 3. Name and address of Architect.
 - 4. RFI number including RFIs that were returned without action or withdrawn.
 - 5. RFI description.
 - 6. Date the RFI was submitted.
 - 7. Date Architect's response was received.
- F. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within 7 days if Contractor disagrees with response.
- G. Contractor's Expense for RFI's: Architect will review and respond to legitimate RFI's at no additional cost to the Contractor. RFI's determined by the Architect to be flagrant or unnecessary will have the expense for the Architect's time paid by the Owner with the amount being deducted from the Contract Sum. The expense will be based on an hourly rate in accordance with the Architect's standard hourly rate schedule in effect at the time the work is performed with a minimum of one hour for each flagrant or unnecessary RFI.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

(REQUEST FOR INFORMATION form included on the following page)



Request for Information

Corporate Headquarters
7535 N. Palm Ave. #201
Fresno, CA 93711

559.437.0887 T
559.438.7554 F
teterae.com

Project:

Project Title

TETER Project No.

123 Street Address

City, State, Zip

From:

Name

Company Name

To:

Name

Title or Department

TETER

123 Street Address

City, State, Zip

Client Project No.

DSA File No.

DSA Appl No.

Drawing: _____

Detail No. _____

Specification: _____

Addendum: _____

Date:

Request for Information No. _____

☐ Deviation from Contract Docs

☐ Correction of Non-Compliant Work

Respond by:

Priority

(Low) 1 2 3 4 5 (High)

Subject: _____

Information Requested:

Contractor's Recommendation:

Probable Cost Effect: _____ Probable Time Effect: _____

Architect's Response:

Disclaimer

The work shall be carried out in accordance with the above supplemental instructions pursuant the Contract Documents, without change in the Contract Sum or Contract Time. Proceeding with the Work, according to these instructions, indicates your acknowledgement that there will be no change in the Contract Sum or Contract Time. If the Contractor considers that this response requires a change in the Contract Sum or Contract Time, the Contractor shall not proceed with this Work and shall promptly submit an item proposal.

SECTION 012900
PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section specifies administrative and procedural requirements necessary to prepare and process Applications for Payment.
- B. Related Sections:
 - 1. Division 01 Section "Contract Modification Procedures" for administrative procedures for handling changes to the Contract.
 - 2. Division 01 Section "Construction Progress Documentation" for administrative requirements governing the preparation and submittal of the Contractor's construction schedule.
 - 3. Division 01 Section "Submittal Procedures" for administrative requirements governing the preparation and submittal of the submittal schedule.

1.3 DEFINITIONS

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

1.4 SCHEDULE OF VALUES

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

2. Submit the Schedule of Values to Architect at earliest possible date but no later than 7 days before the date scheduled for submittal of initial Applications for Payment.
 - a. Architect will not act on any RFI's, Post-Bid Substitutions, and/or changes to the project scope, cost, or schedule until 7 days following the submission of the Schedule of Values.
 3. Subschedules for Phased Work: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.
- B. Format and Content: Use the Project Manual table of contents as a guide to establish line items for the schedule of values. Provide at least one line item for each Specification Section.
1. Identification: Include the following Project identification on the schedule of values:
 - a. Project name and location.
 - b. Name of Architect.
 - c. Architect's project number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 2. Arrange the schedule of values in tabular form with separate columns to indicate the following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of the Work.
 - c. Name of subcontractor.
 - d. Name of manufacturer or fabricator.
 - e. Name of supplier.
 - f. Change Orders (numbers) that affect value.
 - g. Dollar value of the following, as a percentage of the Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.
 - 1) Labor.
 - 2) Materials.
 - 3) Equipment.
 3. Provide a breakdown of the Contract Sum in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Coordinate with the Project Manual table of contents. Provide multiple line items for principal subcontract amounts in excess of 5 percent of Contract Sum.
 - a. Include separate line items under Contractor and principal subcontracts for project closeout requirements in an amount totaling 5 percent of the Contract Sum and subcontract amount.
 4. Round amounts to nearest whole dollar; total shall equal the Contract Sum.

5. Provide a separate line item in the schedule of values for each part of the Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.
 - a. Differentiate between items stored on-site and items stored off-site. If required, include evidence of insurance.
6. Provide separate line items in the schedule of values for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of the Work.
7. Each item in the schedule of values and Applications for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.
 - a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in the schedule of values or distributed as general overhead expense, at Contractor's option.
8. Schedule Updating: Update and resubmit the schedule of values before the next Applications for Payment when Change Orders or Construction Change Directives result in a change in the Contract Sum.

1.5 APPLICATIONS FOR PAYMENT

- A. Each Application for Payment following the initial Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.
 1. Initial Application for Payment, Application for Payment at time of Substantial Completion, and final Application for Payment involve additional requirements.
- B. Payment Application Times: The date for each progress payment application shall be as indicated in the Agreement between Owner and Contractor. The period of construction work covered by each Application for Payment is the period indicated in the Agreement.
 1. If dates and periods are not indicated in the Agreement between Owner and Contractor at time of bidding, the date for Application for Payment shall be established by the Owner to correspond with the Owner's administrative procedures in order to allow for processing and approval of Application for Payment. The period of construction work covered by each Application for Payment shall be one month.
 2. Submit draft copy of Application for Payment 7 days prior to due date for review by Architect.
- C. Application for Payment Forms: Use forms acceptable to Architect and Owner for Applications for Payment. Submit forms for approval with initial submittal of schedule of values.

- D. Application Preparation: Complete every entry on form. Notarize and execute by a person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.
1. Entries shall match data on the schedule of values and Contractor's construction schedule. Use updated schedules if revisions were made.
 2. Include amounts for work completed following previous Application for Payment, whether or not payment has been received. Include only amounts for work completed at time of Application for Payment.
 3. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.
 4. Indicate separate amounts for work being carried out under Owner-requested project acceleration.
- E. Stored Materials: Include in Application for Payment amounts applied for materials or equipment purchased or fabricated and stored, but not yet installed. Differentiate between items stored on-site and items stored off-site.
1. Provide certificate of insurance, evidence of transfer of title to Owner, and consent of surety to payment, for stored materials.
 2. Provide supporting documentation that verifies amount requested, such as paid invoices. Match amount requested with amounts indicated on documentation; do not include overhead and profit on stored materials.
 3. Provide summary documentation for stored materials indicating the following:
 - a. Materials previously stored and included in previous Applications for Payment.
 - b. Work completed for this Application utilizing previously stored materials.
 - c. Additional materials stored with this Application.
 - d. Total materials remaining stored, including materials with this Application.
- F. Transmittal: Submit 6 signed and notarized original copies of each Application for Payment to Architect by a method ensuring receipt within 24 hours. One copy shall include waivers of lien and similar attachments if required.
1. Transmit each copy with a transmittal form listing attachments and recording appropriate information about application.
- G. Waivers of Mechanic's Lien: With each Application for Payment, submit waivers of mechanic's liens from subcontractors, sub-subcontractors, and suppliers for construction period covered by the previous application.
1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.
 2. When an application shows completion of an item, submit conditional final or full waivers.
 3. Owner reserves the right to designate which entities involved in the Work must submit waivers.
 4. Submit final Application for Payment with or preceded by conditional final waivers from every entity involved with performance of the Work covered by the application who is lawfully entitled to a lien.

5. Waiver Forms: Submit waivers of lien on forms, executed in a manner acceptable to Owner.
- H. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following:
1. List of subcontractors.
 2. Schedule of values.
 3. Contractor's construction schedule (preliminary if not final).
 4. Submittal schedule (preliminary if not final).
 5. List of Contractor's staff assignments.
 6. Copies of authorizations and licenses from authorities having jurisdiction for performance of the Work.
 7. Initial progress report.
 8. Report of preconstruction conference.
- I. Application for Payment at Substantial Completion: After issuance of the Certificate of Substantial Completion, submit an Application for Payment showing 100 percent completion for portions of the Work claimed as substantially complete.
1. Include documentation supporting claim that the Work is substantially complete and a statement showing an accounting of changes to the Contract Sum.
 2. This application shall reflect Certificates of Partial Substantial Completion issued previously for Owner occupancy of designated portions of the Work.
- J. Final Payment Application: After completing Project closeout requirements, submit final Application for Payment with releases and supporting documentation not previously submitted and accepted, including, but not limited, to the following:
1. Evidence of completion of Project closeout requirements.
 2. Updated final statement, accounting for final changes to the Contract Sum.
 3. Evidence that claims have been settled.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013113
PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
 - 1. General project coordination procedures.
 - 2. Administrative and supervisory personnel.
- B. Related Sections:
 - 1. Division 01 Section "Project Meetings" for project meetings.
 - 2. Division 01 Section "Construction Progress Documentation" for preparing and submitting Contractor's construction schedule.
 - 3. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.
 - 4. Division 01 Section "Closeout Procedures" for coordinating closeout of the Contract.
 - 5. Section 019113 "General Commissioning Requirements" for coordinating the Work with Owner's Commissioning Authority.

1.3 SUBMITTALS

- A. List of Key Personnel Names: Within 15 calendar days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses, cellular telephone numbers, and e-mail addresses. Provide names, addresses, and telephone numbers of individuals assigned as alternates in the absence of individuals assigned to Project.
 - 1. Post copies of list in project meeting room, in temporary field office, and by each temporary telephone. Keep list current at all times.

1.4 GENERAL COORDINATION PROCEDURES

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

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013119
PROJECT MEETINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative provisions for project meetings, including, but not limited to, the following:
 - 1. Preconstruction conferences.
 - 2. Preinstallation conferences.
 - 3. Progress meetings.
 - 4. Project Closeout Conference.
- B. Related requirements include but are not limited to the following:
 - 1. Division 01 Sections as applicable to project management.

1.3 PRECONSTRUCTION CONFERENCE

- A. Preconstruction Conference: Schedule a preconstruction conference before starting construction at the project site, at a time convenient to the Owner, Project Inspector, and the Architect, but no later than 14 days after execution of the Agreement. Hold the conference at the Project Site or another convenient location. Owner and Architect to conduct the meeting to review responsibilities and personnel assignments.
- B. Attendees: Authorized representatives of the Owner, Architect, and their consultants; the Contractor and its superintendent shall attend the conference. Major subcontractors and other concerned parties shall be invited to attend the conference, but attendance is not mandatory. Participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Discuss items of significance that could affect progress, including but not limited to the following:
 - 1. Tentative construction schedule.
 - 2. Critical work sequencing and long-lead items.
 - 3. Designation of key personnel and their duties.
 - 4. Lines of communication.
 - 5. Procedures for processing field decisions and Change Orders.
 - 6. Procedures for processing Applications for Payment.

7. Procedures for RFI's.
8. Procedures for testing and inspection.
9. Submittal procedures.
10. Sustainability requirements including construction waste management and disposal.
11. Preparation of record documents.
12. Use of the premises.
13. Work restrictions and working hours.
14. Temporary facilities and controls.
15. Parking availability.
16. Office, work, and storage areas.
17. Equipment deliveries and priorities.
18. Safety procedures and first aid.
19. Security.
20. Housekeeping.
21. Owner's alcohol, drug and tobacco policy.

- D. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Project Inspector, and Architect, within three days of the meeting.

1.4 PREINSTALLATION CONFERENCES

- A. Preinstallation Conferences: Conduct a preinstallation conference at the Project Site before each construction activity that requires coordination with other construction.
- B. Attendees: Installers and representatives of manufacturers and fabricators involved in or affected by the installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise the Owner, Project Inspector, and Architect of scheduled meeting dates.
- C. Agenda: Review the progress of other construction activities and preparations for the particular activity under consideration at each preinstallation conference, including requirements for the following:
1. Contract Documents.
 2. Options.
 3. Related RFI's, Proposal Requests, and Change Orders.
 4. Purchases.
 5. Deliveries.
 6. Submittals.
 7. Sustainability requirements.
 8. Possible conflicts.
 9. Compatibility problems.
 10. Time schedules.
 11. Weather limitations.
 12. Manufacturer's written instructions.
 13. Warranty requirements.
 14. Compatibility of materials.
 15. Acceptability of substrates.

16. Temporary facilities.
 17. Space and access limitations.
 18. Regulations of authorities having jurisdiction.
 19. Safety.
 20. Testing and inspecting requirements.
 21. Required performance results.
 22. Recording requirements.
 23. Protection.
 24. Record significant conference discussions, agreements, disagreements, including corrective measures and actions.
 25. Promptly distribute minutes of the meeting to each party present and to other parties requiring information, including the Owner and the Architect.
 26. Do not proceed with the installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of Work and reconvene the conference at the earliest feasible date.
- D. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Project Inspector, and Architect, within three days of the meeting.

1.5 PROGRESS MEETINGS

- A. Progress Meetings: Conduct progress meetings at the Project Site at regular intervals to be established by the Architect, Project Inspector, Contractor, and Owner.
1. Coordinate dates of meetings with preparation of the payment request.
- B. Attendees: In addition to representatives of the Owner and Architect, each subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference shall be familiar with the Project and authorized to conclude matters relating to the Work.
- C. Agenda: Review and correct or approve minutes of the previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to the status of the Project. Review proposed percentages of work completed for current months progress payment.
1. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.

2. Review the present and future needs of each entity present, including the following:

- a. Interface requirements.
- b. Sequence of operation.
- c. Status of submittals.
- d. Status of Sustainability documentation.
- e. Deliveries.
- f. Off-site fabrication.
- g. Access.
- h. Site utilization.
- i. Temporary facilities and services.
- j. Status of correction of deficient items.
- k. Field observations.
- l. Status of RFI's, Proposal Requests, and Change Orders.
- m. Progress cleaning.
- n. Quality and work standards.
- o. Documentation of information for payment requests.
- p. Request for Information

- D. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Project Inspector, and Architect, within three days of the meeting.

- E. Schedule Updating: Revise the Contractor's Construction Schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue the revised schedule to the Owner, the Architect, and all other parties involved in the project. Failure to revise and keep current the Contractor's construction schedule may be grounds for returning Application for Payment unreviewed.

1.6 PROJECT CLOSEOUT CONFERENCE

- A. Project Closeout Conference: Conduct a project closeout conference, at a time convenient to Owner and Architect, but not less than 90 days prior to the scheduled date of Substantial Completion. Conduct the conference to review requirements and responsibilities related to Project closeout.

- B. Attendees: Authorized representatives of Owner, Architect and their consultants; Contractor and its superintendent. Participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.

- C. Agenda: Discuss items of significance that could affect or delay Project closeout, including the following:

1. Preparation of record documents.
2. Procedures required prior to inspection for Substantial Completion and for final inspection for acceptance.
3. Submittal of written warranties.
4. Requirements for completing Sustainability documentation.
5. Requirements for preparing operations and maintenance data.

6. Requirements for delivery of material samples, attic stock, and spare parts.
 7. Requirements for demonstration and training.
 8. Preparation of Contractor's punch list.
 9. Procedures for processing Applications for Payment at Substantial Completion and for final payment.
 10. Submittal procedures.
 11. Responsibility for removing temporary facilities and controls.
- D. Minutes: Contractor shall record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner, Project Inspector, and Architect, within three days of the meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013200
CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
 - 1. Contractor's construction schedule.
 - 2. Reports.
 - 3. Scheduling for weather-related delays.
- B. Related Sections include but are not limited to the following:
 - 1. Division 01 Section "Submittal Procedures" for submitting schedules and reports.
 - 2. Division 01 Section "Quality and Testing Requirements" for submitting a schedule of tests and inspections.

1.3 DEFINITIONS

- A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
 - 1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
 - 2. Predecessor Activity: An activity that precedes another activity in the network.
 - 3. Successor Activity: An activity that follows another activity in the network.
- B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.
- C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.
- D. Event: The starting or ending point of an activity.

- E. Float: The measure of leeway in starting and completing an activity.
 - 1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.
 - 2. Free float is the amount of time an activity can be delayed without adversely affecting the early start of the successor activity.
 - 3. Total float is the measure of leeway in starting or completing an activity without adversely affecting the planned Project completion date.
- F. Milestone: An activity, which occurs in an instant and thus has no time duration, a key or critical point in time for reference or measurement.

1.4 SUBMITTALS

- A. Format for Submittals: Submit required submittals in the following format:
 - 1. Working electronic copy of schedule file, where indicated.
 - 2. PDF electronic file.
- B. Startup Network Diagram: Of size required to display entire network for entire construction period. Show logic ties for activities.
- C. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.
 - 1. Submit electronic copy of schedule labeled to comply with requirements for submittals. Include type of schedule (initial or updated) and date on label.
- D. Construction Schedule Updating Reports: Submit with Applications for Payment.
- E. Special Reports: Submit at time of unusual event.

1.5 QUALITY ASSURANCE

- A. Prescheduling Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Meetings." Review methods and procedures related to the preliminary construction schedule and Contractor's construction schedule, including, but not limited to, the following:
 - 1. Discuss constraints, including **[phasing]** and **[partial Owner occupancy]**.
 - 2. Review schedule for work of Owner's separate contracts.
 - 3. Review submittal requirements and procedures.
 - 4. Review time required for review of submittals and resubmittals.
 - 5. Review requirements for tests and inspections by independent testing and inspecting agencies.
 - 6. Review time required for Project closeout and Owner startup procedures, including commissioning activities.
 - 7. Review and finalize list of construction activities to be included in schedule.
 - 8. Review procedures for updating schedule.

1.6 COORDINATION

- A. Coordinate Contractor's construction schedule with the schedule of values, submittal schedule, progress reports, payment requests, and other required schedules and reports.
 - 1. Secure time commitments for performing critical elements of the Work from entities involved.
 - 2. Coordinate each construction activity in the network with other activities and schedule them in proper sequence.

1.7 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

- A. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules and is acceptable to Architect and Owner.
- B. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
 - 1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.
- C. Activities: Treat each story or separate area as a separate numbered activity for each main element of the Work. Comply with the following:
 - 1. Activity Duration: Define activities so no activity is longer than 20 days, unless specifically allowed by Architect.
 - 2. Temporary Facilities: Indicate start and completion dates for the following as applicable:
 - a. Securing of approvals and permits required for performance of the Work.
 - b. Temporary facilities.
 - c. Interfaces with Separate Contracts.
 - d. Regulatory agency approvals.
 - e. Punch list.
 - 3. Procurement Activities: Include procurement process activities for long lead time items and major items, requiring a cycle of more than 60 days, as separate activities in schedule. Procurement cycle activities include, but are not limited to, submittals, approvals, purchasing, fabrication, and delivery.
 - 4. Submittal Review Time: Include review and resubmittal times indicated in Division 01 Section "Submittal Procedures" in schedule. Coordinate submittal review times in Contractor's construction schedule with submittal schedule.
 - 5. Completion: Indicate completion in advance of date established for Substantial Completion, and allow time for Architect's administrative procedures necessary for certification of Substantial Completion.
 - 6. Punch List and Final Completion: Include not more than 30 days for completion of punch list items and final completion.

- D. Constraints: Include constraints and work restrictions indicated in the Contract Documents and as follows in schedule, and show how the sequence of the Work is affected.
1. Phasing: Arrange list of activities on schedule by phase.
 2. Products Ordered in Advance: Include a separate activity for each product. Include delivery date indicated in Division 01 Section "Summary." Delivery dates indicated stipulate the earliest possible delivery date.
 3. Work Restrictions: Show the effect of the following items on the schedule:
 - a. Coordination with existing construction.
 - b. Limitations of continued occupancies.
 - c. Uninterruptible services.
 - d. Partial occupancy before Substantial Completion.
 - e. Use of premises restrictions.
 - f. Provisions for future construction.
 - g. Seasonal variations.
 - h. Environmental control.
 4. Work Stages: Indicate important stages of construction for each major portion of the Work, including, but not limited to, the following:
 - a. Submittals.
 - b. Purchases.
 - c. Fabrication.
 - d. Sample testing.
 - e. Deliveries.
 - f. Installation.
 - g. Tests and inspections.
 - h. Curing.
 5. Construction Areas: Identify each major area of construction for each major portion of the Work. Indicate where each construction activity within a major area must be sequenced or integrated with other construction activities to provide for the following:
 - a. Structural completion.
 - b. Completion of electrical installation.
 - c. Substantial Completion.
- E. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.
- F. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis to demonstrate the effect of the proposed change on the overall project schedule.
- G. Upcoming Work Summary: Prepare summary report indicating activities scheduled to occur or commence prior to submittal of next schedule update. Summarize the following issues:

1. Unresolved issues.
2. Unanswered Requests for Information.
3. Rejected or unreturned submittals.
4. Notations on returned submittals.
5. Pending modifications affecting the Work and Contract Time.

H. Weather Related Delays: Construction schedule shall include the number of weather-related delay days for each calendar month as indicated below.

J	F	M	A	M	J	J	A	S	O	N	D
6	6	5	4	2	1	0	0	0	2	3	5

1. Delay days shall be cumulative for the duration of the project; where the actual number of delay days are less than the scheduled delay days for a given month, the unused days shall be carried forward to the next month.
 2. Unused delay days may be used as float time.
- I. Contractor's Construction Schedule Updating: At not less than monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule one week before each regularly scheduled progress meeting.
1. Revise schedule immediately after each meeting or other activity where revisions have been recognized or made. Issue updated schedule concurrently with the report of each such meeting.
 2. Include a report with updated schedule that indicates every change, including, but not limited to, changes in logic, durations, actual starts and finishes, and activity durations.
 3. As the Work progresses, indicate Final Completion percentage for each activity.
- J. Recovery Schedule: When periodic update indicates the Work is 14 or more calendar days behind the current approved schedule, submit a separate recovery schedule indicating means by which Contractor intends to regain compliance with the schedule. Indicate changes to working hours, working days, crew sizes, and equipment required to achieve compliance, and date by which recovery will be accomplished.
- K. Distribution: Distribute copies of approved schedule to Architect, Owner, separate contractors, testing and inspecting agencies, and other parties identified by Contractor with a need-to-know schedule responsibility.
1. Post copies in Project meeting rooms and temporary field offices.
 2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

1.8 CONTRACTOR'S CONSTRUCTION SCHEDULE (CPM SCHEDULE)

- A. General: Prepare network diagrams using AON (activity-on-node) format.

- B. CPM Schedule: Prepare Contractor's construction schedule using a time-scaled CPM network analysis diagram for the Work.
1. Develop network diagram in sufficient time to submit CPM schedule so it can be accepted for use no later than 30 days after date established for the Notice to Proceed.
 - a. Failure to include any work item required for performance of this Contract shall not excuse Contractor from completing all work within applicable completion dates, regardless of Architect's approval of the schedule.
 2. Conduct educational workshops to train and inform key Project personnel, including subcontractors' personnel, in proper methods of providing data and using CPM schedule information.
 3. Establish procedures for monitoring and updating CPM schedule and for reporting progress. Coordinate procedures with progress meeting and payment request dates.
 4. Use "one workday" as the unit of time for individual activities. Indicate nonworking days and holidays incorporated into the schedule in order to coordinate with the Contract Time.
- C. CPM Schedule Preparation: Prepare a list of all activities required to complete the Work. Prepare a skeleton network to identify probable critical paths.
1. Activities: Indicate the estimated time duration, sequence requirements, and relationship of each activity in relation to other activities. Include estimated time frames for the following activities:
 - a. Preparation and processing of submittals.
 - b. Mobilization and demobilization.
 - c. Purchase of materials.
 - d. Delivery.
 - e. Utility interruptions.
 - f. Installation.
 - g. Punch list and final completion.
 - h. Activities occurring following final completion.
 2. Critical Path Activities: Identify critical path activities, including those for interim completion dates. Scheduled start and completion dates shall be consistent with Contract milestone dates.
 3. Processing: Process data to produce output data on a computer-drawn, time-scaled network. Revise data, reorganize activity sequences, and reproduce as often as necessary to produce the CPM schedule within the limitations of the Contract Time.
 4. Format: Mark the critical path. Locate the critical path near center of network; locate paths with most float near the edges.
 - a. Subnetworks on separate sheets are permissible for activities clearly off the critical path.

- D. Contract Modifications: For each proposed contract modification and concurrent with its submission, prepare a time-impact analysis using a network fragment to demonstrate the effect of the proposed change on the overall project schedule.
- E. Initial Issue of Schedule: Prepare initial network diagram from a sorted activity list indicating straight "early start-total float." Identify critical activities. Prepare tabulated reports showing the following:
 - 1. Contractor or subcontractor and the Work or activity.
 - 2. Description of activity.
 - 3. Main events of activity.
 - 4. Immediately preceding and succeeding activities.
 - 5. Early and late start dates.
 - 6. Early and late finish dates.
 - 7. Activity duration in workdays.
 - 8. Total float or slack time.
 - 9. Average size of workforce.
- F. Schedule Updating: Concurrent with making revisions to schedule, prepare tabulated reports showing the following:
 - 1. Identification of activities that have changed.
 - 2. Changes in early and late start dates.
 - 3. Changes in early and late finish dates.
 - 4. Changes in activity durations in workdays.
 - 5. Changes in the critical path.
 - 6. Changes in total float or slack time.
 - 7. Changes in the Contract Time.

1.9 REPORTS

- A. Daily Construction Reports: Prepare a daily construction report recording the following information concerning events at Project site:
 - 1. List of subcontractors at Project site.
 - 2. List of separate contractors at Project site.
 - 3. Approximate count of personnel at Project site.
 - 4. Equipment at Project site.
 - 5. Material deliveries.
 - 6. Weather conditions; include general weather conditions, high and low temperatures, and presence of rain or snow.
 - 7. Testing and inspection.
 - 8. Accidents.
 - 9. Meetings and significant decisions.
 - 10. Unusual events.
 - 11. Stoppages, delays, shortages, and losses.
 - 12. Meter readings and similar recordings.
 - 13. Emergency procedures.
 - 14. Orders and requests of authorities having jurisdiction.
 - 15. Change Orders received and implemented.

16. Services connected and disconnected.
 17. Equipment or system tests and startups.
 18. Partial completions and occupancies.
 19. Substantial Completions authorized.
- B. Material Location Reports: At weekly intervals, prepare and submit a comprehensive list of materials delivered to and stored at Project site. List shall be cumulative, showing materials previously reported plus items recently delivered. Include with list a statement of progress on and delivery dates for materials or items of equipment fabricated or stored away from Project site. Indicate the following categories for stored materials:
1. Material stored prior to previous report and remaining in storage.
 2. Material stored prior to previous report and since removed from storage and installed.
 3. Material stored following previous report and remaining in storage.
- C. Site Condition Reports: Immediately on discovery of a difference between site conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.
- D. Special Reports: When an event of an unusual and significant nature occurs at Project site, whether or not related directly to the Work, prepare and submit a special report. List chain of events, persons participating, responses by Contractor's personnel, evaluation of results or effects, and similar pertinent information. Advise Owner in advance when these events are known or predictable. Submit Special Reports to Architect within two days of an occurrence. Distribute copies of report to parties affected by the occurrence.
1. Weather Event Reports: Prepare Special Reports for weather related events that affect or prevent progress of the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 013300
SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:

1. Submittal schedule requirements.
2. Administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.
3. Cost for multiple resubmittals.

B. Related Sections:

1. Division 01 Section "Payment Procedures" for submitting Applications for Payment and the schedule of values.
2. Division 01 Section "Project Management and Coordination" for submitting coordination drawings.
3. Division 01 Section "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
4. Division 01 Section "Quality and Testing Requirements" for submitting test and inspection reports, and schedule of tests and inspections.
5. Division 01 Section "Closeout Procedures" for submitting closeout submittals and maintenance material submittals.
6. Division 01 Section "Project Record Drawings" for submitting record Drawings.

1.3 SUBMITTAL SCHEDULE

- A. Submittal Schedule: Submit as a submittal, a list of submittals arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.
 1. Coordinate submittal schedule with list of subcontracts, the schedule of values, and Contractor's construction schedule.
 2. Initial Submittal: Submit concurrently with start-up construction schedule. Include submittals required during the first 60 days of construction. List those submittals

- required to maintain orderly progress of the Work and those required early because of long lead time for manufacture or fabrication.
3. Final Submittal: Submit concurrently with the first complete submittal of Contractor's construction schedule.
 - a. Submit revised submittal schedule to reflect changes in current status and timing for submittals.
 4. Format: Arrange the following information in a tabular format:
 - a. Scheduled date for first submittal.
 - b. Specification Section number and title.
 - c. Name of subcontractor.
 - d. Description of the Work covered.
 - e. Scheduled date for Architect's final release or approval.
 - f. Scheduled dates for purchasing.
 - g. Scheduled date of fabrication.
 - h. Scheduled dates for installation.
 - i. Activity or event number.

1.4 SUBMITTAL FORMAT AND PROCEDURES

- A. General: Prepare and submit submittals required by individual Specification Sections.
 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.
 2. Architect will not review submittals received from sources other than the Contractor.
- B. Electronic Digital Submittals: Prepare submittals as PDF package unless otherwise indicated, incorporate complete information into each PDF file, name PDF file with submittal number, and transmit submittal package to Architect via email.
 1. Paper Submittals: Where paper submittals are requested, necessary, or required in lieu of electronic submittals, prepare submittals in paper form and deliver to Architect. Transmit each paper submittal using transmittal form. Comply with the following:
 - a. Place a permanent label or title block on each submittal item for identification; include name of firm or entity that prepared submittal.
 - b. Provide a space approximately 6 by 8 inches on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
 - c. Number of Copies: Submit not less than three paper copies of each submittal unless otherwise indicated. Architect will return two copies.
 - d. Transmittal for Submittals: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using transmittal form.

- C. Submittal Cover Page Information: Include the following information on the submittal cover page for each submittal:
1. Project name.
 2. Date.
 3. Name of Architect.
 4. Name of Contractor.
 5. Name of firm or entity that prepared submittal.
 6. Names of subcontractor, manufacturer, and supplier.
 7. Unique submittal number, including revision identifier. Include Specification Section number with sequential alphanumeric identifier and alphanumeric suffix for resubmittals.
 8. Number and title of Specification Section, with paragraph number and generic name for each of multiple items.
 9. Drawing number and detail references, as appropriate.
 10. Indication of full or partial submittal.
 11. Location(s) where product is to be installed, as appropriate.
 12. Other necessary identification.
 13. Remarks.
 14. Signature of transmitter.
 15. Contractor's review/approval stamp of size required by contractor, approximately 3 inches by 3 inches, on or beside title block to record Contractor's review and approval.
 16. Space for Architect's review stamp of not less than 4 inches wide by 3-1/2 inches high on or beside title block to record Architect's review stamp and action taken by Architect.
- D. Product Options:
1. Clearly identify options requiring selection by Architect.
 2. Clearly identify product options required to comply with the Contract Documents.
- E. Deviations and Additional Information: On each submittal, clearly indicate deviations from requirements in the Contract Documents, including minor variations and limitations; include relevant additional information and revisions, other than those requested by Architect on previous submittals. Indicate by highlighting on each submittal or noting on attached separate sheet.
- F. Field Conditions: Indicate field conditions where applicable to the work associated with the submittal.

- G. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
 2. Submit all submittal items required for each Specification Section concurrently unless partial submittals for portions of the Work are indicated on approved submittal schedule.
 3. Submit action submittals and informational submittals required by the same Specification Section as separate packages under separate transmittals.
 4. Coordinate timing of submitting submittals for related parts of the Work specified in different Sections so processing will not be delayed because of need to review related submittals concurrently for coordination.
 - a. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.
- H. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
1. Initial Review: Allow 14 calendar days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
 2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
 3. Resubmittal Review: Allow 14 calendar days for review of each resubmittal.
 4. Sequential Review: Where sequential review of submittals by Architect's consultants, Owner, or other parties is indicated, allow 21 calendar days for initial review of each submittal.
 5. Concurrent Consultant Review: Where the Contract Documents indicate that submittals may be transmitted simultaneously to Architect and to Architect's consultants, allow 14 calendar days for review of each submittal. Submittal will be returned to Architect before being returned to Contractor.
 - a. Submit one copy of submittal to concurrent reviewer in addition to specified number of copies to Architect.
- I. Resubmittals: Make resubmittals in same form and number of copies as initial submittal.
1. Note date and content of previous submittal.
 2. Note date and content of revision in label or title block and clearly indicate extent of revision.
 3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

- J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.
- K. Use for Construction: Retain complete copies of submittals on Project site. Use only final submittals that are marked with acceptable notation from Architect's action stamp.

1.5 SUBMITTAL REQUIREMENTS

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

- e. Notation of dimensions established by field measurement.
 - f. Relationship and attachment to adjoining construction clearly indicated.
 - g. Seal and signature of professional engineer if specified.
 - 2. Drawing Sheet Size: Except for templates, patterns, and similar full-size Drawings, prepare Shop Drawings on sheets at least 8-1/2 by 11 inches, but no larger than 30 by 42 inches.
 - 3. Submit Shop Drawings in PDF format unless otherwise indicated.
- C. Samples: Submit Samples for review of kind, color, pattern, and texture for a check of these characteristics with other materials.
- 1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
 - 2. Identification: Permanently attach label on unexposed side of Samples that includes the following:
 - a. Project name and submittal number.
 - b. Generic description of Sample.
 - c. Product name and name of manufacturer.
 - d. Sample source.
 - e. Number and title of applicable Specification Section.
 - f. Specification paragraph number and generic name of each item.
 - 3. Submit samples in PDF format unless physical samples are required.
 - 4. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
 - a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
 - b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.
 - 5. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
 - a. Number of Samples: Submit one full set of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will return submittal with options selected.
 - 6. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of

repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit three (3) sets of Samples. Architect will retain two (2) Sample sets; remainder will be returned.

- 1) Submit a single Sample where assembly details, workmanship, fabrication techniques, connections, operation, and other similar characteristics are to be demonstrated.
- 2) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three (3) sets of paired units that show approximate limits of variations.

D. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location. Include the following information in tabular form:

1. Type of product. Include unique identifier for each product indicated in the Contract Documents or assigned by Contractor if none is indicated.
2. Manufacturer and product name, and model number if applicable.
3. Number and name of room or space.
4. Location within room or space.

E. Qualification Data: Prepare written information that demonstrates capabilities and experience of firm or person. Include lists of completed projects with project names and addresses, contact information of architects and owners, and other information specified.

F. Design Data: Prepare and submit written and graphic information indicating compliance with indicated performance and design criteria in individual Specification Sections. Include list of assumptions and summary of loads. Include load diagrams if applicable. Provide name and version of software, if any, used for calculations. Number each page of submittal.

G. Certificates:

1. Certificates and Certifications Submittals: Submit a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity. Provide a notarized signature where indicated.
2. Installer Certificates: Submit written statements on manufacturer's letterhead certifying that Installer complies with requirements in the Contract Documents and, where required, is authorized by manufacturer for this specific Project.
3. Manufacturer Certificates: Submit written statements on manufacturer's letterhead certifying that manufacturer complies with requirements in the Contract Documents. Include evidence of manufacturing experience where required.
4. Material Certificates: Submit written statements on manufacturer's letterhead certifying that material complies with requirements in the Contract Documents.

5. Product Certificates: Submit written statements on manufacturer's letterhead certifying that product complies with requirements in the Contract Documents.
6. Welding Certificates: Prepare written certification that welding procedures and personnel comply with requirements in the Contract Documents. Submit record of Welding Procedure Specification and Procedure Qualification Record on AWS forms. Include names of firms and personnel certified.

H. Test and Research Reports:

1. Compatibility Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of compatibility tests performed before installation of product. Include written recommendations for primers and substrate preparation needed for adhesion.
2. Field Test Reports: Submit written reports indicating and interpreting results of field tests performed either during installation of product or after product is installed in its final location, for compliance with requirements in the Contract Documents.
3. Material Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting test results of material for compliance with requirements in the Contract Documents.
4. Preconstruction Test Reports: Submit reports written by a qualified testing agency, on testing agency's standard form, indicating and interpreting results of tests performed before installation of product, for compliance with performance requirements in the Contract Documents.
5. Product Test Reports: Submit written reports indicating that current product produced by manufacturer complies with requirements in the Contract Documents. Base reports on evaluation of tests performed by manufacturer and witnessed by a qualified testing agency, or on comprehensive tests performed by a qualified testing agency.
6. Research Reports: Submit written evidence, from a model code organization acceptable to authorities having jurisdiction, that product complies with building code in effect for Project. Include the following information:
 - a. Name of evaluation organization.
 - b. Date of evaluation.
 - c. Time period when report is in effect.
 - d. Product and manufacturers' names.
 - e. Description of product.
 - f. Test procedures and results.
 - g. Limitations of use.

1.6 DELEGATED-DESIGN SERVICES

- A. Performance and Design Criteria: Where professional design services or certifications by a design professional are specifically required of Contractor by the Contract Documents, provide products and systems complying with specific performance and design criteria indicated.
1. If criteria indicated are insufficient to perform services or certification required, submit a written request for additional information to Architect.

- B. Delegated-Design Services Certification: In addition to Shop Drawings, Product Data, and other required submittals, submit digitally signed PDF file(s) of certificate, signed and sealed by the responsible design professional, for each product and system specifically assigned to Contractor to be designed or certified by a design professional.
 - 1. Indicate that products and systems comply with performance and design criteria in the Contract Documents. Include list of codes, loads, and other factors used in performing these services.

1.7 CONTRACTOR'S REVIEW

- A. Contractor's Review of Submittals: Contractor shall review each submittal and check for completeness, coordination with other Work of the Contract, and compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.
- B. Contractor's Approval: Indicate Contractor's approval for each submittal with a uniform approval stamp. Include name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.
 - 1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.
 - 2. Contractor's approval shall certify the following actions by the Contractor:
 - a. Field measurements have been determined, verified, and indicated on submittal.
 - b. Field conditions have been verified and coordinated with Work associated with the submittal.
 - c. The Work associated with the submittal is in conformance with the Contract Documents.
 - d. Work being performed by various subcontractors and trades is coordinated with Work associated with the submittal including work being performed by others for the Owner.
 - e. Deviations from the Contract Documents are identified and notes.

1.8 ARCHITECT'S REVIEW

- A. Architect's Review and Action: Architect will review each submittal, indicate corrections or revisions required, mark with an action stamp indicating one of the following actions, and return it.
 - 1. Reviewed: Final unrestricted release, work may proceed, provided it complies with the Contract Documents.
 - 2. Furnish as Corrected: Final but restricted release, work may proceed, provided written confirmation is delivered to Architect by Contractor that installed work complied with notations and corrections on submittal and with Contract Documents.

3. Revise and Resubmit: Returned for resubmittal, do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain an acceptable action marking. Do not allow submittals with this marking (or unmarked submittals where a marking is required) to be used in connection with performance of the Work.
 4. Rejected: Submittal content varies from the Contract Documents and is not acceptable for use on the Project, do not proceed with work. Revise submittal in accordance with notations thereon, and resubmit without delay to obtain an acceptable action marking. Do not allow submittals with this marking (or unmarked submittals where a marking is required) to be used in connection with performance of the Work.
- B. Non-conforming Submittals: The following are considered non-confirming submittals and will not be reviewed by the Architect.
1. Architect will not review submittals received from Contractor that do not have Contractor's review and approval.
 2. Architect will not review submittals received from sources other than the Contractor.
 3. Partial submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
 4. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.
- C. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

1.9 COST FOR MULTIPLE RESUBMITTALS

- A. Contractor's initial submittal and one resubmittal are included in the Architect's Construction Administration services to the Owner. Architect's services for review of subsequent resubmittals will be charged to the Owner at the Architect's current billing rate, and the Owner will deduct the charges from the Contract Amount by a change order.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 014000
QUALITY AND TESTING REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for quality assurance and quality control including but not limited to the following:
 - 1. General quality requirements.
 - 2. Reports and documents.
 - 3. Contractor's responsibilities for testing and inspections.
 - 4. Project Inspector.
 - 5. Testing Agency.
 - 6. Governing agency testing and inspection requirements.
- B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
 - 1. Specific quality-assurance and control requirements for individual construction activities are specified in the Sections that specify those activities. Requirements in those Sections may also cover production of standard products.
 - 2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and control procedures that facilitate compliance with the Contract Document requirements.
 - 3. Requirements for Contractor to provide quality-assurance and control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.
- C. Related Requirements:
 - 1. Divisions 02 through 33 Sections for specific test and inspection requirements.
 - 2. Owner's Project Inspector:
 - a. The work of construction in all stages of progress shall be subject to the personal continuous observation of the Project Inspector. The Project Inspector shall have free access to any or all parts of the work at any time. The Contractor shall furnish the Project Inspector reasonable facilities for obtaining such information as may be necessary to keep the Project Inspector fully informed respecting the progress and manner of the work

and the character of materials. Inspection of the work shall not relieve the Contractor from any obligation to fulfill this contract.

1.3 DEFINITIONS

- A. Experienced: When used with an entity or individual, "experienced," unless otherwise further described, means having successfully completed a minimum of five previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.
- B. Field Quality-Control Tests and Inspections: Tests and inspections that are performed on-site for installation of the Work and for completed Work.
- C. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, subcontractor, or sub-subcontractor, to perform a particular construction operation, including installation, erection, application, assembly, and similar operations.
 - 1. Use of trade-specific terminology in referring to a Work result does not require that certain construction activities specified apply exclusively to specific trade(s).
- D. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.
- E. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Contractor's quality-control services do not include contract administration activities performed by Architect.
- F. Source Quality-Control Tests and Inspections: Tests and inspections that are performed at the source, e.g., plant, mill, factory, or shop.
- G. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

1.4 CONFLICTING REQUIREMENTS

- A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.
- B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values

are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.5 INFORMATIONAL SUBMITTALS

- A. Reports: Prepare and submit certified written reports and documents as specified.

1.6 REPORTS AND DOCUMENTS

- A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Reports shall be prepared by the person performing the testing and inspecting. Include the following:

1. Date of issue.
2. Project title and number.
3. Name, address, telephone number, and email address of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.
8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

- B. Manufacturer's Technical Representative's Field Reports: Provide written information documenting manufacturer's technical representative's tests and inspections specified in other Sections. Reports shall be prepared by Manufacturer's technical representative performing the testing and inspecting. Include the following:

1. Name, address, telephone number, and email address of technical representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Statement that products at Project site comply with requirements.
4. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
5. Results of operational and other tests and a statement of whether observed performance complies with requirements.
6. Statement whether conditions, products, and installation will affect warranty.
7. Other required items indicated in individual Specification Sections.

- C. Factory-Authorized Service Representative's Reports: Prepare written information documenting manufacturer's factory-authorized service representative's tests and inspections specified in other Sections. Reports shall be prepared by Factory-

authorized service representative performing the testing and inspecting. Include the following:

1. Name, address, telephone number, and email address of factory-authorized service representative making report.
 2. Statement that equipment complies with requirements.
 3. Results of operational and other tests and a statement of whether observed performance complies with requirements.
 4. Statement whether conditions, products, and installation will affect warranty.
 5. Other required items indicated in individual Specification Sections.
- D. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.7 QUALITY ASSURANCE

- A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.
- B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units. As applicable, procure products from manufacturers able to meet qualification requirements, warranty requirements, and technical or factory-authorized service representative requirements.
- C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.
- D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.
- E. Professional Engineer Qualifications: A professional engineer who is legally licensed to practice in the state where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar in material, design, and extent to those indicated for this Project.
- F. Testing Agency Qualifications: An NRTL, an NVLAP, or an independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and, where required by authorities having jurisdiction, that is acceptable to authorities.

1. NRTL: A nationally recognized testing laboratory according to 29 CFR 1910.7.
 2. NVLAP: A testing agency accredited according to NIST's National Voluntary Laboratory Accreditation Program.
- G. Manufacturer's Technical Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to observe and inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- H. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.
- I. Preconstruction Testing: Where testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:
1. Contractor responsibilities include the following:
 - a. Provide test specimens representative of proposed products and construction.
 - b. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.
 - c. Provide sizes and configurations of test assemblies, mockups, and laboratory mockups to adequately demonstrate capability of products to comply with performance requirements.
 - d. Build site-assembled test assemblies and mockups using installers who will perform same tasks for Project.
 - e. Build laboratory mockups at testing facility using personnel, products, and methods of construction indicated for the completed Work.
 - f. When testing is complete, remove test specimens, assemblies, and mockups; do not reuse products on Project.
 2. Testing Agency Responsibilities: Submit a written report of each test, inspection, and similar quality-assurance service to Architect, with copy to Contractor. Interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from the Contract Documents.

1.8 PROJECT INSPECTOR

- A. General: Owner will employ a Project Inspector for continuous inspection of the Work. Project Inspector shall be acceptable to Architect.
- B. Duties of the Project Inspector: Duties of the Project Inspector shall be as stated in the California Code of Regulations, Title 24, Part 1, California Administrative Code, Sections 4-333(b) and 4-342, and include the following:
1. Provide continuous inspection of the work.

2. Maintain files and records of approved plans and specifications including addenda and change orders.
3. Prepare semi-monthly reports of the progress of the work and submit copies to the Architect.
4. Prepare and maintain records of certain phases of construction including but not limited to the following:
 - a. Concrete placing operations. Show date and time of placing concrete and the time and date of removal of forms in each portion of the structure.
 - b. Welding operations. The record shall include identification marks of welders, lists of defective welds, and manner of correction of defects.
5. Notify the Contractor, in writing, of any deviations from the approved construction documents.

1.9 QUALITY CONTROL

- A. Owner Responsibilities: Where quality-control services are indicated as Owner's responsibility, Owner will engage a qualified testing agency to conduct tests and inspections required by authorities having jurisdiction. Testing agency shall be acceptable to Architect. Requirements for tests and testing agency shall be as stated in the California Code of Regulations, Title 24, Part 1, California Administrative Code, Section 4-335.
 1. Costs for testing agency services will be paid by the Owner.
 2. Costs for retesting and reinspecting construction that replaces or is necessitated by work that failed to comply with the Contract Documents will be paid by the Owner and the amount will be deducted from the Contract Sum by Change Order.
- B. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
 1. Unless otherwise indicated, provide quality-control services specified and those required by authorities having jurisdiction. Perform quality-control services required of Contractor by authorities having jurisdiction, whether specified or not.
 2. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
 - a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
 3. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
 4. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

5. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
6. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.
7. Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
 - a. Access to the Work.
 - b. Incidental labor and facilities necessary to facilitate tests and inspections.
 - c. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
 - d. Facilities for storage and field curing of test samples.
 - e. Preliminary design mix proposed for use for material mixes that require control by testing agency.
 - f. Security and protection for samples and for testing and inspecting equipment at Project site.
8. Coordinate sequence of activities to accommodate required quality-assurance and control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
 - a. Schedule times for tests, inspections, obtaining samples, and similar activities.
9. Schedule of Tests and Inspections: Prepare a schedule of tests, inspections, and similar quality-control services required by the Contract Documents. Coordinate and submit concurrently with Contractor's Construction Schedule. Update and submit with each Application for Payment.
 - a. Schedule Contents: Include tests, inspections, and quality-control services, including Contractor and Owner-retained services, commissioning activities, and other Project-required services paid for by other entities.
 - b. Distribution: Distribute schedule to Owner, Architect, testing agencies, and each party involved in performance of portions of the Work where tests and inspections are required.
- C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.
- D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
 1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
 2. Determine the locations from which test samples will be taken and in which in-situ tests are conducted.

3. Conduct tests and inspections.
 4. Prepare written reports of tests and inspections, state in each report whether tested and inspected Work complies with or deviates from requirements, and submit reports of each test, inspection, and similar quality-control service to Architect, Division of the State Architect, and Contractor.
 5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
 6. Do not perform duties of Contractor.
- E. Manufacturer's Field Services: Where indicated, engage a factory-authorized service representative to inspect field-assembled components and equipment installation, including service connections. Report results in writing as specified in Division 01 Section "Submittal Procedures."
- F. Manufacturer's Technical Services: Where indicated, engage a manufacturer's technical representative to observe and inspect the Work. Manufacturer's technical representative's services include participation in preinstallation conferences, examination of substrates and conditions, verification of materials, observation of Installer activities, inspection of completed portions of the Work, and submittal of written reports.

1.10 TESTS AND INSPECTIONS

- A. Structural Tests and Inspections shall be as specified in Division 02 through 33 Sections for specific materials as applicable to Project conditions.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 TEST AND INSPECTION LOG

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

3.2 REPAIR AND PROTECTION

- A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.

1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."
- B. Protect construction exposed by or for quality-control service activities.
- C. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF SECTION

SECTION 014200
REFERENCES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 DEFINITIONS

- A. General: Basic Contract definitions are included in the Conditions of the Contract.
- B. "Approved": When used to convey Architect's action on Contractor's submittals, applications, and requests, "approved" is limited to Architect's duties and responsibilities as stated in the Conditions of the Contract. Architect's approval does not release the Contractor from the responsibility to fulfill Contract requirements.
- C. "Directed": A command or instruction by Architect. Other terms including "requested," "authorized," "selected," "required," and "permitted" have the same meaning as "directed."
- D. "Indicated": Requirements expressed by graphic representations or in written form on Drawings, in Specifications, and in other Contract Documents. Other terms including "shown," "noted," "scheduled," and "specified" have the same meaning as "indicated."
- E. "Regulations": Laws, ordinances, statutes, and lawful orders issued by authorities having jurisdiction, and rules, conventions, and agreements within the construction industry that control performance of the Work.
- F. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.
- G. "Install": Unload, temporarily store, unpack, assemble, erect, place, anchor, apply, work to dimension, finish, cure, protect, clean, and similar operations at Project site.
- H. "Provide": Furnish and install, complete and ready for the intended use.
- I. "Project Site": Space available for performing construction activities. The extent of Project site is shown on Drawings and may or may not be identical with the description of the land on which Project is to be built.

1.3 INDUSTRY STANDARDS

- A. Applicability of Standards: Unless the Contract Documents include more stringent requirements, applicable construction industry standards have the same force and effect as if bound or copied directly into the Contract Documents to the extent referenced. Such standards are made a part of the Contract Documents by reference.
- B. Publication Dates: Comply with standards in effect as of date of the Contract Documents unless otherwise indicated.
 - 1. For standards referenced by applicable building codes, comply with dates of standards as listed in building codes.
- C. Copies of Standards: Each entity engaged in construction on Project should be familiar with industry standards applicable to its construction activity. Copies of applicable standards are not bound with the Contract Documents.
 - 1. Where copies of standards are needed to perform a required construction activity, obtain copies directly from publication source.

1.4 ABBREVIATIONS AND ACRONYMS

- A. Industry Organizations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities indicated in Gale's "Encyclopedia of Associations: National Organizations of the U.S." or in Columbia Books' "National Trade & Professional Associations of the United States."
- B. Code Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is believed to be accurate as of the date of the Contract Documents.
 - 1. IAPMO - International Association of Plumbing and Mechanical Officials; www.iapmo.org.
 - 2. ICC - International Code Council; www.iccsafe.org.
 - 3. ICC-ES - ICC Evaluation Service, LLC; www.icc-es.org.
- C. Federal Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. Information is subject to change and is up to date as of the date of the Contract Documents.
 - 1. COE - Army Corps of Engineers; www.usace.army.mil.
 - 2. CPSC - Consumer Product Safety Commission; www.cpsc.gov.
 - 3. DOC - Department of Commerce; National Institute of Standards and Technology; www.nist.gov.
 - 4. DOD - Department of Defense; www.quicksearch.dla.mil.
 - 5. DOE - Department of Energy; www.energy.gov.
 - 6. EPA - Environmental Protection Agency; www.epa.gov.

7. FAA - Federal Aviation Administration; www.faa.gov.
8. FG - Federal Government Publications; www.gpo.gov.
9. GSA - General Services Administration; www.gsa.gov.
10. HUD - Department of Housing and Urban Development; www.hud.gov.
11. LBL - Lawrence Berkeley National Laboratory; Environmental Energy Technologies Division; www.eetd.lbl.gov.
12. OSHA - Occupational Safety & Health Administration; www.osha.gov.
13. SD - Department of State; www.state.gov.
14. TRB - Transportation Research Board; National Cooperative Highway Research Program; The National Academies; www.trb.org.
15. USDA - Department of Agriculture; Agriculture Research Service; U.S. Salinity Laboratory; www.ars.usda.gov.
16. USDA - Department of Agriculture; Rural Utilities Service; www.usda.gov.
17. USDJ - Department of Justice; Office of Justice Programs; National Institute of Justice; www.ojp.usdoj.gov.
18. USP - U.S. Pharmacopeial Convention; www.usp.org.
19. USPS - United States Postal Service; www.usps.com.

D. Standards and Regulations: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the standards and regulations in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CFR - Code of Federal Regulations; Available from Government Printing Office; www.gpo.gov/fdsys.
2. DOD - Department of Defense; Military Specifications and Standards; Available from DLA Document Services; www.quicksearch.dla.mil.
3. DSCC - Defense Supply Center Columbus; (See FS).
4. FED-STD - Federal Standard; (See FS).
5. FS - Federal Specification; Available from DLA Document Services; www.quicksearch.dla.mil.
 - a. Available from Defense Standardization Program; www.dsp.dla.mil.
 - b. Available from General Services Administration; www.gsa.gov.
 - c. Available from National Institute of Building Sciences/Whole Building Design Guide; www.wbdg.org/ccb.
6. MILSPEC - Military Specification and Standards; (See DOD).
7. USAB - United States Access Board; www.access-board.gov.
8. USATBCB - U.S. Architectural & Transportation Barriers Compliance Board; (See USAB).

E. State Government Agencies: Where abbreviations and acronyms are used in Specifications or other Contract Documents, they shall mean the recognized name of the entities in the following list. This information is subject to change and is believed to be accurate as of the date of the Contract Documents.

1. CBHF; State of California; Department of Consumer Affairs; Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation; www.bearhfti.ca.gov.
2. CCR; California Code of Regulations; Office of Administrative Law; California Title 24 Energy Code; www.calregs.com.
3. CDHS; California Department of Health Services; (See CDPH).
4. CDPH; California Department of Public Health; Indoor Air Quality Program; www.cal-iaq.org.
5. CPUC; California Public Utilities Commission; www.cpuc.ca.gov.
6. DSA; Division of the State Architect.
7. SCAQMD; South Coast Air Quality Management District; www.aqmd.gov.
8. TFS; Texas A&M Forest Service; Sustainable Forestry and Economic Development; www.txforestservation.tamu.edu.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 015000
TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.
- B. Related Requirements:
 - 1. Division 01 Section "Summary of Work" for work restrictions and limitations on utility interruptions.
 - 2. Division 01 Section "Fire Safety During Construction" for fire safety requirements during construction.
 - 3. Division 31 Sections applicable to site clearing, earthwork, and trenching for temporary erosion and sedimentation control.

1.3 USE CHARGES

- A. General: Installation, removal, and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to Owner, Architect, testing agencies, and authorities having jurisdiction.
- B. Water Service from Existing System: Water from Owner's existing water system is available for use; provide connections and extensions of services as required for construction operations.
 - 1. Water service is available for use without metering and without payment of use charges.
- C. Electric Power Service from Existing System: Electric power from Owner's existing system is available for use; provide connections and extensions of services as required for construction operations.
 - 1. Electric power service is available for use without metering and without payment of use charges.

1.4 SUBMITTALS

- A. Erosion and Sedimentation-Control Plan: Show compliance with requirements of EPA Construction General Permit or authorities having jurisdiction, whichever is more stringent.
 - 1. Comply with submittal requirements of Division 31 through 33 Sections as applicable for temporary erosion and sedimentation control plans.

1.5 QUALITY ASSURANCE

- A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.6 REGULATORY REQUIREMENTS

- A. Regulatory Requirements: Comply with industry standards and applicable laws and regulations of authorities having jurisdiction including, but not limited to, the following:
 - 1. California Code of Regulations, Title 24, California Code requirements as applicable to the project.
 - 2. Health and safety regulations.
 - 3. Utility company regulations.
 - 4. Police, fire department, and rescue squad rules.
 - 5. Environmental protection regulations.
 - 6. Regional Air Pollution Control District permits and requirements.
 - 7. California Department of Water Resources, Stormwater General Permit for projects with site work area greater than one acre.
 - 8. Comply with NFPA 241 "Standard for Safeguarding Construction, Alterations, and Demolition Operations," ANSI A10 Series standards for "Safety Requirements for Construction and Demolition," and NECA Electrical Design Library "Temporary Electrical Facilities."

1.7 PROJECT CONDITIONS

- A. Temporary Use of Permanent Facilities: Engage Installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.
- B. Conditions of Use: Keep temporary services and facilities clean and neat in appearance. Operate in a safe and efficient manner. Relocate temporary services and facilities as the Work progresses. Do not overload facilities or permit them to interfere with progress. Take necessary fire-prevention measures. Do not allow hazardous, dangerous, or unsanitary conditions, or public nuisances to develop or persist on-site.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Materials for temporary facilities shall be acceptable to Architect, Owner, and Authorities having Jurisdiction (AHJ), shall be appropriate for intended use, and shall comply with governing codes and regulations.
- B. Portable Chain-Link Fencing: Minimum 2-inch, 0.148-inch thick, galvanized-steel, chain-link fabric fencing; minimum 6 feet high with galvanized-steel pipe posts. Provide concrete or galvanized-steel bases for supporting posts.
- C. Fencing Windscreen: Polyester fabric scrim with grommets for attachment to chain link fence, size and color as acceptable to, or required by, authorities having jurisdiction.
- D. Polyethylene Sheet: Reinforced, fire-resistive sheet, 10-mil minimum thickness, with flame-spread rating of 15 or less per ASTM E 84 and passing NFPA 701 Test Method 2.

2.2 TEMPORARY STORAGE FACILITIES

- A. Storage and Fabrication Sheds: Provide sheds sized, furnished, and equipped to accommodate materials and equipment for construction operations.
 - 1. Store combustible materials apart from buildings.

2.3 TEMPORARY SANITARY FACILITIES

- A. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use by construction and related administrative personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities. Temporary toilets shall be self-contained, single-occupant units of the chemical, aerated recirculation type; provide units properly vented and fully enclosed with a glass-fiber-reinforced polyester shell or similar nonabsorbent material. Use of Owner's sanitary facilities is not permitted.
 - 1. Accessibility Requirements: Sanitary facilities serving support facilities such as offices, meeting rooms, plan rooms, and serving personnel not directly associated with the actual processes of construction shall be accessible for a person using a wheelchair and shall comply with CBC Section 11B-213 (Ref. CBC 11B-201.4).

2.4 EQUIPMENT

- A. Fire Extinguishers: Portable, UL rated; with class and extinguishing agent as required by locations and classes of fire exposures.

1. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas heaters with individual space thermostatic control.
 1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
 2. Heating Units: Listed and labeled for type of fuel being consumed, by a qualified testing agency acceptable to authorities having jurisdiction, and marked for intended location and application.
 3. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return-air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures."

PART 3 - EXECUTION

3.1 TEMPORARY FACILITIES, GENERAL

- A. Conservation: Coordinate construction and use of temporary facilities with consideration given to conservation of energy, water, and materials. Coordinate use of temporary utilities to minimize waste.

3.2 INSTALLATION, GENERAL

- A. Locate facilities at locations directed by the Owner where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.
- B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.3 SUPPORT FACILITIES INSTALLATION

- A. General: Locate storage containers, and other temporary construction and support facilities for easy access in the areas designated and approved by the Architect and Owner. Comply with the following:
 1. Do not locate temporary offices, shops, and sheds within 30 feet of building lines.
 2. Maintain support facilities until Architect schedules Substantial Completion inspection. Remove before Substantial Completion. Personnel remaining after Substantial Completion will be permitted to use permanent facilities, under conditions acceptable to Owner.

- B. Sanitary Facilities: Provide temporary toilets, wash facilities, safety shower and eyewash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.
 - 1. Use of Permanent Toilets: Use of Owner's existing or new toilet facilities is not permitted.
- C. Traffic Controls: Comply with requirements of authorities having jurisdiction.
 - 1. Protect existing site improvements to remain including curbs, pavement, and utilities.
 - 2. Maintain access for fire-fighting equipment and access to fire hydrants.
- D. Parking: Parking areas for construction personnel shall be at location(s) as directed by Owner.
- E. Storage and Staging: Use designated areas of Project site for storage and staging needs.
- F. Dewatering: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
 - 1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties or endanger permanent Work or temporary facilities.
- G. Project Signs: Provide Project signs as indicated. Unauthorized signs are not permitted.
 - 1. Project Address Sign: Provide temporary project address sign as required by Authority having Jurisdiction.
 - 2. Temporary Signs: Provide other signs as indicated and as required to inform public and individuals seeking entrance to Project.
 - a. Provide temporary, directional signs for construction personnel and visitors.
 - 3. Maintain and touchup signs so they are legible at all times.
- H. Waste Disposal Facilities: Provide waste-collection containers in sizes adequate to handle waste from construction operations.
 - 1. Comply with requirements of the following:
 - a. Authorities having jurisdiction.
 - b. Division 01 Section "Execution" for progress cleaning.
 - c. Division 01 Section "Construction Waste Management and Disposal."
 - 2. Collect waste from construction areas and elsewhere daily. Comply with requirements of NFPA 241 for removal of combustible waste material and debris. Enforce requirements strictly. Do not hold materials more than 7 days during normal weather or 3 days when the temperature is expected to rise above 80

deg F. Handle hazardous, dangerous, or unsanitary waste materials separately from other waste by containerizing properly. Dispose of material lawfully.

- I. Lifts and Hoists: Provide facilities necessary for hoisting materials and personnel.
 - 1. Truck cranes and similar devices used for hoisting materials are considered "tools and equipment" and not temporary facilities.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

- A. Protection of Existing Facilities: Protect existing vegetation, equipment, structures, utilities, and other improvements at Project site and on adjacent properties, except those indicated to be removed or altered. Repair damage to existing facilities.
- B. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
 - 1. Comply with work restrictions specified in Division 01 Section "Summary of Work."
- C. Temporary Erosion and Sedimentation Control: Provide measures to prevent soil erosion and discharge of soil-bearing water runoff and airborne dust to undisturbed areas and to adjacent properties and walkways, according to requirements erosion and sedimentation-control Drawings, EPA Construction General Permit, or authorities having jurisdiction, whichever is more stringent.
 - 1. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross tree or plant- protection zones.
 - 2. Inspect, repair, and maintain erosion and sedimentation-control measures during construction until permanent vegetation has been established.
 - 3. Clean, repair, and restore adjoining properties and roads affected by erosion and sedimentation from Project site during the course of Project.
 - 4. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.
- D. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.
- E. Tree and Plant Protection: Install temporary fencing located as indicated or outside the drip line of trees to protect vegetation from damage from construction operations. Protect tree root systems from damage, flooding, and erosion.
- F. Security Enclosure Fence and Lockup: Before construction operations begin, furnish and install project enclosure fence in a manner that will prevent people and animals from easily entering the site except by entrance gates. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

1. Extent of Fence: As required to enclose entire Project site or portion determined sufficient to accommodate construction operations.
- G. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.
- H. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.
- I. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
 1. Where heating or cooling is needed and permanent enclosure is incomplete, insulate temporary enclosures.
- J. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241; manage fire-prevention program.
 1. Prohibit smoking in construction areas. Comply with additional limits on smoking specified in other Sections.
 2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
 3. Develop and supervise an overall fire-prevention and protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.

3.5 MOISTURE AND MOLD CONTROL

- A. General: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.
- B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect as follows:
 1. Protect porous materials from water damage.
 2. Protect stored and installed material from flowing or standing water.
 3. Keep porous and organic materials from coming into prolonged contact with concrete.
 4. Remove standing water from decks.
 5. Keep deck openings covered or dammed.
- C. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:

1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Use temporary or permanent HVAC system to control humidity within ranges specified for installed and stored materials.
3. Comply with manufacturer's written instructions for temperature, relative humidity, and exposure to water limits.
 - a. Hygroscopic materials that may support mold growth, including wood and gypsum-based products, that become wet during the course of construction and remain wet for 48 hours are considered defective and require replacing.
 - b. Measure moisture content of materials that have been exposed to moisture during construction operations or after installation. Record readings beginning at time of exposure and continuing daily for 48 hours. Identify materials containing moisture levels higher than allowed. Report findings in writing to Architect.
 - c. Remove materials that cannot be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

- A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.
- B. Maintenance: Maintain facilities in good operating condition until removal.
 1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
- C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.
- D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
 1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
 2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION

SECTION 015116
FIRE SAFETY DURING CONSTRUCTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:

- 1. Requirements for fire safety during construction and demolition.
 - 2. Requirements for submittal of Contractor's Site Safety Plan (SSP).

- B. Related Sections:

- 1. Division 01 Section "Temporary Facilities and Controls" for additional facilities, requirements, and procedures required during construction.

1.3 SUBMITTALS

- A. Site Safety Plan: Submit Site Safety Plan (SSP) as required by California Fire Code (CFC) Section 3303.1.1.

- 1. The Contractor shall be responsible for the development, implementation and maintenance of an approved, written SSP establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration or demolition work. The plan shall address the requirements of CFC Chapter 33 and other applicable portions of the CFC, the duties of staff and staff training requirements. The SSP shall be submitted and approved by the governing agency before the start of construction. Any changes to the SSP shall be submitted for approval.

- a. SSP shall include the following information as applicable (Per CFC Section 3303.1.1):

- 1) Name and contact information of site safety director.
 - 2) Documentation of the training of the site safety director and fire watch personnel.
 - 3) Procedures for reporting emergencies.
 - 4) Fire department vehicle access routes.
 - 5) Location of fire protection equipment including portable fire extinguishers, standpipes, fire department connections and fire hydrants.

- 6) Smoking and cooking policies, designated areas to be used where approved, and signage locations in accordance with CFC Section 3305.8.
- 7) Location and safety considerations for temporary heating equipment.
- 8) Hot work permit plan.
- 9) Plans for control of combustible waste material.
- 10) Locations and methods for storage and use of flammable and combustible liquids and other hazardous materials.
- 11) Provisions for site security.
- 12) Changes that affect this plan.
- 13) Other site-specific information required by the fire code official.

1.4 REGULATORY REQUIREMENTS

A. Regulatory Requirements: Comply with applicable provisions of the following:

1. NFPA 241.
2. California Fire Code, 2022 Edition, Chapter 33 "Fire Safety During Construction and Demolition" and the 2022 Editions of the following California Codes as Referenced by the California Fire Code:
 - a. California Building Code (CBC).
 - b. California Mechanical Code (CMC).
 - c. California Plumbing Code (CPC).
 - d. California Electrical Code (CEC).

B. Responsibility for Fire Protection (CFC 3303)

1. Program Development and Maintenance: The Contractor shall be responsible for the development, implementation and maintenance of an approved written site safety plan establishing a fire prevention program at the project site applicable throughout all phases of the construction, repair, alteration, or demolition work. The plan shall address the requirements of CFC Section 3303.1
2. Site Safety Director: The Contractor shall designate a person to be the Site Safety Director. The Site Safety Director shall be responsible for ensuring compliance with the site safety plan. The Site Safety Director shall have the authority to enforce the provisions of the California Fire Code, Chapter 33, and other provisions as necessary to secure the intent of the California Fire Code, Chapter 33. Where guard service is provided in accordance with NFPA 241, the Site Safety Director shall be responsible for the guard service.
3. Daily Fire Safety Inspection: The Site Safety Inspector shall be responsible for completion of a daily fire safety inspection at the project site. Each day, all building and outdoor areas shall be inspected to ensure compliance with the inspection list in California Fire Code Section 3303.3. The results of each inspection shall be documented and maintained on-site until a certificate of occupancy has been issued. Documentation shall be immediately available on-site for presentation to the fire code official upon request.
 - a. Qualifications: Site Safety Directors shall acquire training specific to their roles and responsibilities. Upon request, the training and qualifications of

the Site Safety Director shall be submitted to the fire code official for approval.

4. Training: Training of fire watch and other responsible personnel in the use of fire protection equipment shall be the responsibility of the Site Safety Director. Records of training shall be kept and made a part of the written plan for the Site Safety Plan.
5. Fire Protection Devices: The Site Safety Director shall ensure that all fire protection equipment is maintained and serviced in accordance with the California Fire Code. Fire protection equipment shall be inspected in accordance with the fire protection program.
6. Hot Work Operations: The Site Safety Director shall ensure hot work operations and permit procedures are in accordance with the California Fire Code, Chapter 35.
7. Impairment of Fire Protection Systems: The Site Safety Director shall ensure impairments to any fire protection system are in accordance with California Fire Code, Section 901.
 - a. Smoke detectors and smoke alarms located in an area where airborne construction dust is expected shall be covered to prevent exposure to dust or shall be temporarily removed. Smoke detectors and alarms that were removed shall be replaced upon conclusion of dust producing work. Smoke detectors and smoke alarms that were covered shall be inspected and cleaned, as necessary, upon conclusion of dust producing work.
8. Temporary Covering of Fire Protection Devices: Coverings placed on or over fire protection devices to protect them from damage during construction processes shall be immediately removed upon the completion of the construction processes in the room or area in which the devices are installed.

C. Temporary Heating Equipment (CFC 3304):

1. Listing: Temporary heating devices shall be listed and labeled. Installation, maintenance and use of temporary heating devices shall be in accordance with the terms of the listing and the manufacturer's directions.
2. LP-Gas Heaters: Fuel supplies for liquified petroleum gas fired heaters shall comply with California Fire Code, Chapter 61 Liquefied Petroleum Gases, and the California Mechanical Code.
3. Refueling: Refueling operations for liquid fueled equipment or appliances shall be conducted in accordance with the California Fire Code, Section 5705. The equipment or appliance shall be allowed to cool prior to refueling.
4. Installation: Clearance to combustibles from temporary heating devices shall be maintained in accordance with the labeled equipment. When in operation, temporary heating devices shall be fixed in place and protected from damage, dislodgement or overturning in accordance with the manufacturer's instructions.
5. Supervision: The use of temporary heating devices shall be supervised and maintained only by competent personnel.
6. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.

D. Precautions Against Fire (CFC 3305):

1. Smoking: Smoking shall not be allowed on the project site.
2. Combustible Debris, Rubbish and Waste:
 - a. Combustible debris, rubbish and waste shall not be accumulated within buildings.
 - b. Combustible debris, rubbish and waste material shall be removed from buildings at the end of each shift of work.
 - c. Rubbish containers with a capacity exceeding 5.33 cubic feet (40 gallons) used for temporary storage of combustible debris, rubbish and waste materials, shall have tight fitting or self-closing lids. Such containers shall be constructed entirely of materials that are non-combustible or materials that meet a peak rate of heat release not exceeding 300 kW/m² when tested in accordance with ASTM E 1354 at an incident heat flux of 50 kW/m² in the horizontal orientation.
 - d. Materials susceptible to spontaneous ignition, such as oily rags, shall be stored in a listed disposal container.
3. Burning: Burning of materials shall not be allowed on the project site.
4. Fire Watch: Where required by the fire code official or the Site Safety Plan established in accordance with California Fire Code Section 3303.1, a fire watch shall be provided for building demolition and for building construction.
 - a. Fire Watch During Construction: A fire watch shall be provided during non-working hours for new construction that exceeds 40 feet in height above the lowest adjacent grade at any point along the building perimeter, for new multi-story construction with aggregate area exceeding 50,000 sf per story or as required by the fire code official.
 - b. Fire Watch Personnel:
 - 1) Duties: The primary duty of fire watch personnel shall be to perform constant patrols and watch for the occurrence of fire. The combination of fire watch duties and site security duties is acceptable.
 - 2) Training: Personnel shall be trained to serve as an on-site fire watch. Training shall include the use of portable fire extinguishers. Fire extinguishers and fire reporting shall be in accordance with California Fire Code, Section 3310.
 - 3) Means of Notification: Fire watch personnel shall be provided with not fewer than one approved means for notifying the fire department.
 - c. Fire Watch Location: The fire watch shall include areas specified by the Site Safety Plan established in accordance with California Fire Code Section 3303.
 - d. Fire Watch Records: Fire watch personnel shall keep a record of all time periods of duty, including the log entry for each time the site was patrolled and each time a structure was entered and inspected. Records shall be made available for review by the fire code official upon request.
5. Cutting and Welding: Welding, cutting, open torches, and other hot work operations and equipment shall comply with California Fire Code Chapter 35 "Welding and Other Hot Work."

6. Temporary Wiring for Electrical Power: Temporary wiring for electrical power and lighting installations used in connection with the construction, alteration or demolition of buildings, structures, equipment, or similar activities shall comply with the California Electrical Code.
- E. Flammable and Combustible Liquids (CFC 3306):
1. Storage of Flammable and Combustible Liquids: Storage of flammable and combustible liquids shall be in accordance with California Fire Code Section 5704.
 2. Class I and Class II Liquids: Storage, use, and handling of flammable and combustible liquids at construction sites shall be in accordance with California Fire Code Section 5706.2. Ventilation shall be provided for operations involving the application of materials containing flammable solvents.
 3. Housekeeping: Flammable and combustible liquid storage areas shall be maintained clear of combustible vegetation and waste materials. Such storage areas shall not be used for the storage of combustible materials.
 4. Precautions Against Fire: Sources of ignition and smoking shall be prohibited in flammable and combustible liquid storage areas. Signs shall be posted in accordance with California Fire Code Section 310.
 5. Handling at Point of Final Use: Class I and Class II liquids shall be kept in approved safety containers.
 6. Leakage and Spills: Leaking vessels shall be immediately repaired or taken out of service and spills shall be cleaned up and disposed of properly.
- F. Flammable Gases (CFC 3307):
1. Storage and Handling: Storage and handling of flammable gasses shall comply with California Fire Code Chapter 58 "Flammable Gases and Flammable Cryogenic Fluids."
 2. Cleaning with Flammable Gases: Flammable gases shall not be used to clean or remove debris from piping open to the atmosphere.
- G. Explosive Materials (CFC 3308): Explosive materials shall not be allowed.
- H. Portable Generators (CFC 3309): Portable generators used at construction and demolitions sites shall comply with California Fire Code Section 1204
- I. Fire Reporting (CFC 3310)
1. Emergency Telephone: Emergency telephone facilities with ready access shall be provided in an approved location at the construction site, or an approved equivalent means of communication shall be provided. The street address of the construction site and the emergency telephone number of the fire department shall be posted adjacent to the telephone. Alternatively, where an equivalent means of communication has been approved, the site address and fire department emergency telephone number shall be posted at the main entrance to the site, in guard shacks, and in the construction site office.
- J. Access for Fire Fighting (CFC 3311):

1. Required Access: Approved vehicle access for firefighting shall be provided to all construction or demolition sites. Vehicle access shall be provided to within 100 feet of temporary or permanent fire department connections. Vehicle access shall be provided by either temporary or permanent roads capable of supporting vehicle loading under all weather conditions. Vehicle access shall be maintained until permanent fire apparatus access roads are available.
2. Key Boxes: Key boxes shall be provided as required by California Fire Code Chapter 5 "Fire Service Features."

K. Means of Egress (CFC 3312):

1. Stairways Required: Where building construction exceeds 40 feet in height above the lowest level of fire department vehicle access, a temporary or permanent stairway shall be provided.
2. Means of Egress: Required means of egress and required accessible means of egress shall be maintained during construction and demolition, remodeling or alterations and additions to any building unless an approved temporary means of egress system is provided.
3. Combustible Materials Storage: Combustible materials associated with construction, demolition, remodeling or alterations to an occupied structure shall not be stored in exits, enclosures for stairs, or exit access corridors serving an occupant load of 30 or more.

L. Water Supply for Fire Protection (CFC 3313):

1. When Required: An approved water supply for fire protection, either temporary or permanent, shall be made available as soon as combustible building materials arrive on the site, on concealment of vertical combustible construction, and on installation of a standpipe system in buildings under construction, in accordance with California Fire Code Section 3313.2 through 3313.5.

M. Standpipes (CFC 3314):

1. Where Required: In buildings required to have standpipes by California Fire Code Section 905.3.1, not less than one standpipe shall be provided for use during construction. Such standpipes shall be installed prior to construction exceeding 40 feet in height above the lowest level of fire department vehicle access. Such standpipes shall be provided with fire department hose connections at locations adjacent to stairways complying with California Fire Code Section 3312.1. As construction progresses, such standpipes shall be extended to within one floor of the highest point of construction having secured decking or flooring.
2. Buildings Being Demolished: Where a building is being demolished and a standpipe is existing within such a building, such standpipe shall be maintained in an operable condition so as to be available for use by the fire department. Such standpipe shall be demolished with the building but shall not be demolished more than one floor below the floor being demolished.
3. Detailed Requirements: Standpipes shall be installed in accordance with the provisions of California Fire Code Section 905.

- a. Standpipes shall be either temporary or permanent in nature, and with or without a water supply, provided that such standpipes comply with the requirements of California Fire Code Section 905 as to capacity, outlets and materials.

N. Portable Fire Extinguishers (CFC 3316):

- 1. Portable Fire Extinguishers: Structures under construction, alteration or demolition shall be provided with not less than one approved portable fire extinguisher in accordance with the California Fire Code, Section 906 and sized for not less than ordinary hazard, as follows:
 - a. At each stairway on all floor levels where combustible materials have accumulated.
 - b. In every storage and construction shed.
 - c. Additional portable fire extinguishers shall be provided where special hazards exist including, but not limited to, the storage and use of flammable and combustible liquids.

O. Motorized Construction Equipment (CFC 3317):

- 1. Conditions of Use: Internal combustion powered construction equipment shall be used in accordance with all of the following conditions:
 - a. Equipment shall be located so that exhausts do not discharge against combustible material.
 - b. Exhausts shall be piped to the outside of the building.
 - c. Equipment shall not be refueled while in operation.
 - d. Fuel for equipment shall be stored in approved areas outside of the building.

P. Safeguarding Roofing Operations (CFC 3318):

- 1. General: Roofing operations utilizing heat producing systems or other ignition sources shall be conducted in accordance with California Fire Code Sections 3318.2 and 3318.3, and Chapter 35.
- 2. Asphalt and Tar Kettles: Asphalt and tar kettles shall be operated in accordance with the California Fire Code, Section 303.
- 3. Fire Extinguishers for Roofing Operations: Fire extinguishers shall comply with the California Fire Code, Section 906. There shall be not less than one multi-purpose portable fire extinguisher with a minimum 3-A 40-B:C rating on the roof being covered or repaired.

PART 2 - PRODUCTS

2.1 TEMPORARY EQUIPMENT, GENERAL

- A. Temporary Equipment: Temporary equipment shall comply with requirements of Division 01 Section "Temporary Facilities and Controls," and shall comply with the requirements of this Section.

PART 3 - EXECUTION

- A. Fire Safety Observation, Procedures, and Features: Provide fire safety observation activities, procedures, and features as required and in compliance with regulatory requirements.

END OF SECTION

SECTION 016000
PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.
- B. Related Requirements:
 - 1. Division 01 Section "Substitution Procedures" for requests for substitutions.

1.3 DEFINITIONS

- A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
 - 1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, which is current as of date of the Contract Documents.
 - 2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
 - 3. Comparable Products: Products of a listed manufacturer that are demonstrated to meet or exceed the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified 'Basis of Design' product.
- B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.
 - 1. Evaluation of Comparable Products: In addition to the basis-of-design product description, product attributes and characteristics may be listed to establish the

significant qualities related to type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other special features and requirements for purposes of evaluating comparable products of additional manufacturers named in the specification. Manufacturer's published attributes and characteristics of basis-of-design product also establish salient characteristics of products for purposes of evaluating comparable products.

- C. Subject to Compliance with Requirements: Where the phrase "Subject to compliance with requirements" introduces a product selection procedure in an individual Specification Section, provide products qualified under the specified product procedure. In the event that a named product or product by a named manufacturer does not meet the other requirements of the specifications, select another named product or product from another named manufacturer that does meet the requirements of the specifications; submit a comparable product request or substitution request, if applicable.
- D. Comparable Product Request Submittal: An action submittal requesting consideration of a comparable product, including the following information:
 - 1. Identification of basis-of-design product or fabrication or installation method to be replaced, including Specification Section number and title and Drawing numbers and titles.
 - 2. Data indicating compliance with the requirements specified in Part 2 "Comparable Products" Article.
- E. Basis-of-Design Product Specification Submittal: An action submittal complying with requirements in Division 01 Section "Submittal Procedures."
- F. Substitution: Refer to Division 01 Section "Substitution Procedures" for definition and limitations on substitutions.

1.4 QUALITY ASSURANCE

- A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.
- B. Identification of Products: Except for required labels and operating data, do not attach or imprint manufacturer or product names or trademarks on exposed surfaces of products or equipment that will be exposed to view in occupied spaces or on the exterior.
 - 1. Labels: Locate required product labels and stamps on a concealed surface, or, where required for observation following installation, on a visually accessible surface that is not conspicuous.

2. Equipment Nameplates: Provide a permanent nameplate on each item of service- or power-operated equipment. Locate on a visually accessible but inconspicuous surface. Include information essential for operation, including the following:
 - a. Name of product and manufacturer.
 - b. Model and serial number.
 - c. Capacity.
 - d. Speed.
 - e. Ratings.
3. See individual identification Sections in Divisions 21, 22, 23, and 26 for additional equipment identification requirements.

1.5 COORDINATION

- A. Modify or adjust affected work as necessary to integrate work of approved comparable products and approved substitutions.

1.6 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.
- B. Delivery and Handling:
 1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
 2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
 3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
 4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.
- C. Storage:
 1. Provide a secure location and enclosure at Project site for storage of materials and equipment.
 2. Store products to allow for inspection and measurement of quantity or counting of units.
 3. Store materials in a manner that will not endanger Project structure.
 4. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation and with adequate protection from wind.

5. Protect foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
6. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
7. Protect stored products from damage and liquids from freezing.

1.7 PRODUCT WARRANTIES

- A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.
 1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
 2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner and issued in the name of the Owner or endorsed by manufacturer to Owner.
- B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
 1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
 2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
 3. See Divisions 02 through 33 Sections for specific content requirements and particular requirements for submitting special warranties.
- C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

- A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
 1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
 2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
 3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:

1. Limited List of Products: Where Specifications include a list of names of both manufacturers and products, provide one of the products listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
 - a. Limited list of products may be indicated by the phrase "Subject to compliance with requirements, provide one of the following."
2. Limited List of Manufacturers: Where Specifications include a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements. Comparable products or substitutions for Contractor's convenience will be considered.
 - a. Limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, provide products by one of the following."
3. Non-Limited List of Manufacturers: Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed or a product by an unnamed manufacturer that complies with requirements.
 - a. Non-limited list of manufacturers is indicated by the phrase "Subject to compliance with requirements, available manufacturers whose products may be incorporated in the Work include, but are not limited to, the following."
 - b. Provision of products of an unnamed manufacturer is not considered a substitution, if the product complies with requirements.
4. Basis-of-Design Products: Where Specifications indicate a manufacturer and product indicated by the phrase "Basis of Design," provide the product indicated.
 - a. Where specifications list manufacturers of comparable products subject to compliance with requirements, comparable products complying with properties and characteristics based on the named product may be provided by one of the other named manufacturers.
 - b. Where specifications do not list additional manufacturers, other products may be considered for substitution subject to compliance with requirements in Division 01 Section 012500 "Substitution Procedures" and compliance with properties and characteristics based on the named product.

- C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.
- D. Visual Matching Specification: Where Specifications include the phrase "match Architect's sample," provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
 - 1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Section 012500 "Substitution Procedures" for proposal of product.
- E. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or a similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.
- F. Sustainable Product Selection: Where Specifications require product to meet sustainable product characteristics, select products complying with indicated requirements. Comply with requirements in Division 01 sustainability requirements Section and individual Specification Sections.

2.2 COMPARABLE PRODUCTS

- A. Conditions for Consideration of Comparable Products: Architect will consider Contractor's request for comparable products when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with the following requirements:
 - 1. Evidence that proposed product does not require revisions to the Contract Documents, is consistent with the Contract Documents, will produce the indicated results, and is compatible with other portions of the Work.
 - 2. Detailed comparison of significant qualities of proposed product with those of the named basis-of-design product. Significant product qualities include attributes, such as type, function, in-service performance and physical properties, weight, dimension, durability, visual characteristics, and other specific features and requirements.
 - 3. Evidence that proposed product provides specified warranty.
 - 4. Samples, if requested.
- B. Architect's Action on Comparable Products Submittal: If necessary, Architect will request additional information or documentation for evaluation, as specified in Section 013300 "Submittal Procedures."

1. Form of Approval of Submittal: As specified in Division 01 Section 013300 "Submittal Procedures."
 2. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.
- C. Submittal Requirements, Two-Step Process: Approval by the Architect of Contractor's request for use of comparable product is not intended to satisfy other submittal requirements. Comply with specified submittal requirements.

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017300 EXECUTION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
 - 1. Construction layout.
 - 2. Field engineering and surveying.
 - 3. Installation of the Work.
 - 4. Cutting, patching and repairing.
 - 5. Progress cleaning.
 - 6. Protection of installed construction.
 - 7. Protection of existing construction.
 - 8. Repair of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Summary of Work" for limits on use of Project site.
 - 2. Division 02 Section "Selective Demolition" for demolition and removal of selected portions of the building.

1.3 DEFINITIONS

- A. Accessible Route: A continuous unobstructed path connecting accessible elements and spaces of an accessible site, building or facility that can be negotiated by a person with a disability using a wheelchair, and that is also safe for and usable by persons with other disabilities. Interior accessible routes may include corridors, hallways, floors, ramps, elevators and lifts. Exterior accessible routes may include accessible parking stalls and access aisles, curb ramps, crosswalks at vehicular ways, walks, ramps and lifts.
- B. Cutting: Removal of in-place construction necessary to permit installation or performance of other work.
- C. Patching: Fitting and repair work required to restore construction to original conditions after installation of other work.

1.4 QUALITY ASSURANCE

- A. Surveyor Qualifications: A professional engineer or land surveyor who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.
- B. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
 - 1. Structural Elements: When cutting of structural elements must be performed, notify Architect of locations and details of cutting and await directions from Architect before proceeding. Shore, brace, and support structural elements during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection.
 - 2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety. Operational elements include the following:
 - a. Primary operational systems and equipment.
 - b. Fire separation assemblies.
 - c. Air or smoke barriers.
 - d. Fire-suppression systems.
 - e. Mechanical systems piping and ducts.
 - f. Control systems.
 - g. Communication systems.
 - h. Fire-detection and alarm systems.
 - i. Conveying systems.
 - j. Electrical wiring systems.
 - k. Operating systems of special construction.
 - 3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety. Other construction elements include but are not limited to the following:
 - a. Water, moisture, or vapor barriers.
 - b. Membranes and flashings.
 - c. Sprayed fire-resistive material.
 - d. Equipment supports.
 - e. Piping, ductwork, vessels, and equipment.
 - 4. Visual Elements: Cut and patch construction in a manner that results in no visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

- C. Manufacturer's Installation Instructions: Obtain and maintain on-site manufacturer's written recommendations and instructions for installation of products and equipment.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. General: Comply with requirements specified in Division 02 through 33 Sections.
- B. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
 - 1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

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

2. List of detrimental conditions, including substrates.
 3. List of unacceptable installation tolerances.
 4. Recommended corrections.
- D. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

- A. Existing Utility Information: Furnish information to local utility and Owner that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.
- B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.
- C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings. Verify service space requirements for equipment and operating items.
- D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Request for Information."

3.3 CONSTRUCTION LAYOUT

- A. Verification: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.
- B. General: Engage a land surveyor to lay out the Work using accepted surveying practices.
1. Establish benchmarks and control points to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.
 2. Establish limits on use of Project site.
 3. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.
 4. Inform installers of lines and levels to which they must comply.
 5. Check the location, level and plumb, of every major element as the Work progresses.
 6. Notify Architect when deviations from required lines and levels exceed allowable tolerances.

7. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.
- C. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and rim and invert elevations.

3.4 FIELD ENGINEERING

- A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.
1. Do not change or relocate existing benchmarks or control points without prior written approval of Architect. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect before proceeding.
 2. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.
 3. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.
 4. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

3.5 INSTALLATION

- A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
1. Make vertical work plumb and make horizontal work level.
 2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
 3. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated.
 4. Maintain minimum headroom clearance of 96 inches in occupied spaces and 90 inches in unoccupied spaces.
- B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.
- C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.
- D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.
- E. Sequence the Work and allow adequate clearances to accommodate movement of construction items on site and placement in permanent locations.

- F. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.
- G. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.
- H. Attachment: Provide blocking and attachment plates and anchors and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
 - 1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
 - 2. Allow for building movement, including thermal expansion and contraction.
 - 3. Coordinate installation of anchorages. Furnish setting drawings, templates, and directions for installing anchorages, including sleeves, concrete inserts, anchor bolts, and items with integral anchors, that are to be embedded in concrete or masonry. Deliver such items to Project site in time for installation.
- I. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.
- J. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.
- K. Repair or remove and replace damaged, defective, or nonconforming Work.

3.6 CUTTING AND PATCHING

- A. General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
 - 1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.
- B. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during installation or cutting and patching operations, by methods and with materials so as not to void existing warranties.
- C. Temporary Support: Provide temporary support of work to be cut.
- D. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.
- E. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage

elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.

1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
 2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
 3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.
 4. Excavating and Backfilling: Comply with requirements in applicable Division 31 Sections where required by cutting and patching operations.
 5. Mechanical and Electrical Services: Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit to prevent entrance of moisture or other foreign matter after cutting.
 6. Proceed with patching after construction operations requiring cutting are complete.
- F. Patching and Repairing: Patch and repair construction by grinding, filling, leveling, refinishing, closing up, and similar operations following performance of other work. Provide materials and comply with installation requirements specified in other Sections, where applicable.
1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
 2. Exposed Finishes: Restore exposed finishes of patched and repaired areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
 - a. Clean piping, conduit, and similar features before applying paint or other finishing materials.
 - b. Restore damaged pipe covering to its original condition.
 3. Floors and Walls: Where walls or partitions that are removed extend one finished area into another, patch and repair floor and wall surfaces in the new space. Provide an even surface of uniform finish, color, texture, and appearance. Remove in-place floor and wall coverings and replace with new materials, if necessary, to achieve uniform color and appearance.
 - a. Where patching occurs in a painted surface, prepare substrate and apply primer and intermediate paint coats appropriate for substrate over the patch, and apply final paint coat over entire unbroken surface containing the patch. Provide additional coats until patch blends with adjacent surfaces.
 - b. Where finishes have been removed, patch and repair substrates to receive new finishes; substrates shall be prepared to comply with requirements of manufacturer of final finish material.
 4. Ceilings: Patch, repair, or rehang in-place ceilings as necessary to provide an even-plane surface of uniform appearance.

5. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition and ensures thermal and moisture integrity of building enclosure.
- G. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.7 REPAIR OF THE WORK

- A. Repair or remove and replace defective construction. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment. Where damaged or worn items cannot be repaired or restored, provide replacements. Remove and replace operating components that cannot be repaired. Restore damaged construction and permanent facilities used during construction to specified condition.
 1. Remove and replace chipped, scratched, and broken glass, reflective surfaces, and other damaged transparent materials.
 2. Touch up and otherwise repair and restore marred or exposed finishes and surfaces. Replace finishes and surfaces that already show evidence of repair or restoration.
 - a. Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates. Remove paint applied to required labels and identification.
 3. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.

3.8 OWNER-INSTALLED PRODUCTS

- A. Site Access: Provide access to Project site for Owner's construction personnel.
- B. Coordination: Coordinate construction and operations of the Work with work performed by Owner's construction personnel.
 1. Construction Schedule: Inform Owner of Contractor's preferred construction schedule for Owner's portion of the Work. Adjust construction schedule based on a mutually agreeable timetable. Notify Owner if changes to schedule are required due to differences in actual construction progress.
 2. Preinstallation Conferences: Include Owner's construction personnel at preinstallation conferences covering portions of the Work that are to receive Owner's work. Attend preinstallation conferences conducted by Owner's construction personnel if portions of the Work depend on Owner's construction.

3.9 PROGRESS CLEANING

- A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
 - 1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
 - 2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F.
 - 3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.
 - a. Use containers intended for holding waste materials of type to be stored.
- B. Site: Maintain Project site free of waste materials and debris.
- C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
 - 1. Remove liquid spills promptly.
 - 2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.
- D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.
- E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.
- F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.
- G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways. Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."
- H. During handling and installation, clean and protect construction in progress and adjoining materials already in place. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.
- I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

- J. Limiting Exposures: Supervise construction operations to assure that no part of the construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during the construction period.

3.10 STARTING AND ADJUSTING

- A. Coordinate startup and adjusting of equipment and operating components with requirements in Division 01 Section "General Commissioning Requirements."
- B. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.
- C. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.
- D. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- E. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.11 PROTECTION AND REPAIR

- A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.
- B. Repair Work previously completed and subsequently damaged during construction period. Repair to like-new condition.
- C. Comply with manufacturer's written instructions for temperature and relative humidity following installation.
- D. Protection of Existing Items: Provide protection and ensure that existing items to remain are undisturbed by construction are maintained in condition that existed at commencement of the Work.

END OF SECTION

SECTION 017419
CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for the following:
 - 1. Recycling nonhazardous construction and demolition waste.
 - 2. Disposing of nonhazardous construction and demolition waste.
- B. Related Requirements:
 - 1. Division 02 Section "Selective Demolition" for disposition of waste resulting from partial demolition of buildings, structures, and site improvements.
 - 2. Division 31 Section "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

1.3 DEFINITIONS

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

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition and construction waste becomes property of Contractor.

1.5 ACTION SUBMITTALS

- A. Waste Management Plan: Submit Waste Management Plan within 30 days of date established for the Notice to Proceed indicating method of compliance with the California Green Building Standards Code.

1.6 INFORMATIONAL SUBMITTALS

- A. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Use separate forms for construction waste and demolition waste. Include the following information:
 - 1. Material category.
 - 2. Generation point of waste.
 - 3. Total quantity of waste in tons.
 - 4. Quantity of waste salvaged, both estimated and actual in tons.
 - 5. Quantity of waste recycled, both estimated and actual in tons.
 - 6. Total quantity of waste recovered (salvaged plus recycled) in tons.
 - 7. Total quantity of waste recovered (salvaged plus recycled) as a percentage of total waste.
- B. Waste Reduction Calculations: Before request for Substantial Completion, submit calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.
- C. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.
- D. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.
- E. Recycling and Processing Facility Records: Indicate receipt and acceptance of recyclable waste by recycling and processing facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- F. Landfill and Incinerator Disposal Records: Indicate receipt and acceptance of waste by landfills and incinerator facilities licensed to accept them. Include manifests, weight tickets, receipts, and invoices.
- G. Qualification Data: For waste management coordinator.

1.7 QUALITY ASSURANCE

- A. Waste Management Coordinator Qualifications: Experienced firm, or individual employee assigned by the General Contractor, with a record of successful waste management coordination of projects with similar requirements. Individual of firm, or Contractor's employee, shall be a LEED-Accredited Professional, certified by the USGBC, as waste management coordinator.
- B. Regulatory Requirements: Comply with transportation and disposal regulations of authorities having jurisdiction.
- C. Waste Management Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:
 - 1. Review and discuss waste management plan including responsibilities of waste management coordinator.
 - 2. Review requirements for documenting quantities of each type of waste and its disposition.
 - 3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
 - 4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
 - 5. Review waste management requirements for each trade.

1.8 REGULATORY REQUIREMENTS

- A. Construction Waste Management: Refer to CGBSC Section 5.408.1 Construction Waste Management. Recycle and/or salvage for reuse a minimum of 65 percent of the non-hazardous construction and demolition waste in accordance with CGBSC Section 5.408.1.1, 5.408.1.2, or 5.408.1.3 (Below) or meet a local construction and demolition waste management ordinance, whichever is more stringent:
 - 1. GBSC Section 5.408.1.1, Construction Waste Management Plan: Where a local jurisdiction does not have a construction and demolition waste management ordinance that is more stringent, provide Waste Management Plan that:
 - a. Identifies the construction and demolition waste materials to be diverted from disposal by efficient usage, recycling, reuse on the project or salvage for future use or sale.
 - b. Determines if construction and demolition waste materials will be sorted on-site (source separated) or bulk mixed (single stream).
 - c. Identifies diversion facilities where construction and demolition waste material collected will be taken.
 - d. Specifies the amount of construction and demolition waste materials diverted shall be calculated by weight or volume, but not by both.
 - 2. GBSC Section 5.408.1.2, Waste Management Company: Utilize a waste management company that can provide verifiable documentation that the

percentage of construction and demolition waste material diverted from the landfill complies with CGBSC Section 5.408.1.

- a. Exception 1: Excavated soil and land-clearing debris.
 - b. Exception 2: Alternate waste reduction methods developed by working with local agencies if diversion or recycle facilities capable of compliance with this item do not exist.
 - c. Demolition waste meeting local ordinance or calculated in consideration of local recycling facilities and markets.
3. GBSC Section 5.408.1.3, Waste Stream Reduction Alternative: The combined weight of new construction disposal that does not exceed two pounds per square foot of building area may be deemed to meet the 65 percent minimum requirement as approved by the enforcing agency.
- B. Documentation, CGBSC Section 5.408.1.4: Documentation shall be provided to the enforcing agency which demonstrates compliance with Sections 5.408.1.1. through 5.408.1.3. The Waste management plan shall be updated as necessary and shall be accessible during construction for examination by the enforcing agency.

PART 2 - PRODUCTS - (Not Used)

PART 3 - EXECUTION

3.1 PLAN IMPLEMENTATION

- A. General: Implement approved waste management procedures. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management procedures during the entire duration of the Contract.
1. Comply with operation, termination, and removal requirements in Division 01 Section "Temporary Facilities and Controls."
- B. Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan.
- C. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.
1. Distribute waste management procedures to everyone concerned within three days of submittal return.
 2. Distribute waste management procedures to entities when they first begin work on-site. Review procedures and locations established for salvage, recycling, and disposal.

- D. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Designate and label specific areas on Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
 - 2. Comply with Division 01 Section "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING DEMOLITION AND CONSTRUCTION WASTE, GENERAL

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

3.3 RECYCLING DEMOLITION WASTE

- A. Asphalt Paving: Break up and transport paving to asphalt-recycling facility.

- B. Concrete: Remove reinforcement and other metals from concrete and sort with other metals.

3.4 RECYCLING CONSTRUCTION WASTE

A. Packaging:

1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag materials.
3. Wood Pallets: As much as possible, require deliveries using pallets to remove pallets from Project site. For pallets that remain on-site, break down pallets into component wood pieces and comply with requirements for recycling wood.
4. Crates: Break down crates into component wood pieces and comply with requirements for recycling wood.

B. Wood Materials:

1. Clean Cut-Offs of Lumber: Grind or chip into small pieces.
2. Clean Sawdust: Bag sawdust that does not contain painted or treated wood.
 - a. Comply with requirements in Division 32 Sections as applicable to planting for use of clean sawdust as organic mulch.

- C. Gypsum Board: Stack large clean pieces on wood pallets or in container and store in a dry location.

3.5 UNIVERSAL WASTE

- A. Additions and alterations to a building shall require verification that Universal Waste items such as fluorescent lamps and mercury containing ballasts and thermostats as well as other California prohibited Universal waste materials are disposed of properly and are diverted from landfills.

1. Refer to Universal Waste Rule link at <https://dtsc.ca.gov/universalwaste/>.

3.6 DISPOSAL OF WASTE

- A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.

1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on-site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

- B. Burning: Do not burn waste materials.

- C. Disposal: Remove waste materials from Owner's property and legally dispose of them.

END OF SECTION

SECTION 017700
CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
 - 1. Substantial Completion procedures.
 - 2. Final Completion procedures.
 - 3. Final cleaning.
 - 4. Repair of the Work.
- B. Related Requirements:
 - 1. Division 01 Section "Payment Procedures" for requirements for Applications for Payment for Substantial Completion and Final Completion.
 - 2. Division 01 Section "Execution" for repair of the Work.
 - 3. Division 01 Section "Operation and Maintenance Data" for operation and maintenance documentation requirements.
 - 4. Division 01 Section "Project Record Drawings" for preparing and submitting Project Record Drawings.
 - 5. Division 01 Section "Warranties" for submitting final warranty information.
 - 6. Divisions 02 through 33 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.3 DEFINITIONS

- A. List of Incomplete Items: Contractor-prepared list of items to be completed or corrected, prepared for the Architect's use prior to Architect's inspection, to determine if the Work is substantially complete.

1.4 SUBMITTALS

- A. Contractor's List of Incomplete Items: Initial submittal at Substantial Completion.
- B. Contractor's List of Incomplete Items: Final submittal at Final Completion.

1.5 SUBSTANTIAL COMPLETION PROCEDURES

- A. Contractor's List of Incomplete Items: Prepare and submit a list of items to be completed and corrected (Contractor's punch list), indicating the value of each item on the list and reasons why the Work is incomplete.
- B. Submittals Prior to Substantial Completion: Submit the following a minimum of 10 days prior to requesting inspection for determining date of Substantial Completion. List items below that are incomplete at time of request.
 - 1. Certificates of Release: Obtain and submit releases from authorities having jurisdiction permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
 - 2. Submit closeout submittals specified in other Division 01 Sections, including project record drawings, operation and maintenance data, construction photographic documentation, warranties, and similar final record information.
 - 3. Submit closeout submittals specified in individual Division 02 through 33 Sections, including specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
 - 4. Submit maintenance materials specified in individual Division 02 through 33 Sections, including tools, spare parts, extra materials, and similar items, and deliver to location designated by Architect. Label with manufacturer's name and model number where applicable.
 - 5. Submit testing, adjusting, and balancing records.
 - 6. Submit sustainable design submittals not previously submitted.
 - 7. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
- C. Procedures Prior to Substantial Completion: Complete the following a minimum of 10 days prior to requesting inspection for determining date of Completion. List items below that are incomplete at time of request.
 - 1. Advise Owner of pending insurance changeover requirements.
 - 2. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
 - 3. Complete startup and testing of systems and equipment.
 - 4. Perform preventive maintenance on equipment used prior to Substantial Completion.
 - 5. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems. Submit demonstration and training video recordings specified in Division 01 Section "Demonstration and Training."
 - 6. Advise Owner of changeover in utility services.
 - 7. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
 - 8. Complete final cleaning requirements, including touchup painting.
 - 9. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

- D. Inspection: Submit a written request for inspection for Completion a minimum of 10 days prior to date the work will be completed and ready for inspection. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Following inspection, Architect will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected.
1. Architect's Punch List: During inspection, Architect will prepare a list of items needing completion or correction (punch list), a copy of the punch list will be distributed to the Contractor and Owner.
 2. Reinspection: Request reinspection when the Work identified in previous inspection as incomplete is completed or corrected.
 3. Results of completed inspection will form the basis of requirements for final completion.
- E. Contractor's Cost for Reinspection: Architect will perform one inspection and one reinspection at no additional cost to the Contractor. The expense for the Architect's time for additional inspections will be paid by the Owner with the amount being deducted from the Contract Sum. The expense will be based on an hourly rate in accordance with the Architect's standard hourly rate schedule in effect at the time the work is performed with a minimum of \$400.00 dollars for each additional reinspection.

1.6 FINAL COMPLETION PROCEDURES

- A. Submittals Prior to Final Completion: Before requesting final inspection for determining Final Completion, complete the following:
1. Submit a final Application for Payment in accordance with Section 012900 "Payment Procedures."
 2. List of Incomplete Items: Submit copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect; copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
 3. Certificate of Insurance: Submit evidence of final, continuing insurance coverage complying with insurance requirements.
 4. Submit Final Completion photographic documentation.
- B. Inspection: Submit a written request for final inspection to determine acceptance a minimum of 10 days prior to date the Work will be completed and ready for final inspection and tests. On receipt of request, will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
1. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.7 LIST OF INCOMPLETE ITEMS

- A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
 - 1. Organize list of spaces in sequential order, starting with exterior areas first and proceeding from lowest floor to highest floor.
 - 2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
 - 3. Include the following information at the top of each page:
 - a. Project name.
 - b. Date.
 - c. Name of Architect (Company name).
 - d. Name of Contractor (Company Name).
 - e. Page number.
 - 4. Submit list of incomplete items in one of the following formats:
 - a. MS Excel electronic file. Architect will return annotated file.
 - b. PDF electronic file. Architect will return annotated file.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
 - 1. Use cleaning products that comply with the California Green Building Standards Code maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

- A. General: Perform final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations.

- B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
1. Complete the following cleaning operations before requesting inspection for Completion for entire Project or for a designated portion of Project:
 - a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
 - b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.
 - c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
 - d. Remove tools, construction equipment, machinery, and surplus material from Project site.
 - e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
 - f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
 - g. Clean flooring, removing debris, dirt, and staining; clean according to manufacturer's recommendations.
 - h. Vacuum and mop concrete.
 - i. Vacuum carpet and similar soft surfaces, removing debris and excess nap; clean according to manufacturer's recommendations if visible soil or stains remain.
 - j. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Polish mirrors and glass, taking care not to scratch surfaces.
 - k. Remove labels that are not permanent.
 - l. Wipe surfaces of mechanical, electrical, and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
 - m. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
 - n. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
 - o. Clean ducts, blowers, and coils if units were operated without filters during construction or that display contamination with particulate matter on inspection.
 - p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency.
 - q. Leave Project clean and ready for occupancy.

- C. Construction Waste Disposal: Comply with waste disposal requirements in Division 01 Section "Construction Waste Management and Disposal."

3.2 REPAIR OF THE WORK

- A. Complete repair and restoration operations required by Division 01 Section 017300 "Execution" before requesting inspection for determination of Substantial Completion.
 - 1. Comply with requirements of Division 02 through 33 Sections as applicable to the Work to be restored and/or repaired.

END OF SECTION

SECTION 017836 WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for warranties required by the Contract Documents, including manufacturers' standard warranties on products and special warranties.
- B. Related Sections include but are not limited to the following:
 - 1. Division 01 Section "Closeout Procedures."
 - 2. Division 02 through 33 Sections for specific warranty requirements.

1.3 WARRANTY REQUIREMENTS

- A. Disclaimers and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.
- B. Related Damages and Losses: When correcting failed or damaged warranted construction, remove and replace construction that has been damaged as a result of such failure or must be removed and replaced to provide access for correction of warranted construction.
- C. Reinstatement of Warranty: When Work covered by a warranty has failed and been corrected by replacement or rebuilding, reinstate the warranty by written endorsement. The reinstated warranty shall be equal to the original warranty with an equitable adjustment for depreciation.
- D. Replacement Cost: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. The Contractor is responsible for the cost of replacing or rebuilding defective Work regardless of whether the Owner has benefited from use of the Work through a portion of its anticipated useful service life.
- E. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, rights, and remedies otherwise

available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

1. Rejection of Warranties: The Owner reserves the right to reject warranties and to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
- F. Where the Contract Documents require a special warranty, or similar commitment on the Work or part of the Work, the Owner reserves the right to refuse to accept the Work, until the Contractor presents evidence that entities required to countersign such commitments are willing to do so.

1.4 SUBMITTAL OF PROJECT WARRANTIES

- A. Time of Submittal: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated, or when delay in submittal of warranties might limit Owner's rights under warranty.
- B. Warranty Submittal: Submit (2) paper copies and one electronic copy of each required warranty properly executed by the Contractor, or by the Contractor, subcontractor, supplier, or manufacturer.
1. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
 2. Provide additional copies of each warranty in operation and maintenance manuals.
- C. Warranty Electronic File: Provide warranties and bonds in PDF format. Assemble complete warranty and bond submittal package into a single electronic PDF file with bookmarks enabling navigation to each item. Provide bookmarked table of contents at beginning of document.
1. Submit by email to Architect.

D. Warranties in Paper Form:

1. Bind warranties and bonds in heavy-duty, three-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and sized to receive 8-1/2-by-11-inch paper.
2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 017839
PROJECT RECORD DRAWINGS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section includes administrative and procedural requirements for Project Record Drawings:
- B. Related Sections:
 - 1. Division 01 Section "Use of Architect's Electronic Files" for requirements related to use of Architect's digital data files.
 - 2. Division 01 Section "Execution" for surveys of exterior accessible routes.
 - 3. Division 01 Section "Closeout Procedures" for general closeout procedures.

1.3 RECORD DRAWING SUBMITTAL

- A. Closeout Submittal: Submit Record Drawings as follows:
 - 1. Initial Submittal: Submit one paper-copy set of marked-up record prints.
 - a. Architect will indicate whether record prints are acceptable or if additional information or documentation is needed, and will return the set to the Contractor.
 - 2. Final Submittal:
 - a. Paper Copy: Submit one paper-copy set of marked-up record prints that have been revised to address Architect's comments from the initial submittal.
 - b. Digital Data Files: Submit digital data files of Project Record Drawings as PDF files on a thumb-drive.

1.4 PROJECT RECORD DRAWINGS

- A. Record Drawings: Maintain one set of paper copies of the Contract Drawings during the construction period for Project Record Drawing Purposes.
1. Project Record Drawing print sets shall include all drawings of the Contract Documents including original project Drawings, Shop Drawings, Supplemental Drawings, Coordination Drawings, Clarification Drawings, Change Orders, and similar drawings. Record Drawing set shall include all drawings of Contract Documents whether or not changes and additional information were recorded.
 2. Store Project Record Drawings in the field office apart from the Contract Documents used for construction; do not use Project Record Drawings for construction purposes.
 3. Maintain Record Drawings in good order and in a clean, dry, legible condition, protected from deterioration and loss.
 4. Provide access to Project Record Drawings for Architect's reference during normal working hours.
 5. Incorporate new and revised drawings into Project Record Drawings as modifications are issued; do not wait until the end of Project.
 6. Mark Record Prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.
 - a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
 - b. Accurately record information in an understandable drawing technique.
 - c. Record data as soon as possible after obtaining it.
 - d. Record and check the markup before enclosing concealed installations.
 - e. Cross-reference record prints to corresponding archive photographic documentation.
 7. Content: Types of items requiring marking include, but are not limited to, the following:
 - a. Dimensional changes to Drawings.
 - b. Revisions to details shown on Drawings.
 - c. Depths of foundations below first floor.
 - d. Locations and depths of underground utilities.
 - e. Revisions to routing of piping and conduits.
 - f. Revisions to electrical circuitry.
 - g. Actual equipment locations.
 - h. Duct size and routing.
 - i. Locations of concealed internal utilities.
 - j. Changes made by Change Order or Construction Change Directive.
 - k. Changes made following Architect's written orders.
 - l. Details not on the original Contract Drawings.
 - m. Field records for variable and concealed conditions.
 - n. Record information on the Work that is shown only schematically.

8. Mark the Contract Drawings and Shop Drawings completely and accurately. Use personnel proficient at recording graphic information in production of marked-up record prints.
 9. Mark record prints with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
 10. Mark important additional information that was either shown schematically or omitted from original Drawings.
 11. Note Construction Change Directive numbers, Change Order numbers, and similar identification, where applicable.
- B. Newly Prepared Record Drawings: Prepare new Drawings instead of preparing Record Drawings where Architect determines that neither the original Contract Drawings nor Shop Drawings are suitable to show actual installation.
1. New Drawings may be required when a Change Order is issued as a result of accepting an alternate, substitution, or other modification.
 2. Consult Architect for proper scale and scope of detailing and notations required to record the actual physical installation and its relation to other construction. Integrate newly prepared Record Drawings into Record Drawing sets; comply with procedures for formatting, organizing, copying, binding, and submitting.
- C. Record Digital Data Files: Immediately before inspection for Certificate of Substantial Completion, submit marked-up record prints to Architect, following Architect's review and action, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: PDF electronic file.
 2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.
 3. Refer instances of uncertainty to Architect for resolution.
 4. Architect will furnish Contractor one set of digital data files of the Contract Drawings in PDF format for use in recording information.
 - a. Refer to Division 01 Section 011105 "Use of Architect's Electronic Files" for requirements related to use of Architect's digital data files.
- D. Format:
1. Record Prints: Organize record prints into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
 2. Record Digital Data Files:
 - a. Format: Annotated PDF electronic file.
 - b. Organize digital data information into separate electronic files corresponding with each building design discipline of the Contract Documents; name each file with the corresponding design discipline.

E. Identification: Include the following information on each Record Drawing:

1. "PROJECT RECORD DRAWING" designation located in a prominent location.
2. Project name if Project name is not included in a title block as part of the drawing.
3. Date.
4. Name of Architect if Architect's name is not included in a title block as part of the drawing.
5. Name of Contractor.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION

SECTION 024119
SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected site elements.
- B. Related Sections include the following:
 - 1. Division 01 Section "Temporary Facilities and Controls" for temporary construction and environmental-protection measures for selective demolition operations.
 - 2. Division 01 Section "Execution" for cutting and patching procedures, and for protection of existing construction.
 - 3. Division 01 Section "Construction Waste Management and Disposal" for salvaging, recycling, and disposing of nonhazardous demolition and construction waste.
 - 4. Division 31 Section "Site Clearing" for removing above and below-grade site improvements not part of selective demolition.
 - 5. Project Manual Appendix for hazardous materials survey and Owner's requirements for removal and/or remediation of hazardous materials.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be salvaged or reinstalled.
- B. Remove and Salvage to Owner: Detach item from existing construction in a manner to prevent damage and deliver to Owner ready for reuse.
- C. Remove and Salvage for Reinstallation: Detach item from existing construction in a manner to prevent damage, prepare for reuse, and securely store item until it is to be reinstalled at locations indicated.
- D. Existing to Remain: Existing items or improvements that are to remain and not be removed. Existing items to remain shall be protected from damage during the course of construction.

1.4 MATERIALS OWNERSHIP

- A. Unless otherwise indicated, demolition waste becomes property of Contractor.

1.5 SUBMITTALS

- A. Proposed Protection Measures: Submit report, including drawings, that indicates the measures proposed for protecting individuals and property, for physical damage, for dust control, and for noise control. Indicate proposed locations and construction of barriers.
- B. Schedule of Selective Demolition Activities: Indicate the following:
 - 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's on-site operations are uninterrupted.
 - 2. Interruption of utility services. Indicate how long utility services will be interrupted.
 - 3. Coordination for shutoff, capping, and continuation of utility services.
 - 4. Coordination of Owner's continuing occupancy of portions of existing site and of Owner's partial occupancy of completed Work.
- C. Warranties: Documentation indicated that existing warranties are still in effect after completion of selective demolition.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Predemolition Conference: Conduct conference at Project site to comply with requirements in Division 01 Section "Project Management and Coordination." Review methods and procedures related to selective demolition.

1.7 FIELD CONDITIONS

- A. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
- B. Survey of Existing Conditions: Record existing conditions that affect the Work by use of preconstruction photographs. Comply with requirements specified in Division 01 Section "Photographic Documentation."
- C. Owner will occupy portions of site immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted.
- D. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

- E. Hazardous Materials: It is expected that hazardous materials will not be encountered in the Work.
 - 1. If materials suspected of containing hazardous materials are encountered, do not disturb; immediately notify Architect and Owner. Owner will remove hazardous materials under a separate contract.
- F. Utility Services: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.
- G. Storage or sale of removed items or materials on-site is not permitted.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- B. Standards: Comply with ASSE A10.6 and NFPA 241.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped before starting selective demolition operations.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
 - 1. If unanticipated mechanical, electrical, or structural elements are encountered and found to be in conflict with intended function or design, investigate and measure the nature and extent of conflict. Promptly submit a written report to Architect.
- C. Inventory and record the condition of items to be removed and salvaged or removed and reinstalled. Provide photographs of conditions that might be misconstrued as damage caused by salvage operations.

3.2 PREPARATION

- A. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
 - 1. Comply with requirements for access and protection specified in Division 01 Section "Temporary Facilities and Controls."
- B. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 2. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.

3.3 PROTECTION

- A. Temporary Protection: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
 - 1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 - 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 - 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 - 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
 - 5. Comply with requirements for temporary enclosures, dust control, heating, and cooling specified in Division 01 Section "Temporary Facilities and Controls."
- B. Protection of Existing Construction: Protect existing construction to remain with temporary protections and construction. Do not remove existing construction unless otherwise indicated.
- C. Remove temporary barricades and protections where hazards no longer exist.

3.4 UTILITY SERVICES AND MECHANICAL/ELECTRICAL SYSTEMS

- A. Existing Services/Systems to Remain: Maintain services/systems indicated to remain and protect them against damage.
- B. Existing Services/Systems to Be Removed, Relocated, or Abandoned: Locate, identify, disconnect, and seal or cap off utility services and mechanical/electrical systems serving areas to be selectively demolished.

1. Arrange to shut off utilities with Owner and/or utility companies.
2. If services/systems are required to be removed, relocated, or abandoned, provide temporary services/systems that bypass area of selective demolition and that maintain continuity of services/systems to other parts of building.
3. Disconnect, demolish, and remove fire-suppression systems, plumbing, and HVAC systems, equipment, and components indicated on Drawings to be removed.
 - a. Piping to Be Removed: Remove portion of piping indicated to be removed and cap or plug remaining piping with same or compatible piping material.
 - b. Piping to Be Abandoned in Place: Drain piping and cap or plug piping with same or compatible piping material and leave in place.
 - c. Equipment to Be Removed: Disconnect and cap services and remove equipment.
 - d. Equipment to Be Removed and Reinstalled: Disconnect and cap services and remove, clean, and store equipment; when appropriate, reinstall, reconnect, and make equipment operational.
 - e. Equipment to Be Removed and Salvaged: Disconnect and cap services and remove equipment and deliver to Owner.
 - f. Ducts to Be Removed: Remove portion of ducts indicated to be removed and plug remaining ducts with same or compatible ductwork material.
 - g. Ducts to Be Abandoned in Place: Cap or plug ducts with same or compatible ductwork material and leave in place.

3.5 SELECTIVE DEMOLITION, GENERAL

- A. General: Remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 4. Do not use plasma or flame cutting torches without written approval from Architect. Where allowed, clear area of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations. Maintain portable fire-suppression devices during flame-cutting operations. Maintain fire watch during and for at least two hours after flame-cutting operations. Maintain adequate ventilation when using cutting torches.
 5. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.

6. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 7. Dispose of demolished items and materials promptly, comply with requirements of Division 01 Section "Construction Waste Management and Disposal."
- B. Minor Accessories and Fixtures: Remove minor accessories and fixtures as required to accommodate removal of existing finishes or application new finishes whether items are indicated to be removed or not.
1. Minor accessories and fixtures shall include but not be limited to toilet room accessories; classroom accessories such as pencil sharpeners coat hooks, flag holders, and similar items.
 2. Where new replacement items are not indicated or specified in other sections, minor accessories and fixtures shall be considered to be items to be removed and reinstalled.
- C. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Architect, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.
1. Items removed, salvaged, and reinstalled for the Contractor's convenience shall be considered the same as items to be removed and salvaged for reinstallation.

3.6 SELECTIVE DEMOLITION PROCEDURES FOR SPECIFIC MATERIALS

- A. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals using power-driven saw, and then remove concrete between saw cuts.
- B. Reinforcing Steel: Where ends of reinforcing steel are exposed following cutting and removal of concrete and/or masonry, paint exposed ends of cut reinforcing steel with not less than two coats of zinc rich primer.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

- A. Recycle or dispose demolition waste materials according to Division 01 Section "Construction Waste Management and Disposal." Remove demolition waste materials from Project site and legally dispose of them in an EPA-approved construction and demolition waste landfill acceptable to authorities having jurisdiction.
1. Do not allow demolished materials to accumulate on-site.
 2. Remove and transport debris in accordance with local regulations and in a manner that will prevent spillage on adjacent surfaces and areas.
- B. Burning: Do not burn demolished materials.

3.8 CLEANING

- A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

END OF SECTION

**SECTION 310516
AGGREGATES FOR EARTHWORK**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes: Aggregate base course
- B. Related Sections:
 - 1. Division 31 Section "Site Clearing"
 - 2. Division 31 Section "Trenching"
 - 3. Division 31 Section "Earthwork"

1.3 TOLERANCES

- A. Flatness: Maximum variation of within 0.05 foot measured with 10-foot straight edge.
- B. Scheduled Compacted Thickness: Within 0.05 foot.
- C. Variation from Design Elevation: Within 0.05 foot.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aggregate Base: As specified in Section 32 12 16 – Asphalt Paving.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify substrate/subgrade has been inspected, gradients and elevations are correct and are dry.

3.2 PREPARATION

- A. Correct irregularities in substrate/subgrade gradient and elevation by scarifying, reshaping, and re-compacting.
- B. Do not place fill on soft, muddy, or frozen surfaces.

3.3 AGGREGATE PLACEMENT

- A. Place aggregate in maximum 6-inch layers and compact in accordance with CalTrans Standard Specification Section 26, to specified density.
- B. Level and contour surfaces to elevations and gradients indicated on the Drawings.
- C. Add water to assist compaction. If excess water is apparent, remove aggregate and aerate to reduce moisture content.
- D. Use mechanical tamping equipment in areas inaccessible to compaction equipment.

3.4 FIELD QUALITY CONTROL

- A. Compaction testing will be provided by the owner's testing lab and shall be performed in accordance with California Test Method No. 231, Nuclear Gage. See also Division 1.
- B. If tests indicate Work does not meet specified requirements, remove Work, replace and retest.
- C. Frequency of Tests:
 - 1. Field Density Test: One test for every 20 tons of aggregate base placed or as directed by Owner's representative.

END OF SECTION

SECTION 311000 SITE CLEARING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Protecting existing vegetation to remain.
 - 2. Removing existing vegetation.
 - 3. Clearing and grubbing.
 - 4. Stripping and stockpiling topsoil.
 - 5. Removing above and below-grade site improvements.
 - 6. Disconnecting, capping or sealing, and removing site utilities.
- B. Related Sections:
 - 1. Division 01 Section "Construction Waste Management Disposal" for management of waste materials.
 - 2. Division 31 Section "Earthwork."

1.3 DEFINITIONS

- A. Subsoil: All soil beneath the topsoil layer of the soil profile and typified by the lack of organic matter and soil organisms.
- B. Surface Soil: Soil that is present at the top layer of the existing soil profile at the Project site. In undisturbed areas, the surface soil is typically topsoil; but in disturbed areas such as urban environments, the surface soil can be subsoil.
- C. Topsoil: Top layer of the soil profile consisting of existing native surface topsoil or existing in-place surface soil and is the zone where plant roots grow.
- D. Plant-Protection Zone: Area surrounding individual trees, groups of trees, shrubs, or other vegetation to be protected during construction, and indicated on Drawings.
 - 1. Tree protection shall be defined by a circle concentric with each tree with a radius 1.5 times the diameter of the drip line unless otherwise indicated
- E. Vegetation: Trees, shrubs, groundcovers, grass, and other plants.

1.4 MATERIALS OWNERSHIP

- A. Except for stripped topsoil and other materials indicated to be stockpiled or otherwise remain Owner's property, cleared materials shall become Contractor's property and shall be removed from Project site.

1.5 SUBMITTALS

- A. Existing Conditions: Digital photographic documentation of existing trees and plantings, adjoining construction, and site improvements that establishes preconstruction conditions that might be misconstrued as damage caused by site clearing.
- B. Record Drawings: Identifying and accurately showing locations of capped utilities and other subsurface structural, electrical, and mechanical conditions.

1.6 QUALITY ASSURANCE

- A. Preinstallation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during site-clearing operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- B. Improvements on Adjoining Property: Authority for performing site clearing indicated on property adjoining Owner's property will be obtained by Owner before award of Contract.
 - 1. Do not proceed with work on adjoining property until directed by Architect.
- C. Salvable Improvements: Carefully remove items indicated to be salvaged and store on Owner's premises at location directed by Architect.
- D. Utility Locator Service: Notify utility locator service for area where Project is located before site clearing.
- E. Do not commence site clearing operations until temporary erosion and sedimentation control and plant-protection measures are in place.
- F. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- G. Do not direct vehicle or equipment exhaust towards protection zones.
- H. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

- I. Soil Stripping, Handling, and Stockpiling: Perform only when the topsoil is dry or slightly moist.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 PREPARATION

- A. Comply with requirements of referenced Geotechnical Report for site clearing operations.
- B. Protect and maintain benchmarks and survey control points from disturbance during construction.
- C. Protect existing site improvements to remain from damage during construction.
 - 1. Restore damaged improvements to their original condition, as acceptable to Owner.
- D. Locate and clearly identify trees, shrubs, and other vegetation to remain or to be relocated. Identify trees to remain by wrapping a 1-inch blue vinyl tie tape flag around each tree trunk at 54 inches above the ground.
- E. Protect trees, plant growth, and vegetation not specifically designated for removal.
- F. Verify that existing plant life to be removed has been authorized for removal.
- G. Examine site and compare individual work areas with the Drawings and Specifications.
- H. Thoroughly investigate and verify conditions under which the work is to be performed.

3.2 TEMPORARY EROSION AND SEDIMENTATION CONTROL

- A. Comply with Storm Water Pollution Prevention Plan (SWPPP) and requirements of authorities having jurisdiction.
- B. Provide temporary erosion and sedimentation-control measures to prevent soil erosion and discharge of soil-bearing water runoff or airborne dust to adjacent properties and walkways, according to requirements of authorities having jurisdiction.
- C. Verify that flows of water redirected from construction areas or generated by construction activity do not enter or cross protection zones.
- D. Inspect, maintain, and repair erosion and sedimentation-control measures during construction until permanent vegetation has been established.
- E. Remove erosion and sedimentation controls and restore and stabilize areas disturbed during removal.

3.3 EXISTING UTILITIES

- A. Utilities to Remain: Locate, identify, and protect utilities that are to remain from damage.

- B. Interrupting Existing Utilities: Do not interrupt utilities serving facilities occupied by Owner or others unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated:
 - 1. Notify Architect not less than two days in advance of proposed utility interruptions.
 - 2. Do not proceed with utility interruptions without Architect's written permission.
- C. Utility Termination: Locate, identify, disconnect, and seal or cap utilities indicated to be removed or abandoned in place. Arrange with utility companies to shut off affected utilities and notify Owner not less than 48 hours in advance of utility termination.
 - 1. Excavate for and remove underground utilities indicated to be removed.

3.4 CLEARING AND GRUBBING

- A. Clear only limited areas required for execution of work at proposed improvement location.
- B. Remove obstructions, trees, shrubs, and other vegetation to permit installation of new construction.
 - 1. Do not remove trees, shrubs, and other vegetation indicated to remain or to be relocated.
 - 2. Grind down stumps and remove roots, obstructions, and debris to a depth of not less than 24 inches below the bottom of the lowest structure footing or 2 feet below finished subgrade whichever depth is lower. Root systems deeper than indicated above shall be excavated to allow no roots larger than 0.5 inches in diameter.
 - 3. Use only hand methods for grubbing within protection zones.
 - 4. Chip removed tree branches and dispose of off-site.
- C. Fill depressions caused by clearing and grubbing operations with satisfactory soil material unless further excavation or earthwork is indicated.
 - 1. Place fill material in horizontal layers not exceeding a loose depth of 8 inches, and compact each layer to a density of minimum 90 percent of maximum density.

3.5 TOPSOIL EXCAVATION

- A. Remove sod, grass, and similar vegetation before stripping topsoil.
- B. Strip topsoil to depth of at least 3 inches and as indicated in the geotechnical report in a manner to prevent intermingling with underlying subsoil or other waste materials.
 - 1. Remove subsoil and nonsoil materials from topsoil, including clay lumps, gravel, and other objects more than 2 inches in diameter; trash, debris, weeds, roots, and other waste materials.
- C. Stockpile topsoil away from edge of excavations without intermixing with subsoil. Grade and shape stockpiles to drain surface water. Cover to prevent windblown dust and erosion by water.
 - 1. Limit height of topsoil stockpiles to 72 inches.
 - 2. Do not stockpile topsoil within protection zones.
 - 3. Dispose of surplus topsoil. Surplus topsoil is that which exceeds quantity indicated to be stockpiled or reused.

3.6 SITE IMPROVEMENTS

- A. Remove existing above and below-grade improvements as indicated and necessary to facilitate new construction.
- B. Remove slabs, paving, curbs, gutters, and aggregate base as indicated. Remove paving only where authorized and necessary to execute the Work.
 - 1. Neatly saw-cut along line of existing pavement to remain before removing adjacent existing pavement. Saw-cut faces vertically.
 - 2. Remove concrete slabs, paving, walks, gutters, and curbs to nearest joint locations.
 - 3. Paint cut ends of steel reinforcement in concrete to remain with two coats of antirust coating, following coating manufacturer's written instructions. Keep paint off surfaces that will remain exposed.

3.7 DISPOSAL OF SURPLUS AND WASTE MATERIALS

- A. Remove surplus soil material, unsuitable topsoil, obstructions, demolished materials, and waste materials including trash and debris, and legally dispose of them off Owner's property.
- B. Separate recyclable materials produced during site clearing from other nonrecyclable materials. Store or stockpile without intermixing with other materials and transport them to recycling facilities. Do not interfere with other Project work.

END OF SECTION

SECTION 312000 EARTHWORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Preparing subgrades for slabs-on-grade, walks, pavements, turf and grasses, and plants.
 - 2. Over excavation of pavement area.
 - 3. Excavating soil and other material for surface improvements.
 - 4. Placing fill.
 - 5. Compaction of existing ground and fill.
 - 6. Preparation of subgrade for other improvements.
 - 7. Grading of soil.
- B. Related Sections:
 - 1. Division 31 Section "Soils for Earthwork."
 - 2. Division 31 Section "Site Clearing."
 - 3. Division 31 Section "Trenching."

1.3 REFERENCES

- A. ASTM D 1557.

1.4 DEFINITIONS

- A. Fill: Soil material or controlled low-strength material used to fill an excavation or raise existing grades.
- B. Borrow Soil: Satisfactory soil imported from off-site for use as fill.
- C. Excavation: Removal of material encountered above subgrade elevations and to lines and dimensions indicated.
- D. Structures: Buildings, footings, foundations, retaining walls, slabs, tanks, curbs, mechanical and electrical appurtenances, or other man-made stationary features constructed above or below the ground surface.
- E. Subgrade: Uppermost surface of an excavation.
- F. Utilities: On-site underground pipes, conduits, ducts, and cables, as well as underground services within buildings.

1.5 SUBMITTALS

- A. Material Test Reports: Classification according to ASTM D 2487 for each borrow soil material proposed for fill and backfill.
- B. Chemical Test Report for Imported Fill: Chemical test report(s) as recommended by The Department of Toxic Substance Control (DTSC) guidelines for the testing of import soils for school sites.

1.6 QUALITY ASSURANCE

- A. Preexcavation Conference: Conduct conference at Project site.

1.7 PROJECT CONDITIONS

- A. Utility Locator Service: Notify utility locator service for area where Project is located before beginning earth moving operations.
- B. Do not commence earth moving operations until temporary erosion and sedimentation control measures required by authorities having jurisdiction are in place.
- C. Traffic: Minimize interference with adjoining roads, streets, walks, and other adjacent occupied or used facilities during earth moving operations.
 - 1. Do not close or obstruct streets, walks, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
 - 2. Provide alternate routes around closed or obstructed traffic ways if required by Owner or authorities having jurisdiction.
- D. Do not commence earth moving operations until protection measures are in place.
- E. The following practices are prohibited within protection zones:
 - 1. Storage of construction materials, debris, or excavated material.
 - 2. Parking vehicles or equipment.
 - 3. Foot traffic.
 - 4. Erection of sheds or structures.
 - 5. Impoundment of water.
 - 6. Excavation or other digging unless otherwise indicated.
 - 7. Attachment of signs to or wrapping materials around trees or plants unless otherwise indicated.
- F. Do not direct vehicle or equipment exhaust towards protection zones.
- G. Prohibit heat sources, flames, ignition sources, and smoking within or near protection zones.

PART 2 - PRODUCTS

2.1 SOIL MATERIALS

- A. General: Provide borrowed soil materials when sufficient satisfactory soil materials are not available from excavations.
 - 1. Any borrow soil materials proposed to be brought on-site are subject to inspection and testing by Owner's geotechnical testing agency to verify they are in compliance with referenced standards. Owner shall determine if testing of materials is required prior to any material being brought onto the site. Testing of materials may take up to two weeks to verify compliance with standards.
- B. Soil Types:
 - 1. Refer to Section 310513 "Soils for Earthwork".
- C. Soil for Fills:
 - 1. Fill in Turf or Planting Areas: Excavated soils that have been graded and cleansed of excessive organics, debris, rocks, and lumps.
 - 2. Fill in Turf or Other Planting Areas: Type S2 or S3.
 - 3. Fill in Non-planting Areas: Type S1, S2 or S4. A geotechnical testing agency shall verify that the existing soils are suitable for fill operations.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Contractor shall thoroughly examine the project site prior to submitting his bid to familiarize himself with the conditions of the site and the conditions in which he will be required to work.
- B. Contractor shall thoroughly examine contract documents prior to bid.
 - 1. Documents do not necessarily indicate a balanced site.
 - 2. Contractor shall be responsible for importing materials from an off-site location or exporting excess material to an off-site location.

3.2 PREPARATION

- A. Site clearing specified in Division 31 Section "Site Clearing" shall be performed prior to beginning earthwork.
- B. Protect structures, utilities, sidewalks, pavements, and other facilities from damage caused by settlement, lateral movement, undermining, washout, and other hazards created by earth moving operations. Coordinate excavations near existing utilities with utility companies.
- C. Protect and maintain erosion and sedimentation controls during earth moving operations.
- D. Identify required lines, levels, contours and datum.

- E. Locate, identify, and protect existing above and below grade utilities from damage.
- F. Protect plant life, lawns, trees, shrubs, and other features not authorized for removal.
- G. Employ equipment and methods appropriate to the work site.
- H. Protect excavated areas from drainage inflow and provide drainage to all excavated areas.
- I. Follow the over-excavation requirements as indicated by the geotechnical engineer.

3.3 DEWATERING

- A. Prevent surface water and ground water from entering excavations, from ponding on prepared subgrades, and from flooding Project site and surrounding area.
- B. Protect subgrades from softening, undermining, washout, and damage by rain or water accumulation.
 - 1. Reroute surface water runoff away from excavated areas. Do not allow water to accumulate in excavations. Do not use excavated trenches as temporary drainage ditches.

3.4 STORAGE OF SOIL MATERIALS

- A. Stockpile excavated satisfactory soil and materials borrow soil materials without intermixing. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust. Stockpile soil materials away from edge of excavations. Do not store within drip line of trees to remain.

3.5 EXCAVATION

- A. Earthwork shall comply with requirements and recommendations from geotechnical engineer.
 - 1. A representative from the Owner's geotechnical testing agency shall be present during earthwork operations.
- B. Excavate to indicated elevations and dimensions within a tolerance of plus or minus 1 inch. If applicable, extend excavations a sufficient distance from structures for placing and removing concrete formwork, for installing services and other construction, and for inspections.
- C. Excavations at Edges of Tree and Plant-Protection Zones: Excavate by hand to indicated lines, cross sections, elevations, and subgrades. Use narrow-tine spading forks to comb soil and expose roots.
 - 1. Do not break, tear, or chop exposed roots. Do not use mechanical equipment that rips, tears, or pulls roots.
 - 2. Where authorized to cut roots, cut roots with a saw.
- D. Excavation for Pavements and Flatwork: Over excavation under proposed pavements and flatwork shall be performed per the geotechnical engineer.

3.6 SUBGRADE INSPECTION

- A. If representative of Owner's geotechnical testing agency determines that unsatisfactory soil is present, continue excavation and replace with compacted backfill or fill material as directed.
- B. Proof-roll subgrade below building slabs, pavements, and walks with equipment of type, size, and weight recommended by representative of Owner's geotechnical testing agency to identify soft pockets and areas of excess yielding. Do not proof-roll wet or saturated subgrades.
 - 1. Completely proof-roll subgrade in one direction, repeating proof-rolling in direction perpendicular to first direction. Limit vehicle speed to 3 mph.
 - 2. Excavate soft spots, unsatisfactory soils, and areas of excessive pumping or rutting, as determined by Architect, and replace with compacted backfill or fill as directed.

3.7 FILLING AND COMPACTING

- A. After excavation and just prior to filling, the bottom of excavations shall be scarified to a depth of 8 inches, moisture conditioned to near optimum moisture content, and compacted to a minimum of 90 percent of maximum density based on ASTM Method D 1557. Concrete and pavement subgrade surfaces should be compacted to 95 percent relative compaction.
- B. Uniformly moisten or aerate subgrade and each subsequent fill or backfill soil layer before compaction to at or above optimum moisture content.
- C. Fills shall be placed in lifts less than 8 inches in loose thickness, moisture conditioned to within 2 percent of optimum moisture content, and compacted to values indicated.
- D. Compact soil materials to not less than the following percentages of maximum dry unit weight according ASTM D 1557:
 - 1. Upper 12 inches under pavements: 95 percent.
 - 2. Under structures, building slabs, steps, and walkways: 95 percent.
 - 3. Under turf or unpaved areas: 90 percent.

3.8 GRADING

- A. General: Uniformly grade areas to a smooth surface, free of irregular surface changes. Comply with compaction requirements and grade to cross sections, lines, and elevations indicated on Drawings.
 - 1. Provide a smooth transition between adjacent existing grades and new grades.
 - 2. Cut out soft spots, fill low spots, and trim high spots to comply with required surface tolerances.
- B. Site Rough Grading: Slope grades to direct water away from buildings and to prevent ponding. Finish subgrades to required elevations within the following tolerances:
 - 1. Turf or Unpaved Areas: Plus or minus 1 inch.
 - 2. Walks: Plus or minus 1/2 inch.
 - 3. Pavements: Plus or minus 1/2 inch.

3.9 FIELD QUALITY CONTROL

- A. Testing and Inspecting Agency: Owner will engage and pay for a qualified independent testing and inspecting agency to perform tests and inspections as applicable and prepare reports.
 - 1. Testing and Inspection Agency shall be acceptable to the Architect and the Division of the State Architect.
- B. The Architect and the Division of the State Architect shall have the right to order the testing of any materials used in the concrete construction to determine if they are of the quality specified.
- C. Contractor Responsibilities:
 - 1. The Contractor shall maintain control of the quality of materials and workmanship in order to conform with the drawings and specifications.
 - 2. To facilitate testing and inspection, the Contractor shall:
 - a. Schedule tests and inspections with the Testing and Inspection Agency sufficiently in advance of operations to allow for the assignment of personnel and for the completion of testing and inspecting responsibilities.
 - b. Provide access to the Work for the designated Testing and Inspection Agency.
 - c. Furnish all necessary materials and labor to assist the designated Testing and Inspection Agency in obtaining and handling samples at the project or other sources of materials.
 - d. Provide and maintain for the sole use of the Testing and Inspection Agency adequate facilities for safe storage of test specimens on the project site.
 - 3. The Contractor shall correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.
- D. Testing and Inspection Services:
 - 1. Testing and inspections shall be performed by the designated Testing and Inspection Agency.
 - 2. Testing and inspections shall be in accordance with the 2022 California Building Code, Section 1705A.6 and Table 1705A.6, DSA Testing and Inspections form DSA 103, and Structural Drawings Special Inspection Criteria.
- E. Allow testing agency to inspect and test subgrades and each fill or backfill layer. Proceed with subsequent earth moving only after test results for previously completed work comply with requirements.
- F. Compaction testing will be performed in accordance with ASTM D 1557 (Method A).
- G. If tests indicate work does not meet specified requirements, recompact,ge or remove and replace, and retest.

3.10 PROTECTION

- A. Protecting Graded Areas: Protect newly graded areas from traffic, freezing, and erosion. Keep free of trash and debris.

- B. Repair and reestablish grades to specified tolerances where completed or partially completed surfaces become eroded, rutted, settled, or where they lose compaction due to subsequent construction operations or weather conditions.
 - 1. Scarify or remove and replace soil material to depth as directed by Architect; reshape and recompact.
- C. Where settling occurs before Project correction period elapses, remove finished surfacing, backfill with additional soil material, compact, and reconstruct surfacing.
 - 1. Restore appearance, quality, and condition of finished surfacing to match adjacent work, and eliminate evidence of restoration to greatest extent possible.

3.11 CLEANING AND DISPOSAL OF SURPLUS MATERIALS

- A. Rake Clean.
- B. Remove surplus satisfactory soil and waste materials, including unsatisfactory soil, trash, and debris, and legally dispose of them off Owner's property.
- C. Adjacent roadways shall be kept clean during the progress of this work.

END OF SECTION

SECTION 321216 ASPHALT PAVING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. SSCDOT – Standard Specifications, State of California, Department of Transportation (Caltrans) latest edition, except references to method of payment, and references to any state furnished materials.

1.2 SUMMARY

- A. Section Includes:
 - 1. Hot-mix asphalt patching.
 - 2. Hot-mix asphalt paving.
- B. Related Sections:
 - 1. Division 31 Section "Earthwork."

1.3 DEFINITION

- A. Hot-Mix Asphalt Paving Terminology: Refer to ASTM D 8 for definitions of terms.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated. Include technical data and tested physical and performance properties.
 - 1. Job-Mix Designs: Certification, by authorities having jurisdiction, of approval of each job mix proposed for the Work.
 - 2. Job-Mix Designs: For each job mix proposed for the Work.
- B. Material Certificates: For each paving material, from manufacturer.
- C. Material Test Reports: For each paving material.

1.5 QUALITY ASSURANCE

- A. Manufacturer Qualifications: A paving-mix manufacturer registered with and approved by authorities having jurisdiction or the California Department of Transportation.
- B. Regulatory Requirements: Comply with materials, workmanship, and other applicable requirements of Section 39 of the Caltrans Specifications.
 - 1. Measurement and payment provisions and safety program submittals included in standard specifications do not apply to this Section.

- C. All improvements within property owned by a City, County, or State Entity shall be in accordance with the Standards and Specifications of the authority having jurisdiction.

1.6 PROJECT CONDITIONS

- A. Environmental Limitations: Do not apply asphalt materials if subgrade is wet or excessively damp, if rain is imminent or expected before time required for adequate cure, or if the following conditions are not met:
 - 1. Prime Coat: Minimum surface temperature of 50 deg F.
 - 2. Tack Coat: Minimum surface temperature of 50 deg F.
 - 3. Slurry Coat: Comply with weather limitations in ASTM D 3910.
 - 4. Asphalt Base Course: Minimum surface temperature of 50 deg F and rising at time of placement.
 - 5. Asphalt Surface Course: Minimum surface temperature of 50 deg F at time of placement.

PART 2 - PRODUCTS

2.1 AGGREGATES

- A. Aggregates: The grading and proportioning of aggregates shall be such that the combined mineral aggregate conforms to the specified requirements. All aggregates shall be clean and free from decomposed materials, organic materials, and other deleterious substances.
 - 1. Aggregates for base course shall conform to Section 26 of the State Standard Specifications, Class 2 for 3/8 inch maximum size gradation.
 - 2. Aggregates for asphaltic concrete shall conform to Type A as outlined in Section 39 of the State Standard Specifications. Aggregate grading shall be 3/4 inch maximum, coarse for 1-1/2 inches or greater in total new pavement thickness.
- B. Asphalt Binder: PG 64-10 in accordance with Section 92 of the Caltrans Specifications.
- C. Asphalt Cement: ASTM D 946 for penetration-graded material.
- D. Prime Coat: Asphalt emulsion prime coat complying with Section 94 of the Caltrans Specifications. Prime coat is not required unless specifically noted on the Drawings.
- E. Tack Coat: Asphaltic emulsion for use as tack coat shall be of the penetration type conforming to the requirements of Section 94 of the Caltrans Specifications.
- F. Water: Potable.

2.2 AUXILIARY MATERIALS

- A. Herbicide: Commercial chemical for weed control, registered by the EPA. Provide in granular, liquid, or wettable powder form.
- B. Sand: ASTM D 1073, Grade Nos. 2 or 3.
- C. Joint Sealant: ASTM D 6690, Type I, hot-applied, single-component, polymer-modified bituminous sealant.

2.3 MIXES

- A. Hot-Mix Asphalt: Asphalt concrete shall be Type A and shall conform to the provisions of Section 39 of the Caltrans Specifications. The asphalt binder shall be steam refined paving asphalt classified as PG 64-10 in accordance with Section 92 of the Caltrans Specifications.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Geotechnical Engineer shall verify that subgrade is stable and in suitable condition to begin paving.
- B. Proceed with paving only after unsatisfactory conditions have been corrected.

3.2 SURFACE PREPARATION

- A. Subgrade preparation shall be as specified in Division 31 Section "Earthwork."
- B. Prior to construction of base course and asphaltic concrete, clean previously constructed subgrade or subbase of all foreign substances. The surfaces shall be inspected for the specified compaction and trueness to line and grade.
- C. Base Course: Aggregate base shall be placed in accordance with requirements of Section 26 of the State Standard Specifications and to the thickness shown. The materials shall be graded and compacted in maximum 4-inch layers to at least 95 percent of maximum density (ASTM D 1557).
 - 1. The base course shall be maintained until the asphaltic pavement is in place. Maintenance shall include drainage, rolling, shaping, and watering as necessary to maintain the course in proper condition. Sufficient moisture shall be maintained at the surface to prevent a dusty condition by light sprinkling with water. Areas of completed base course that are damaged by freezing shall be conditioned, reshaped and recompactd in accordance with the requirements of this specification, without additional cost to the Owner.
- D. Immediately before placing asphalt materials, remove loose and deleterious material from substrate surfaces. Ensure that prepared base course is ready to receive paving.
- E. Herbicide Treatment: Apply herbicide according to manufacturer's recommended rates and written application instructions. Apply to dry, prepared subgrade or surface of compacted-aggregate base before applying paving materials.

- F. Prime Coat: Prime Coat is only required if indicated on Drawings. It shall be the Contractor's option to apply Prime Coat if not indicated on the Drawings. Apply uniformly over surface of compacted unbound-aggregate base course at a rate of 0.15 to 0.50 gal./sq. yd. Apply enough material to penetrate and seal but not flood surface. Allow prime coat to cure.
1. If prime coat is not entirely absorbed within 24 hours after application, spread sand over surface to blot excess asphalt. Use enough sand to prevent pickup under traffic. Remove loose sand by sweeping before pavement is placed and after volatiles have evaporated.
 2. Protect primed substrate from damage until ready to receive paving.
- G. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd. Tack coat will not be required over surfaces of existing pavement unless indicated on the Drawings. Where indicated it shall be applied uniformly to existing pavement surfaces at a rate of 0.05 to 0.15 gal./sq. yd.
1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.

3.3 HOT-MIX ASPHALT SPREADING, LAYING, AND COMPACTING

- A. Spreading and laying operations shall conform to the requirements of Sections 39-5 and 39-6 of the Caltrans Specifications. Where the total depth of paving exceeds 0.20 feet, the top layer of asphalt concrete shall not exceed 0.20 feet in compacted thickness. The aggregate for this layer and all lower layers shall be 3/4" maximum aggregate (medium). The next lower layer shall not exceed 0.25 feet in compacted thickness. Any lower layers shall not exceed 0.25 feet in compacted thickness. For total asphalt concrete thickness of 3 inches or greater, the minimum layer thicknesses shall be 1.5 inches compacted. Total asphalt concrete thicknesses of 3 inches may be placed in one layer at Contractor's option. No asphalt concrete paving shall be placed when the atmospheric temperature is below 50 degrees Fahrenheit. Compaction operations shall conform to the requirements of Section 39-6.03 of the Caltrans Specifications.
- B. Place paving in consecutive strips not less than 10 feet wide unless infill edge strips of a lesser width are required.
1. After first strip has been placed and rolled, place succeeding strips and extend rolling to overlap previous strips. Complete a section of asphalt base course before placing asphalt surface course.
- C. Promptly correct surface irregularities in paving course behind paver. Use suitable hand tools to remove excess material forming high spots. Fill depressions with hot-mix asphalt to prevent segregation of mix; use suitable hand tools to smooth surface.
- D. All utility boxes and/or manholes shall be set flush with finished grade after placing final lift of asphalt paving, unless noted otherwise.

3.4 INSTALLATION TOLERANCES

- A. Pavement Thickness: Compact each course to produce the thickness indicated within the following tolerances:
1. Base Course: Plus or minus 1/2 inch.
 2. Surface Course: Plus 1/2 inch, no minus.

- B. Pavement Surface Smoothness for all areas including accessible parking spaces, accessible passenger drop off area, vehicle pull up space, and access aisles for parking and passenger drop off: Compact each course to produce a surface smoothness within the following tolerances as determined by using a 10-foot straightedge applied transversely or longitudinally to paved areas:
 - 1. Base Course: 1/4 inch.
 - 2. Surface Course: 1/4 inch.
 - 3. Crowned Surfaces: Test with crowned template centered and at right angle to crown. Maximum allowable variance from template is 1/4 inch.

3.5 PATCHING

- A. Hot-Mix Asphalt Pavement: Saw cut perimeter of patch and excavate existing pavement section to sound base. Excavate rectangular or trapezoidal patches, extending 12 inches into adjacent sound pavement, unless otherwise indicated. Cut excavation faces vertically. Remove excavated material. Recompact existing unbound-aggregate base course to form new subgrade.
- B. Tack Coat: Apply uniformly to vertical surfaces abutting or projecting into new, hot-mix asphalt paving at a rate of 0.05 to 0.15 gal./sq. yd.
 - 1. Allow tack coat to cure undisturbed before applying hot-mix asphalt paving.
 - 2. Avoid smearing or staining adjoining surfaces, appurtenances, and surroundings. Remove spillages and clean affected surfaces.
- C. Patching: Fill excavated pavements with hot-mix asphalt base mix for full thickness of patch and, while still hot, compact flush with adjacent surface.

3.6 REPAIRS

- A. Leveling Course: Install and compact leveling course consisting of hot-mix asphalt surface course to level sags and fill depressions deeper than 1 inch in existing pavements.
 - 1. Install leveling wedges in compacted lifts not exceeding 3 inches thick.
- B. Crack and Joint Filling: Remove existing joint filler material from cracks or joints to a depth of 1/4 inch.
 - 1. Clean cracks and joints in existing hot-mix asphalt pavement.
 - 2. Use emulsified-asphalt slurry to seal cracks and joints less than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.
 - 3. Use hot-applied joint sealant to seal cracks and joints more than 1/4 inch wide. Fill flush with surface of existing pavement and remove excess.

3.7 FIELD QUALITY CONTROL

- A. Testing Agency: Owner shall engage a qualified testing agency to perform tests and inspections. Agency shall be qualified according to ASTM D 3666 for testing indicated.
- B. Thickness: In-place compacted thickness of hot-mix asphalt courses will be determined according to ASTM D 3549.
- C. Surface Smoothness: Finished surface of each hot-mix asphalt course will be tested for compliance with smoothness tolerances.

- D. In-Place Density: Testing agency will take samples of uncompacted paving mixtures and compacted pavement according to ASTM D 979.
 - 1. Reference maximum theoretical density will be determined by averaging results from four samples of hot-mix asphalt-paving mixture delivered daily to site, prepared according to ASTM D 2041, and compacted according to job-mix specifications.
 - 2. In-place density of compacted pavement will be determined by testing core samples according to ASTM D 1188 or ASTM D 2726.
 - a. One core sample will be taken for every 1000 sq. yd. or less of installed pavement, with no fewer than 3 cores taken.
 - b. Field density of in-place compacted pavement may also be determined by nuclear method according to ASTM D 2950 and correlated with ASTM D 1188 or ASTM D 2726.
- E. Replace and compact hot-mix asphalt where core tests were taken.
- F. Remove and replace or install additional hot-mix asphalt where test results or measurements indicate that it does not comply with specified requirements. Additional construction, testing, and replacement costs resulting from damaged or improperly installed infrastructure shall be paid for by the Contractor.

3.8 DISPOSAL

- A. Except for material indicated to be recycled, remove excavated materials from Project site and legally dispose of them in an EPA-approved landfill.
 - 1. Do not allow milled materials to accumulate on-site.

END OF SECTION

**SECTION 321313
CONCRETE PAVING AND WALKS**

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
- B. SSCDOT – Standard Specifications, State of California, Department of Transportation (Caltrans) latest edition, except references to method of payment, and references to any state furnished materials.

1.2 SUMMARY

- A. Section Includes: Concrete paving for the following:
 - 1. Walks and pedestrian paving.
- B. Related Sections:
 - 1. Division 31 Section "Earthwork."
 - 2. Division 32 Section "Paving Specialties" for pavement markings, wheel stops, detectable warning surfaces, and site signage.

1.3 DEFINITIONS

- A. Cementitious Materials: Type II gray Portland Cement conforming to the specifications of ASTM C150-02a and the requirements of Caltrans Specification Section 90 for "Type II Modified" portland cement.

1.4 SUBMITTALS

- A. Product Data: For each type of product indicated.
- B. Design Mixtures: For each concrete paving mixture. Include alternate design mixtures when characteristics of materials, Project conditions, weather, test results, or other circumstances warrant adjustments.
- C. Material Test Reports: For each of the following:
 - 1. Aggregates. Include service-record data indicating absence of deleterious expansion of concrete due to alkali-aggregate reactivity.
- D. Delivery Tags: Delivery tags for all concrete.

1.5 QUALITY ASSURANCE

- A. All improvements within property owned by a City, County, or State Entity shall be in accordance with the Standards and Specifications of the authority having jurisdiction.

- B. Installer Qualifications: A qualified installer who employs on Project personnel who shall be thoroughly familiar with the specified requirements, completely trained and experienced in the necessary skills required for work performed under this Section. In actual installation of the work of this Section, use adequate numbers of skilled workmen to insure installation in strict accordance with the contract documents design.
- C. Concrete Manufacturer Qualifications: A firm experienced in manufacturing ready-mixed concrete products and that complies with ASTM C 94/C 94M requirements for production facilities and equipment.
- D. Source Limitations: Obtain each type or class of cementitious material of the same brand from the same manufacturer's plant, obtain aggregate from single source, and obtain admixtures from single source from single manufacturer.
- E. ACI Publications: Comply with the following unless modified by requirements in the Contract Documents:
 - 1. ACI 301, "Specifications for Structural Concrete," Sections 1 through 5.
 - 2. ACI 318-19, "Building Code Requirements for Structural Concrete" with amendments per 2022 California Building Code, Chapter 19A, Section 1905A.
 - 3. ACI 117, "Specifications for Tolerances for Concrete Construction and Materials."

1.6 REGULATORY REQUIREMENTS FOR PEDESTRIAN PAVING

- A. Concrete paving for accessible pedestrian routes for persons with disabilities shall comply with the following per 2022 California Building Code (CBC) requirements:
 - 1. Changes in Level: 1/4 inch maximum vertical change in level; changes greater than 1/4 inch to not more than 1/2 inch shall be beveled with a slope not exceeding 1:2 vertical to horizontal; offsets exceeding 1/2 inch shall be by a ramp (CBC 11B-303).
 - 2. Cross Slope of Walks and Ramps: 1/4:12 maximum (CBC 11B-403.3).
 - 3. Slope of Pedestrian Pavements: 1/4:12 maximum in any direction where there is no defined direction of travel (CBC 11B-403.3).
 - 4. Slope of Door and Ramp Landings: 1/4:12 maximum in any direction (CBC 11B-404.2.4.4 and 11B-405.7.1). Changes in level are not permitted within door and ramp landings.
 - 5. Slope of Parking Stalls and Access Aisles for Persons with Disabilities: 1/4:12 maximum in any direction (CBC 11B-502.4). Changes in level are not permitted within accessible parking stalls and access aisles.
 - 6. Slope of walks in the direction of travel: 1:20 (5%) maximum (CBC 11B-403.3).
 - 7. Slope of Ramps in the Direction of Travel: 1:12 (8.33%) maximum (CBC 11B-405.2).
 - 8. Width of Walks and Ramps: 48 inches minimum clear width (CBC 11B-403.5.1 and 11B-405.5).

PART 2 - PRODUCTS

2.1 FORMS MATERIALS

- A. Form Materials: Plywood, metal, metal-framed plywood, or other approved panel-type materials to provide full-depth, continuous, straight, and smooth exposed surfaces.
 - 1. Use flexible or uniformly curved forms for curves with a radius of 100 feet or less. Do not use notched and bent forms.

- B. Form-Release Agent: Commercially formulated form-release agent that will not bond with, stain, or adversely affect concrete surfaces and that will not impair subsequent treatments of concrete surfaces.

2.2 STEEL REINFORCEMENT

- A. Plain-Steel Welded Wire Reinforcement: ASTM A 185/A 185M, fabricated from steel wire into flat sheets.
- B. Reinforcing Bars: ASTM A 615/A 615M, Grade 60; deformed.
- C. Joint Dowel Bars: ASTM A 615/A 615M, Grade 60 plain-steel bars. Cut bars true to length with ends square and free of burrs.
- D. Bar Supports: Bolsters, chairs, spacers, and other devices for spacing, supporting, and fastening reinforcing bars, welded wire reinforcement, and dowels in place. Manufacture bar supports according to CRSI's "Manual of Standard Practice" from steel wire, plastic, or precast concrete of greater compressive strength than concrete specified, and as follows:
 - 1. Equip wire bar supports with sand plates or horizontal runners where base material will not support chair legs.

2.3 CONCRETE MATERIALS

- A. Cementitious Material: Use the following cementitious materials, of same type, brand, and source throughout Project:
 - 1. Portland Cement: Type II gray Portland Cement conforming to the specifications of ASTM C150-02a and the requirements of Caltrans Specification Section 90 for "Type II Modified" Portland Cement.
- B. Normal-Weight Aggregates: ASTM C 33, uniformly graded. Provide aggregates from a single source with documented service-record data of at least 10 years' satisfactory service in similar paving applications and service conditions using similar aggregates and cementitious materials.
 - 1. Maximum Coarse-Aggregate Size: 1 inch nominal.
 - 2. Fine Aggregate: Free of materials with deleterious reactivity to alkali in cement.
- C. Water: Potable and complying with ASTM C 94/C 94M.

2.4 CURING MATERIALS

- A. Moisture-Retaining Cover: ASTM C 171, polyethylene film or white burlap-polyethylene sheet.
- B. Water: Potable.
- C. Evaporation Retarder: Waterborne, monomolecular, film forming, manufactured for application to fresh concrete.
- D. Clear, Waterborne, Membrane-Forming Curing Compound: ASTM C 309, Type 1, Class B, dissipating. It shall be the Contractor's responsibility to verify that all curing compounds used comply with the VOC Emission requirements of the San Joaquin Valley Air Pollution Control District.

2.5 RELATED MATERIALS

- A. Joint Fillers: ASTM D 1751, asphalt-saturated cellulosic fiber in preformed strips.

2.6 CONCRETE MIXTURES

- A. General: Concrete mixtures shall comply with requirements of authorities having jurisdiction.
- B. Mixtures for concrete pavements, gutters and curbs subject to vehicular traffic:
 - 1. Concrete shall be Class 2 (Previous years denoted as Class A) and shall contain 564 pounds minimum (6 sacks) of Portland Cement per cubic yard conforming to the requirements of Section 90 of the Caltrans Specifications.
 - a. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. Proportion mixtures to provide normal-weight concrete with the following properties:
 - a. Compressive Strength (28 Days): 3000 psi minimum.
 - b. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.50.
 - c. Slump Limit: 4 inches maximum.
- C. Mixtures for concrete walks, gutters and curbs subject to only pedestrian traffic:
 - 1. Concrete shall be Class 3 (Previous years denoted as Class B) and shall contain 505 pounds minimum of Portland Cement per cubic yard conforming to the requirements of Section 90 of the Caltrans Specifications unless noted otherwise on the drawings.
 - a. Use a qualified independent testing agency for preparing and reporting proposed concrete design mixtures for the trial batch method.
 - 2. Proportion mixtures to provide normal-weight concrete with the following properties:
 - a. Compressive Strength (28 Days): 2500 psi minimum.
 - b. Maximum Water-Cementitious Materials Ratio at Point of Placement: 0.58.
 - c. Slump Limit: 5 inches maximum.
- D. Limit water-soluble, chloride-ion content in hardened concrete to 0.15 percent by weight of cement.

2.7 CONCRETE MIXING

- A. Ready-Mixed Concrete: Measure, batch, and mix concrete materials and concrete according to ASTM C 94/C 94M. Furnish batch certificates for each batch discharged and used in the Work.
 - 1. When air temperature is between 85 and 90 deg F, reduce mixing and delivery time from 1-1/2 hours to 75 minutes; when air temperature is above 90 deg F, reduce mixing and delivery time to 60 minutes.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine exposed subgrades and base surfaces for compliance with requirements for dimensional, grading, and elevation tolerances.

- B. Proof-roll prepared base surface below concrete paving to identify soft pockets and areas of excess yielding.
 - 1. Completely proof-roll subbase in one direction and repeat in perpendicular direction. Limit vehicle speed to 3 mph.
 - 2. Proof-roll with a pneumatic-tired and loaded, 10-wheel, tandem-axle dump truck weighing not less than 15 tons.
 - 3. Correct subbase with soft spots and areas of pumping or rutting exceeding depth of 1/2 inch according to requirements in Division 31 Section "Earth Moving."
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

- A. Remove loose material from compacted subbase surface immediately before placing concrete.

3.3 EDGE FORMS AND SCREED CONSTRUCTION

- A. Set, brace, and secure edge forms, bulkheads, and intermediate screed guides to required lines, grades, and elevations. Install forms to allow continuous progress of work and so forms can remain in place at least 24 hours after concrete placement.
- B. Clean forms after each use and coat with form-release agent to ensure separation from concrete without damage.

3.4 STEEL REINFORCEMENT

- A. General: Comply with CRSI's "Manual of Standard Practice" for fabricating, placing, and supporting reinforcement.
- B. Clean reinforcement of loose rust and mill scale, earth, ice, or other bond-reducing materials.
- C. Arrange, space, and securely tie bars and bar supports to hold reinforcement in position during concrete placement. Maintain minimum cover to reinforcement.
- D. Install welded wire reinforcement in lengths as long as practicable. Lap adjoining pieces at least one full mesh, and lace splices with wire. Offset laps of adjoining widths to prevent continuous laps in either direction.

3.5 JOINTS

- A. General: Form construction, isolation, and contraction joints and tool edges true to line, with faces perpendicular to surface plane of concrete. Construct transverse joints at right angles to centerline unless otherwise indicated.
 - 1. When joining existing paving, place transverse joints to align with previously placed joints unless otherwise indicated.

- B. Construction Joints: Set construction joints at side and end terminations of paving and at locations where paving operations are stopped for more than one-half hour unless paving terminates at isolation joints.
1. Continue steel reinforcement across construction joints unless otherwise indicated. Do not continue reinforcement through sides of paving strips unless otherwise indicated.
 2. Provide tie bars at sides of paving strips where indicated.
 3. Keyed Joints: Provide preformed keyway-section forms or bulkhead forms with keys as shown on the Drawings.
 4. Doweled Joints: Install dowel bars and support assemblies at joints where indicated. Lubricate or coat with asphalt one-half of dowel length to prevent concrete bonding to one side of joint.
- C. Isolation Joints: Form isolation joints of preformed joint-filler strips as indicated on the Drawings.
1. Extend joint fillers full width and depth of joint.
 2. Terminate joint filler not less than 1/2 inch or more than 1 inch below finished surface if joint sealant is indicated.
 3. Place top of joint filler flush with finished concrete surface if joint sealant is not indicated.
 4. Furnish joint fillers in one-piece lengths. Where more than one length is required, lace or clip joint-filler sections together.
 5. During concrete placement, protect top edge of joint filler with metal, plastic, or other temporary preformed cap. Remove protective cap after concrete has been placed on both sides of joint.
- D. Contraction Joints: Form weakened-plane contraction joints, sectioning concrete into areas as indicated. Construct contraction joints for a depth equal to at least one-fourth of the concrete thickness, as follows:
1. Grooved Joints: Form 1/4-inch wide contraction joints after initial floating by grooving and finishing each edge of joint with grooving tool to a 1/4-inch radius unless noted otherwise on the drawings. Repeat grooving of contraction joints after applying surface finishes. Eliminate grooving-tool marks on concrete surfaces.
 - a. Tolerance: Ensure that grooved joints are within 3 inches either way from centers of dowels.
 2. Sawed Joints: Form contraction joints with power saws equipped with shatterproof abrasive or diamond-rimmed blades. Cut 1/8-inch- wide joints into concrete when cutting action will not tear, abrade, or otherwise damage surface and before developing random contraction cracks.
 - a. Tolerance: Ensure that sawed joints are within 3 inches either way from centers of dowels.
- E. Edging: After initial floating, tool edges of paving, gutters, curbs, and joints in concrete with an edging tool to a 1/4-inch radius unless noted otherwise on the Drawings. Repeat tooling of edges after applying surface finishes. Eliminate edging-tool marks on concrete surfaces.

3.6 CONCRETE PLACEMENT

- A. Before placing concrete, inspect and complete formwork installation, steel reinforcement, and items to be embedded or cast-in.
- B. Remove snow, ice, or frost from subbase surface and steel reinforcement before placing concrete. Do not place concrete on frozen surfaces.

- C. Moisten subbase to provide a uniform dampened condition at time concrete is placed. Do not place concrete around manholes or other structures until they are at required finish elevation and alignment.
- D. Comply with ACI 301 requirements for measuring, mixing, transporting, and placing concrete.
- E. Do not add water to concrete during delivery or at Project site. Do not add water to fresh concrete after testing.
- F. Deposit and spread concrete in a continuous operation between transverse joints. Do not push or drag concrete into place or use vibrators to move concrete into place.
- G. Consolidate concrete according to ACI 301 by mechanical vibrating equipment supplemented by hand spading, rodding, or tamping.
 - 1. Consolidate concrete along face of forms and adjacent to transverse joints with an internal vibrator. Keep vibrator away from joint assemblies, reinforcement, or side forms. Use only square-faced shovels for hand spreading and consolidation. Consolidate with care to prevent dislocating reinforcement and dowels.
- H. Screed paving surface with a straightedge and strike off.
- I. Commence initial floating using bull floats or darbies to impart an open-textured and uniform surface plane before excess moisture or bleed water appears on the surface. Do not further disturb concrete surfaces before beginning finishing operations or spreading surface treatments.
- J. Cold-Weather Placement: Protect concrete work from physical damage or reduced strength that could be caused by frost, freezing, or low temperatures. Comply with ACI 306.1 and the following:
 - 1. When air temperature has fallen to or is expected to fall below 40 deg F, uniformly heat water and aggregates before mixing to obtain a concrete mixture temperature of not less than 50 deg F and not more than 80 deg F at point of placement.
 - 2. Do not use frozen materials or materials containing ice or snow.
 - 3. Do not use calcium chloride, salt, or other materials containing antifreeze agents or chemical accelerators unless otherwise specified and approved in design mixtures.
- K. Hot-Weather Placement: Comply with ACI 301 and as follows when hot-weather conditions exist:
 - 1. Cool ingredients before mixing to maintain concrete temperature below 90 deg F at time of placement. Chilled mixing water or chopped ice may be used to control temperature, provided water equivalent of ice is calculated in total amount of mixing water. Using liquid nitrogen to cool concrete is Contractor's option.
 - 2. Cover steel reinforcement with water-soaked burlap so steel temperature will not exceed ambient air temperature immediately before embedding in concrete.
 - 3. Fog-spray forms, steel reinforcement, and subgrade just before placing concrete. Keep subgrade moisture uniform without standing water, soft spots, or dry areas.

3.7 CONCRETE FINISHING

- A. Float Finish: After initial floating during placement, begin the second floating operation when bleed-water sheen has disappeared and concrete surface has stiffened sufficiently to permit operations. Float surface with power-driven floats or by hand floating if area is small or inaccessible to power units. Finish surfaces to true planes. Cut down high spots and fill low spots. Refloat surface immediately to uniform granular texture.
 - 1. Medium-to-Fine-Textured Broom Finish: Draw a soft-bristle broom across float-finished concrete surface perpendicular to line of traffic to provide a uniform, fine-line texture.
- B. Curbs: Provide monolithic finish to interior curbs by stripping forms while concrete is still green and by steel-troweling surfaces to a hard, dense finish with corners, intersections, and terminations slightly rounded.

3.8 CONCRETE PROTECTION AND CURING

- A. General: Protect freshly placed concrete from premature drying and excessive cold or hot temperatures. Comply with ACI 306.1 for cold-weather protection and ACI 305 for hot-weather protection during curing.
- B. Evaporation Retarder: Apply evaporation retarder to concrete surfaces if hot, dry, or windy conditions cause moisture loss approaching 0.2 lb/sq. ft. x h before and during finishing operations. Apply according to manufacturer's written instructions after placing, screeding, and bull floating or darbying concrete but before float finishing.
- C. Begin curing after finishing concrete but not before free water has disappeared from concrete surface.
- D. Curing Methods: Cure concrete by moisture curing, moisture-retaining-cover curing, curing compound or a combination of these as follows:
 - 1. Moisture Curing: Keep surfaces continuously moist for not less than seven days with the following materials:
 - a. Water.
 - b. Continuous water-fog spray.
 - c. Absorptive cover, water saturated and kept continuously wet. Cover concrete surfaces and edges with 12-inch lap over adjacent absorptive covers.
 - 2. Moisture-Retaining-Cover Curing: Cover concrete surfaces with moisture-retaining cover, placed in widest practicable width, with sides and ends lapped at least 12 inches and sealed by waterproof tape or adhesive. Immediately repair any holes or tears occurring during installation or curing period using cover material and waterproof tape.
 - 3. Curing Compound: Apply uniformly in continuous operation by power spray or roller according to manufacturer's written instructions. Recoat areas that have been subjected to heavy rainfall within three hours after initial application. Maintain continuity of coating, and repair damage during curing period.

3.9 PAVING TOLERANCES

- A. Comply with tolerances in ACI 117 and as follows:
 - 1. Elevation: 1/4 inch.
 - 2. Thickness: Plus 3/8 inch, no minus.
 - 3. Surface: Gap below 10-foot- long, unleveled straightedge not to exceed 1/4 inch
 - 4. Alignment of Tie-Bar End Relative to Line Perpendicular to Paving Edge: 1/2 inch per 12 inches of tie bar.
 - 5. Lateral Alignment and Spacing of Dowels: 1 inch.
 - 6. Vertical Alignment of Dowels: 1/4 inch.
 - 7. Alignment of Dowel-Bar End Relative to Line Perpendicular to Paving Edge: 1/4 inch per 12 inches of dowel.
 - 8. Joint Spacing: 3 inches.
 - 9. Contraction Joint Depth: Plus 1/4 inch, no minus.
 - 10. Joint Width for Grooved Joints: Plus 1/8 inch, no minus.
- B. Requirements for accessible pedestrian routes for persons with disabilities:
 - 1. Refer to regulatory requirements referenced in Part 1 Article "Regulatory Requirements for Pedestrian Paving" of this specification section.

3.10 FIELD QUALITY CONTROL

- A. Testing and Inspecting Agency: Owner will engage and pay for a qualified independent testing and inspecting agency to perform tests and inspections as applicable and prepare reports.
 - 1. Testing and Inspection Agency shall be acceptable to the Architect and the Division of the State Architect.
- B. The Architect and the Division of the State Architect shall have the right to order the testing of any materials used in the concrete construction to determine if they are of the quality specified.
- C. Contractor Responsibilities:
 - 1. The Contractor shall maintain control of the quality of materials and workmanship in order to conform with the drawings and specifications.
 - 2. To facilitate testing and inspection, the Contractor shall:
 - a. Schedule tests and inspections with the Testing and Inspection Agency sufficiently in advance of operations to allow for the assignment of personnel and for the completion of testing and inspecting responsibilities.
 - b. Provide access to the Work for the designated Testing and Inspection Agency.
 - c. Furnish all necessary materials and labor to assist the designated Testing and Inspection Agency in obtaining and handling samples at the project or other sources of materials.
 - d. Provide and maintain for the sole use of the Testing and Inspection Agency adequate facilities for safe storage and proper curing of concrete test specimens on the project site for the first 24 hr. as required by ASTM C31.
 - 3. The Contractor shall correct deficiencies in Work that test reports and inspections indicate does not comply with the Contract Documents.

- D. Concrete Tests: Testing of composite samples of fresh concrete obtained according to ASTM C 172 shall be performed according to the following requirements:
1. Testing Frequency: Obtain at least one composite sample for each 5000 sq. ft. or fraction thereof of each concrete mixture placed each day.
 - a. When frequency of testing will provide fewer than five compressive-strength tests for each concrete mixture, testing shall be conducted from at least five randomly selected batches or from each batch if fewer than five are used.
 2. Slump: ASTM C 143/C 143M; one test at point of placement for each composite sample, but not less than one test for each day's pour of each concrete mixture. Perform additional tests when concrete consistency appears to change.
 3. Air Content: ASTM C 231/C 231M, pressure method; one test for each composite sample, but not less than one test for each day's pour of each concrete mixture.
 4. Concrete Temperature: ASTM C 1064/C 1064M; one test hourly when air temperature is 40 deg F and below and when it is 80 deg F and above, and one test for each composite sample.
 5. Compression Test Specimens: ASTM C 31/C 31M; cast and laboratory cure one set of three standard cylinder specimens for each composite sample.
 6. Compressive-Strength Tests: ASTM C 39/C 39M; test one specimen at seven days and two specimens at 28 days.
 - a. A compressive-strength test shall be the average compressive strength from two specimens obtained from same composite sample and tested at 28 days.
- E. Strength of each concrete mixture will be satisfactory if the average of any three consecutive compressive-strength tests equals or exceeds specified compressive strength and no compressive-strength test value falls below specified compressive strength by more than 500 psi.
- F. Test results shall be reported in writing to Architect, concrete manufacturer, and Contractor within 48 hours of testing. Reports of compressive-strength tests shall contain Project identification name and number, date of concrete placement, name of concrete testing and inspecting agency, location of concrete batch in Work, design compressive strength at 28 days, concrete mixture proportions and materials, compressive breaking strength, and type of break for both 7- and 28-day tests.
- G. Nondestructive Testing: Impact hammer, sonoscope, or other nondestructive device may be permitted by Architect but will not be used as sole basis for approval or rejection of concrete.
- H. Additional Tests: Testing and inspecting agency shall make additional tests of concrete when test results indicate that slump, compressive strengths, or other requirements have not been met, as directed by Architect.
- I. Concrete will be considered defective if it does not pass tests and inspections.
- J. Additional testing and inspecting, at Contractor's expense, will be performed to determine compliance of replaced or additional work with specified requirements.
- K. Test and inspection reports are to be prepared and distributed by the testing agency.

3.11 REPAIRS AND PROTECTION

- A. Remove and replace concrete paving that is broken, damaged, or defective or that does not comply with requirements in this Section. Remove work in complete sections from joint to joint unless otherwise approved by Architect.
- B. Additional construction, testing, and replacement costs resulting from damaged or improperly installed infrastructure shall be paid for by the Contractor.
- C. Drill test cores, where directed by Architect, when necessary to determine magnitude of cracks or defective areas. Fill drilled core holes in satisfactory paving areas with portland cement concrete bonded to paving with epoxy adhesive.
- D. Protect concrete paving from damage. Exclude traffic from paving for at least 14 days after placement. When construction traffic is permitted, maintain paving as clean as possible by removing surface stains and spillage of materials as they occur.
- E. Maintain concrete paving free of stains, discoloration, dirt, and other foreign material. Sweep paving not more than two days before date scheduled for Substantial Completion inspections.

END OF SECTION

SECTION 321373
CONCRETE PAVING JOINT SEALANTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

- A. Section Includes:
 - 1. Cold-applied joint sealants.
 - 2. Joint-sealant backer materials.
 - 3. Primers.

1.3 ACTION SUBMITTALS

- A. Product Data: For each type of product.
- B. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch wide joints formed between two 6-inch long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.
- C. Paving-Joint-Sealant Schedule: Include the following information:
 - 1. Joint-sealant application, joint location, and designation.
 - 2. Joint-sealant manufacturer and product name.
 - 3. Joint-sealant formulation.
 - 4. Joint-sealant color.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. Product Certificates: For each type of joint sealant and accessory.

1.5 QUALITY ASSURANCE

- A. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
- B. Product Testing: Test joint sealants using a qualified testing agency.

1.6 FIELD CONDITIONS

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

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

- A. Compatibility: Provide joint sealants, backing materials, and other related materials that are compatible with one another and with joint substrates under conditions of service and application, as demonstrated by joint-sealant manufacturer, based on testing and field experience.

2.2 COLD-APPLIED JOINT SEALANTS

- A. Single Component, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type S, Grade P, Class 25, for Use T.
 - 1. Available Product: W.R. Meadows, Inc.; Pourthane SL.
 - a. Subject to compliance with requirements, provide product indicated or a comparable product subject to Architect's approval.
- B. Multicomponent, Pourable, Urethane, Elastomeric Joint Sealant: ASTM C 920, Type M, Grade P, Class 25, for Use T.
 - 1. Available Product: Pecora Corporation; Urexpan NR-200 or DynaFlex.
 - a. Subject to compliance with requirements, provide product indicated or a comparable product subject to Architect's approval.
- C. Joint-Sealant Application: Joints within concrete paving.
 - 1. Joint Location:
 - a. Expansion and isolation joints in concrete paving.
 - b. Contraction joints in concrete paving.
 - c. Other joints as indicated.
- D. Joint-Sealant Color: As selected by Architect from Manufacturer's full range.

2.3 JOINT-SEALANT BACKER MATERIALS

- A. Joint-Sealant Backer Materials: Nonstaining; compatible with joint substrates, sealants, primers, and other joint fillers; and approved for applications indicated by joint-sealant manufacturer, based on field experience and laboratory testing.

- B. Round Backer Rods for Cold-Applied Joint Sealants: ASTM D 5249, Type 3, of diameter and density required to control joint-sealant depth and prevent bottom-side adhesion of sealant.
- C. Backer Strips for Cold- and Hot-Applied Joint Sealants: ASTM D 5249; Type 2; of thickness and width required to control joint-sealant depth, prevent bottom-side adhesion of sealant, and fill remainder of joint opening under sealant.

2.4 PRIMERS

- A. Primers: Product recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

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

3.2 PREPARATION

- A. Surface Cleaning of Joints: Before installing joint sealants, clean out joints immediately to comply with joint-sealant manufacturer's written instructions.
 - 1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
- B. Joint Priming: Prime joint substrates where indicated or where recommended in writing by joint-sealant manufacturer, based on preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

3.3 INSTALLATION OF JOINT SEALANTS

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

- C. Install joint-sealant backings to support joint sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
 - 1. Do not leave gaps between ends of joint-sealant backings.
 - 2. Do not stretch, twist, puncture, or tear joint-sealant backings.
 - 3. Remove absorbent joint-sealant backings that have become wet before sealant application and replace them with dry materials.
- D. Install joint sealants immediately following backing installation, using proven techniques that comply with the following:
 - 1. Place joint sealants so they fully contact joint substrates.
 - 2. Completely fill recesses in each joint configuration.
 - 3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.
- E. Tooling of Nonsag Joint Sealants: Immediately after joint-sealant application and before skinning or curing begins, tool sealants according to the following requirements to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint:
 - 1. Remove excess joint sealant from surfaces adjacent to joints.
 - 2. Use tooling agents that are approved in writing by joint-sealant manufacturer and that do not discolor sealants or adjacent surfaces.
- F. Provide joint configuration to comply with joint-sealant manufacturer's written instructions unless otherwise indicated.

3.4 CLEANING AND PROTECTION

- A. Clean off excess joint sealant as the Work progresses, by methods and with cleaning materials approved in writing by joint-sealant manufacturers.
- B. Protect joint sealants, during and after curing period, from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately and replace with joint sealant so installations in repaired areas are indistinguishable from the original work.

END OF SECTION