DOCUMENT 01 11 00

SUMMARY OF WORK

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals; and

1.1.5. Temporary Facilities and Controls.

1.2. SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

The Work may consist of the following:

Demolition and construction are necessary for the SCCOE Ridder Park IEEEP project, including associated civil, SMEP, landscape and architectural work as indicated in the Drawings and Specifications. This includes, but is not limited to, the following:

- Interiors:
  - Selected demolition
  - Entry, classrooms and support spaces.
  - HVAC, plumbing, electrical, and low voltage work

- Site work and Exteriors:
  - Partial demolition of existing site features for new playground and building entry.
  - Modification to parking lot area and path of travel.
  - Off-Site Work

1.3. CONTRACTS

Perform the Work under a single, fixed-price Contract.

1.4. DEFERRED APPROVAL ITEMS [N/A]

1.4.1. All items that are subject to subsequent review and approval by the Division of the State Architect shall are as indicated below. No deferred approval items shall be installed until the Contractor has complied with all the processes in the Contract Documents, including Division 01 Document "Submittals."

1.4.2. Deferred approval items for this Project are the following:

1.4.2.1. Fire Alarm System
1.4.2.2. Fire Suppression System

1.5. SPECIAL PROJECT REQUIREMENTS

1.5.1. Hours of Work: Work is to be performed during regular work hours. Contractor shall modify their regular schedule on SCCOE Board Meeting Days and Special Events Dates.

1.5.1.1. Board Meeting Schedule - Work day shall end by 3:00 pm
September 20, 2023
October 4, 2023
October 18, 2023
November 1, 2023
November 15, 2023
December 13, 2023
2024 Schedule is TBD (9 Board Meetings Jan – June)

1.5.1.2. Special Events Dates, not limited to:
October 6, 2023 time TBD

1.6. WORK BY OTHERS

1.6.1. Work to be performed and completed prior to the start of the Project: **[N/A]**

1.7. CODES, REGULATIONS AND STANDARDS

1.7.1. The codes, regulations, and standards adopted by the State and federal agencies having jurisdiction shall govern minimum requirements for the Project. Where codes, regulations, and standards conflict with the Contract Documents, these conflicts shall be brought to the immediate attention of the SCCOE and the Architect.

1.7.2. Codes, regulations, and standards are as published effective as of date of bid opening, unless otherwise specified or indicated.

1.8. EXAMINATION OF EXISTING CONDITIONS

1.8.1. Contractor shall be held to have examined the Project Site and acquainted itself with the conditions of the Site and of the streets and roads approaching the Site.

1.8.2. Prior to commencement of Work, Contractor shall survey the Site and existing buildings and improvements to observe existing damage and defects such as cracks, sags, broken,

missing or damaged glazing, other building elements and Site improvements, and other damage.

1.8.3. Should Contractor observe cracks, sags, and other damage to and defects of the Site and adjacent buildings, paving, and other items not indicated in the Contract Documents, Contractor shall immediately report same to the SCCOE and the Architect.

1.9. CONTRACTOR'S USE OF PREMISES

1.9.1. Contractor shall take all reasonable precautions for the safety of the students and the school employees throughout the duration of the Project.

1.9.2. If unoccupied and only with SCCOE's prior written approval, Contractor may use the building(s) at the Project Site without limitation for its operations, storage, and office facilities for the performance of the Work. If the SCCOE chooses to beneficially occupy any building(s), Contractor must obtain the SCCOE's written approval for Contractor's use of spaces and types of operations to be performed within the building(s) while so occupied. Contractor's access to the building(s) shall be limited to the areas indicated.

1.9.3. If the space at the Project Site is not sufficient for Contractor's operations, storage, office facilities and/or parking, Contractor shall arrange and pay for any additional facilities needed by Contractor, at no expense to SCCOE.

1.9.4. Contractor shall not interfere with others use of or access to occupied portions of the building(s) or adjacent property.

1.9.5. Contractor shall maintain corridors, stairs, halls, and other exit-ways of building clear and free of debris and obstructions at all times.

1.9.6. No one other than those directly involved in the demolition and construction or specifically designated by the SCCOE or the Architect shall be permitted in the areas of Work during demolition and construction activities.

1.10. PROTECTION OF EXISTING STRUCTURES AND UTILITIES

1.10.1. The Drawings show above-grade and below-grade structures, utility lines, and other installations that are known or believed to exist in the area of the Work. Contractor shall locate these existing installations before proceeding with excavation and other operations that could damage same; maintain them in service, where appropriate; and repair damage to them caused by the performance of the Work. Should damage occur to these existing installations, the costs of repair shall be at the Contractor's expense and made to the SCCOE's satisfaction.

1.10.2. Contractor shall be alert to the possibility of the existence of additional structures and utilities. If Contractor encounters additional structures and utilities, Contractor will immediately report to the SCCOE for disposition of same as indicated in the General Conditions.

1.11. UTILITY SHUTDOWNS AND INTERRUPTIONS

1.11.1. Contractor shall give the SCCOE a minimum of three (3) days written notice in advance of any need to shut off existing utility services or to effect equipment interruptions.

SCCOE will set exact time and duration for shutdown and will assist Contractor with shutdown. Work required to re-establish utility services shall be performed by the Contractor.

1.11.2. Contractor shall obtain SCCOE's written approval as indicated in the General Conditions in advance of deliveries of material or equipment or other activities that may conflict with SCCOE's use of the building(s) or adjacent facilities.

1.12. STRUCTURAL INTEGRITY

1.12.1. Contractor shall be responsible for and supervise each operation and work that could affect structural integrity of various building elements, both permanent and temporary.

1.12.2. Contractor shall include structural connections and fastenings as indicated or required for complete performance of the Work.

1.13. [N/A] ENVIRONMENTAL REQUIREMENTS

1.13.1. This Project has been designated to incorporate environmental concepts established as part of the _____. To the extent possible, materials, processes, procedures, and equipment included in these Specifications shall comply with sustainable design practices.

1.13.2. **[N/A] LEED™ Certification:** This Project will submit documentation for LEED™ Certification Program of US Green Building Council (USGBC), 1015 18th Street, NW, Suite 805, Washington, DC 20036; Ph: 202-828-7422; Fax: 202/828-5110; www.usgbc.org. Requirements are described in Division 01 Document "LEED Certification Sustainable Design Requirements."

END OF DOCUMENT

DOCUMENT 01 12 10

CONTRACT FORMS AND SUBMITTALS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals; and

1.1.5. Construction Schedule.

2. REQUIREMENTS OF THE SCCOE

2.1. Contractor shall utilize the SCCOE's forms as indicated below. This requirement also applies to submittals, including the requirement that the Contractor and its Subcontractors, as indicated, utilize the software, internet and specific programs on this Project as indicated herein.

2.2. The link to the SCCOE's on-line document, submittal, and forms program can be found at: https://www.sccoe.org/depts/bizserv/purchasing/Pages/Bids-Posting-System.aspx

2.3. [N/A] SCCOE FORMS

All forms identified below shall utilize SCCOE forms available at the above referenced link. Contractor must only utilize these forms, including the programs, processes and software indicated below.

2.3.1. **Schedule of Value. Contractor shall breakdown the bid amounts based on the line items included in the Schedule of Values form.**

2.3.2. **Request for Information.** Contractor shall comply with all applicable provisions in Contract Documents relating to Requests for Information. Contractor shall submit all of its Requests for Information using SCCOE's Form attached hereto.

2.3.3. **Construction Directive.** Contractor shall comply with all applicable provisions in Contract Documents relating to Changes in the Work. All Construction Directives shall be issued using SCCOE's Form attached hereto.

2.3.4. **Price Request.** Contractor shall comply with all applicable provisions in Contract Documents relating to Price Requests. All Price Requests shall be issued using SCCOE's Form attached hereto.

2.3.5. **Proposed Change Order.** Contractor shall comply with all applicable provisions in Contract Documents relating to Changes in the Work. Contractor shall submit all of its Proposed Change Orders using SCCOE's Form attached hereto.

2.3.6. **Change Order.** Contractor shall comply with applicable provisions in Contract Documents relating to Changes in the Work. All Change Orders shall be issued using SCCOE's Form attached hereto.

2.4. CONTRACTOR SUBMITTALS

All submittals required by the Contract Documents shall be submitted using the programs, processes and software indicated below. If no specific program or format is indicated, then Microsoft Word or Microsoft Excel is acceptable.

2.4.1. **Contractor's Completed Subcontractor List**

2.4.2. **Contractor's Safety Plan**

2.4.3. **Schedule of Submittals**

2.4.4. **Operations And Maintenance Manual & Instructions**

END OF DOCUMENT

DOCUMENT 01 20 00

PRICE AND PAYMENT PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.2. DESCRIPTION

1.2.1. This Document contains procedures to be followed by the Contractor to request payment.

1.2.2. **IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS THAT THE CONTRACTOR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "PAYMENTS," "SCHEDULE OF VALUES"), THOSE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS SHALL TAKE PRECEDENCE.**

1.3. SECTION INCLUDES

1.3.1. Schedule of Values.

1.3.2. Application for Payment.

1.4. SCHEDULE OF VALUES

1.4.1. Provide a breakdown of the Contract Price with enough detail to facilitate continued evaluation of Applications for Payment and Progress Reports using the form provided by the Owner.

1.4.2. Contractor must update and resubmit the Schedule of Values before the next Invoice or Application for Payment when Change Orders or Construction Change Directives result in a change in the Contract Price.

1.4.3. Coordination: Coordinate preparation of the Schedule of Values with preparation of Contractor's Construction Schedule. Comply with the provisions in the General Conditions regarding the Schedule of Values.

1.4.3.1. Correlate line items in the Schedule of Values with other required administrative forms and schedules, including the following:

1.4.3.1.1. Application for Payment forms.

1.4.3.1.2. Submittal Schedule.

1.4.3.1.3. Contractor's Construction Schedule.

1.4.3.2. Submit the Schedule of Values to SCCOE as indicated in the Contract Documents and, if an updated Schedule of Values is needed, then no later than ten (10) days before the date scheduled for submittal of the next Application(s) for Payment.

1.4.3.3. Subschedules: Where the Work is separated into phases requiring separately phased payments, provide subschedules showing values correlated with each phase of payment.

1.4.4. 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.

1.4.4.1. Identification: Include the following Project identification on the Schedule of Values:

1.4.4.1.1. Project name and location.

1.4.4.1.2. Name of SCCOE's Representative.

1.4.4.1.3. SCCOE's contract number (_____).

1.4.4.1.4. SCCOE's name and address.

1.4.4.1.5. Date of submittal.

1.4.4.2. Arrange the Schedule of Values in tabular form with separate columns to indicate the following for each item listed:

1.4.4.2.1. Related Specification document, section or division.

1.4.4.2.2. Description of the Work.

1.4.4.2.3. Name of subcontractor.

1.4.4.2.4. Name of manufacturer or fabricator.

1.4.4.2.5. Name of supplier.

1.4.4.2.6. Change Orders (numbers) that affect value.

1.4.4.2.7. Dollar value.

1.4.4.2.7.1. Percentage of the Contract Price to nearest one-hundredth percent, adjusted to total 100 percent.

1.4.4.3. Provide a breakdown of the Contract Price in enough detail to facilitate continued evaluation of Applications for Payment and progress reports. Provide several line items for principal subcontract amounts, where appropriate. Include separate line items under required principal subcontracts for operation and maintenance manuals, punch list activities, Project Record Documents, and demonstration and training.

1.4.4.4. Round amounts to nearest whole dollar; total shall equal the Contract Price.

1.4.4.5. 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.

1.4.4.6. 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.

1.4.4.7. Allowances (if any): Provide a separate line item in the Schedule of Values for each allowance. Show line-item value of unit-cost allowances, as a product of the unit cost, multiplied by measured quantity. Use information indicated in the Contract Documents to determine quantities.

1.4.4.8. Each item in the Schedule of Values and Applications for Payments shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

1.4.5. Schedule Updating: Update and resubmit the Schedule of Values before the next Application for Payment if there is a change in the Contract Price.

1.5. APPLICATIONS FOR PAYMENT

1.5.1. **Form:** Contractor shall utilize AIA Form G702 - Application and Certificate for Payment and AIA Form G703 - Continuation Sheet, or SCCOE-approved form with the same information as these AIA forms.

1.5.2. **Content and Format**: SCCOE shall use Schedule of Values for listing items in its Application for Payment.

1.5.3. Each Application for Payment shall be consistent with previous applications and payments as certified and paid for by SCCOE.

END OF DOCUMENT

DOCUMENT 01 21 00

ALLOWANCES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.1.4. Agreement;

1.1.5. Bid Form; and

1.2. SUMMARY

1.2.1. **THE SPECIFIC ALLOWANCES FOR THIS PROJECT ARE AS LISTED IN THE AGREEMENT.**

1.2.2. This Document includes administrative and procedural requirements governing Allowances.

1.2.3. Certain items are specified in the Contract Documents by Allowances. Allowances have been established in lieu of additional requirements and to defer selection of actual materials and equipment to a later date when additional information is available for evaluation. If necessary, additional requirements may be issued by Change Order or similar document.

1.3. SELECTION AND PURCHASE

1.3.1. At the earliest practical date after award of the Contract, Contractor shall advise SCCOE of the date when final selection and purchase of each product or system described by an Allowance must be completed to avoid delaying the Work.

1.3.2. At SCCOE's request, obtain proposals for each Allowance for use in making final selections. Include recommendations that are relevant to performing the Work.

1.3.3. Purchase products and systems selected by SCCOE from the designated supplier.

1.4. SUBMITTALS

1.4.1. Submit proposals for purchase of products or systems included in Allowances, in the form specified for Change Orders.

1.4.2. Submit invoices or delivery slips to show actual quantities of materials delivered to the Site for use in fulfillment of each Allowance.

1.4.3. Coordinate and process submittals for Allowance items in same manner as for other portions of the Work.

1.5. COORDINATION

Coordinate Allowance items with other portions of the Work. Furnish templates as required to coordinate installation.

1.6. PAYMENT FOR ALLOWANCES

1.6.1. Allowance shall include all-inclusive cost to Contractor of specific products and materials under Allowance and Contractor may bill its time, materials, and other items in the identical structure as a Change Order.

1.7. UNUSED MATERIALS

1.7.1. Return unused materials purchased under an Allowance to manufacturer or supplier for credit to SCCOE, after installation has been completed and accepted.

1.7.2. If requested, prepare and deliver unused material for storage by SCCOE when it is not economically practical (as determined by SCCOE) to return the material for credit. If directed, deliver unused material to SCCOE's storage space. Otherwise, disposal of unused material is Contractor's responsibility.

2. EXECUTION

2.1. EXAMINATION

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

2.2. PREPARATION

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

END OF DOCUMENT

DOCUMENT 01 23 00

ALTERNATES AND UNIT PRICING

1. ALTERNATES AND UNIT PRICES

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Bid Form and Proposal; and

1.1.5. Instruction to Bidders.

2. ALTERNATES

2.1. DESCRIPTION

An amount proposed by Contractor and stated in its Bid Form for certain work defined in the Instruction to Bidders, Bid Form or Contract Documents that may be added to or deducted from the Base Bid amount. The acceptance or rejection of any of the alternates is strictly at the option of the SCCOE and subject to SCCOE's acceptance of Contractor's stated prices contained in this Proposal.

The cost or credit for each alternate is the net addition to or deduction from the Contract Price to incorporate the alternate into the Work. No other adjustments are made to the Contract Price.

2.2. GENERAL:

2.2.1. Coordination: Contractor shall modify or adjust adjacent work as necessary to completely integrate work of the alternate into the Project.

2.2.1.1. Include as part of each alternate, miscellaneous devices, accessories and similar items incidental to or required for a complete installation whether or not indicated as part of the alternate.

2.2.1.2. Include as part of each alternate, the costs of related coordination, modification, or adjustments.

2.2.2. If SCCOE accepts an alternate, Contractor shall perform the work of the alternate under the same conditions as other Work required by Contract Documents.

2.2.3. Notification: Immediately following award of the Contract, Contractor shall notify all of its Subcontractor(s) in writing of the status of each alternate. Indicate if alternates have been accepted, rejected, or deferred for later consideration. Include a complete description of negotiated modifications to alternates.

2.2.4. Schedule of Alternates: A Schedule of Alternates is included at the end of this Document. Specifications referenced in the Schedule of Alternates contain requirements for materials necessary to achieve the Work described under each alternate.

3. UNIT PRICING

3.1. DESCRIPTION

An amount proposed by Contractor and stated in its Bid Form for certain work defined in the Instruction to Bidders and Bid Form that may be priced by unit. The acceptance or rejection of any of the unit prices is strictly at the option of the SCCOE and subject to SCCOE's acceptance of Contractor's stated prices contained in the Bid Form and may be subsequently negotiated prior to incorporation on Change Order(s).

3.2. GENERAL

Contractor shall completely state all required figures based on Unit Prices required in the Bid Form. Where scope of Work is decreased, all Work pertaining to the item, whether specifically stated or not, shall be omitted and where scope of Work is increased, all work pertaining to that item required to render same ready for use on the Project in accordance with intention of Drawings and Specifications shall be included in an agreed upon price amount.

3.3. UNIT PRICES

Furnish unit prices for each of the named items on a square foot, lineal foot, or per each basis, as requested and applicable. Unit prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and supplier(s).

4. EXECUTION

4.1. [N/A] SCHEDULE OF ALTERNATES:

END OF DOCUMENT

DOCUMENT 01 25 10

PRODUCT OPTIONS AND SUBSTITUTIONS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Instructions to Bidders.

1.2. DOCUMENT INCLUDES

1.2.1. Product options.

1.2.2. Limitations on Substitutions.

1.2.3. Regulatory Requirements.

1.2.4. Substitution Representation.

1.2.5. Submittal Procedure.

1.2.6. SCCOE's Review.

1.3. DEFINITIONS

1.3.1. Requests for changes in products, materials, or equipment required by Contract Documents proposed by the Contractor prior to and after award of the Contract are considered requests for substitutions. Contractor must refer to the Instructions to Bidders, the General Conditions and the Special Conditions for limitations on when requests for substitution(s) are permitted on Project. The following are not considered substitutions:

1.3.1.1. Revisions to Contract Documents requested by the SCCOE or Architect.

1.3.1.2. Specified options of products, materials, and equipment included in Contract Documents.

1.3.2. Whenever in the Specifications any material, product, thing, or service is indicated or specified by grade, patent, or proprietary name, or by name of manufacturer, that Specification shall be deemed to be used for the purpose of facilitating the description

of the material, product, thing, or service, and shall be deemed to be followed by the words "or equal," except:

1.3.2.1. When designated to match other material, product, thing, or service in use on a particular public improvement either completed or in the course of completion; or

1.3.2.2. When designated as a field test or experiment.

1.4. PRODUCT OPTIONS

1.4.1. **Products Specified by Reference Standards or by Description Only**: Any Product meeting those standards or description.

1.4.2. **Products Specified by Naming One or More Manufacturers with or without Provision for Substitution**: Products of manufacturers named and meeting specifications with substitution of Products or manufacturer only when submitted under provisions of this section.

1.5. LIMITATIONS ON SUBSTITUTIONS

1.5.1. The Bid shall be based upon the standards of quality established by those items of equipment and/or materials which are specifically identified in the Contract Documents.

1.5.2. Burden of proof of merit of requested substitution is the responsibility of the Contractor.

1.5.3. It is the sole responsibility of Contractor to submit the proper content of any requests for substitutions. Incomplete submittals will be rejected.

1.6. REGULATORY REQUIREMENTS

1.6.1. It shall be the responsibility of Contractor to obtain all regulatory approvals required for proposed substitutions.

1.6.2. All regulatory approvals shall be obtained for proposed substitutions prior to submittal of substitution request to Architect.

1.6.3. All costs incurred by the SCCOE in obtaining regulatory approvals for proposed substitutions to include the costs of the Architect and any authority having jurisdiction over the Project shall be reimbursed to the SCCOE. Costs of these services shall be reimbursed regardless of final acceptance or rejection of substitution.

1.7. Substitutions of materials or work procedures which affect the health, safety and welfare of the public shall have prior approval. **SUBSTITUTION REPRESENTATION**

1.7.1. In submitting a request for substitution, Contractor makes the representation that:

1.7.2. Contractor has investigated the proposed substitution and determined that it meets or exceeds the quality level of the specified product;

1.7.3. Contractor has determined that all components of the proposed substitution are identical and fully interchangeable with the product name and number specified;

1.7.4. Contractor will provide the same warranty or guarantee for the substitution as for the specified product;

1.7.5. Contractor will coordinate installation and make changes to other work which may be required for the work to be completed with no additional cost to the SCCOE;

1.7.6. Contractor waives claims for additional cost or time extension which may subsequently become apparent; and

1.7.7. Contractor will reimburse SCCOE for the cost of SCCOE's and Architect's review or redesign services associated with substitution request.

1.8. SUBMITTAL PROCEDURE

1.8.1. Submit six (6) copies of each request.

1.8.2. Submit request using SCCOE's Substitution Request Form as indicated in Contract Forms and Submittals. Substitution requests that are not on SCCOE's required form shall be returned without review.

1.8.3. Limit each request to one proposed substitution.

1.8.4. Request to include sufficient data so that direct comparison of proposed substitution can be made.

1.8.5. Provide complete documentation for each request. Documentation shall include the following information, as appropriate, as a minimum:

1.8.5.1. Statement of cause for substitution request.

1.8.5.2. Identify product by specification section and article number.

1.8.5.3. Provide manufacturer's name, address, and phone number. List fabricators, suppliers, and installers as appropriate.

1.8.5.4. List similar projects where proposed substitution has been used, dates of installation and names of Architect and SCCOE.

1.8.5.5. List availability of maintenance services and replacement materials.

1.8.5.6. Documented or confirmation of regulatory approval.

1.8.5.7. Product data, including drawings and descriptions of products.

1.8.5.8. Fabrication and installation procedures.

1.8.5.9. Samples of proposed substitutions.

1.8.5.10. Itemized comparison of significant qualities of the proposed substitution with those of the product specified. Significant qualities may include size, weight, durability, performance requirements and visual effects.

1.8.5.11. Coordination information, including a list of changes or modifications needed to other items of work that will become necessary to accommodate proposed substitution.

1.8.5.12. Statement on the substitutions effect on the Construction Schedule.

1.8.5.13. Cost information including a proposal of the net reduction in cost to the Contract Price if the proposed substitution is accepted.

1.8.5.14. Certification that the substitution is equal to or better in every respect to that required by the Contract Documents and that substitution will perform adequately in the application intended.

1.8.5.15. Waiver of right to additional payment or time that may subsequently become necessary because of failure of substitution to perform adequately.

1.8.6. Inadequate warranty, vagueness of submittal, failure to meet specified requirements, or submittal of insufficient data will be cause for rejection of substitution request.

1.9. SCCOE'S REVIEW

1.9.1. The SCCOE will accept or reject proposed substitution within a reasonable amount of time.

1.9.2. If a request is made prior to bid opening and the SCCOE has not completed its review, Contractor shall base its bid on the product specified only.

1.9.3. There shall be no claim for additional time for review of proposed substitutions.

1.9.4. Final acceptance of a substitution submitted prior to the date established for the receipt of bids will be in the form of an addendum.

END OF DOCUMENT

DOCUMENT 01 26 00

CONTRACT MODIFICATION PROCEDURES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Allowances;

1.1.5. Product Options and Substitutions; and

1.1.6. Project Coordination.

1.2. DESCRIPTION

1.2.1. This Document contains procedures to be followed by the Contractor to request changes in the Contract Time of the Contract Price.

1.2.2. **IF THERE IS ANY INCONSISTENCY IN THIS DOCUMENT WITH THE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS THAT THE CONTRACTOR SHALL COMPLY WITH RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES (e.g., "Change in the Work"), THOSE PROVISIONS IN THE GENERAL CONDITIONS AND THE SPECIAL CONDITIONS SHALL TAKE PRECEDENCE.**

1.3. SUMMARY

This Document specifies administrative and procedural requirements for handling and processing Contract modifications.

1.4. CONSTRUCTION CHANGE DIRECTIVE

The SCCOE may as provided by law, by Construction Directive and without invalidating the Contract, order changes in the Work consisting of additions, deletions, or other revisions.

1.5. PRICE REQUESTS

1.5.1. Do not consider Price Requests to be instructions either to stop work in progress or to execute the proposed change.

1.5.2. Within time specified in Price Request after receipt of Price Request, submit a quotation estimating cost adjustments to the Contract Price and the Contract Time necessary to execute the change.

1.5.2.1. 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.

1.5.2.2. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.

1.5.2.3. Include costs of labor and supervision directly attributable to the change.

1.5.2.4. 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.

1.6. PROPOSED CHANGE ORDERS

Contractor may propose changes by submitting a request for a change on SCCOE's Proposed Change Order form (PCO) to SCCOE.

1.6.1. 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.

1.6.2. Comply with Contract Document requirements if the proposed change requires substitution of one product or system for product or system specified.

END OF DOCUMENT

DOCUMENT 01 26 10

REQUESTS FOR INFORMATION

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Documentation Requirements;

1.1.5. Electronic Data Transfer;

1.1.6. Submittals;

1.1.7. Contract Closeout and Final Cleaning;

1.1.8. Operation and Maintenance Data;

1.1.9. Warranties; and

1.1.10. Record Documents;

1.2. DESCRIPTION

This Document contains procedures to be followed by the Contractor to request Architect provide additional information necessary to clarify or amplify an item in the Contract Documents that Contractor thinks is not clearly shown or called for in the Drawings or Specifications or other portions of the Contract Documents, or to address issues that have arisen under field conditions.

1.3. PROCEDURES

1.3.1. Notification by Contractor:

1.3.1.1. Submit all requirements for clarification or additional information, whether originated by the Contractor, a Subcontractor, or supplier at any tier, in writing to SCCOE as required by the Contract Documents.

1.3.1.2. Number RFIs sequentially. Follow RFI number with sequential alphabetical suffix as necessary for each resubmission. For example, the first RFI would be "001." The second RFI would be "002."

1.3.1.3. All RFIs shall reference all applicable Contract Document(s), including Specification section(s), detail(s), page number(s), drawing number(s), and sheet number(s), etc. Contractor shall make suggestions and interpretations of

the issue raised by each RFI. An RFI cannot modify the Contract Price, Contract Time, or the Contract Documents.

1.3.1.4. Limit each RFI to one subject.

1.3.1.5. Submit a RFI if one of the following conditions occurs:

1.3.1.5.1. Contractor discovers an unforeseen condition or circumstance that is not described in the Contract Documents.

1.3.1.5.2. Contractor discovers an apparent conflict or discrepancy between portions of the Contract Documents that appears to be inconsistent or is not reasonably inferred from the intent of the Contract Documents.

1.3.2. Contractor shall not:

1.3.2.1. Submit an RFI as a request for substitution.

1.3.2.2. Submit an RFI as a submittal.

1.3.2.3. Submit an RFI without first having thoroughly reviewed the Contract Documents.

1.3.2.4. Submit an RFI in a manner that suggests that specific portions of the Contract Documents are assumed to be excluded or by taking an isolated portion of the Contract Documents in part rather than whole.

1.3.2.5. Submit an RFI in an untimely manner without proper coordination and scheduling of Work related trades.

1.3.2.6. If Contractor submits an RFI contrary to the above, Contractor shall pay the cost of any review, which cost shall be deducted from the Contract Price.

1.3.3. Contractor shall be liable to the SCCOE for all costs incurred by the SCCOE associated with the processing, reviewing, evaluating and responding to any RFI, including without limitation, fees of the Architect and any other design consultant to the Architect or the SCCOE, that SCCOE reasonably determines:

1.3.3.1. Does not reflect adequate or competent supervision or coordination by the Contractor or any Subcontractor; or

1.3.3.2. Does not reflect the Contractor's adequate or competent knowledge of the requirements of the Work or the Contract Documents;

1.3.3.3. Requests an interpretation or decision of a matter where the information sought is equally available to the Contractor; or

1.3.3.4. Is not justified for any other reason.

1.4. RESPONSE TIME

1.4.1. Architect shall review RFIs and issue a response and instructions to Contractor within a reasonable time frame from the date the RFI is received and dated by the SCCOE.

1.4.2. Responses from the SCCOE will not change any requirement of the Contract unless so noted by the SCCOE in the response to the RFI. Should the Contractor contend that a response to an RFI causes a change to the Contract that requires a Change Order, the Contractor shall, before proceeding, give written notice to the SCCOE, indicating that the Contractor considers the SCCOE's response to the RFI to be a Change Order, as required by the Contract Documents.

1.4.3. Should Contractor direct its Subcontractors to proceed with the Work affected before receipt of a response from Architect, any portion of the Work which is not done in accordance with the Architect's ultimate interpretations, clarifications, instructions, or decisions is subject to removal or replacement at Contractor's sole expense and responsibility.

END OF DOCUMENT

DOCUMENT 01 31 00

COORDINATION AND PROJECT MEETINGS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Technical Specifications.

1.2. SECTION INCLUDES

1.2.1. Coordination Responsibilities of the Contractor.

1.2.2. Field Engineering Responsibilities of the Contractor.

1.2.3. Preconstruction Conference.

1.2.4. Progress Meetings.

1.2.5. Pre-Installation Conferences.

1.2.6. Post Construction Dedication.

1.3. COORDINATION RESPONSIBILITIES OF THE CONTRACTOR

1.3.1. Coordinate scheduling, submittals, and Work of the Specifications to assure efficient and orderly sequence of installation of interdependent construction elements, with provisions for accommodating items installed later.

1.3.2. Prior to commencement of a particular type or kind of Work examine relevant information, contract documents, and subsequent data issued to the Project.

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

1.3.4. Closing up of holes, backfilling, and other covering up operations shall not proceed until all enclosed or covered Work and inspections have been completed. Verify before proceeding.

1.3.5. Coordinate space requirements and installation of mechanical and electrical Work which are indicated diagrammatically on Drawings. Follow routing shown for pipes, ducts, and

conduit as closely as practicable; place runs parallel with line of building. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

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

1.3.7. In locations where several elements of mechanical and electrical Work must be sequenced and positioned with precision in order to fit into available space, prepare coordination drawings showing the actual conditions required for the installation. Prepare coordination drawings prior to purchasing, fabricating, or installing any of the elements required to be coordinated.

1.3.8. Closing up of walls, partitions or furred spaces, backfilling, and other covering up operations shall not proceed until all enclosed or covered Work and inspections have been completed. Verify before proceeding.

1.3.9. Coordinate completion and cleanup of Work of separate sections in preparation for completion and for portions of Work designated for SCCOE's occupancy.

1.3.10. After SCCOE occupancy of Project, coordinate access to Site for correction of defective Work and Work not in accordance with Contract Documents, to minimize disruption of SCCOE's activities.

1.3.11. Coordinate all utility company Work in accordance with the Contract Documents.

1.3.12. Key Personnel Names: Within fifteen (15) days of starting construction operations, submit a list of key personnel assignments, including superintendent and other personnel in attendance at Project site. Identify individuals and their duties and responsibilities; list addresses and telephone numbers, including home and office telephone numbers. Provide names, addresses, and telephone numbers of individuals assigned as standbys in the absence of individuals assigned to Project. 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. FIELD ENGINEERING RESPONSIBILITIES OF THE CONTRACTOR

1.4.1. Contractor shall employ a Land Surveyor registered in the State of California and acceptable to the Architect.

1.4.2. Control datum for survey is that established by SCCOE provided survey. Contractor to locate and protect survey control and reference points.

1.4.3. Replace dislocated survey control points based on original survey control.

1.4.4. Provide field engineering services. Establish elevations, lines, and levels utilizing recognized engineering survey practices.

1.4.5. Upon completion of Work, submit certificate signed by the Land Surveyor that elevations and locations of Work are in conformance with Contract Documents. Record deviations on Record Drawings.

1.5. PRECONSTRUCTION CONFERENCE

1.5.1. Construction Manager or Project Engineer will schedule a conference immediately after, and in no case more than fifteen (15) days after, receipt of fully executed Contract Documents prior to Project mobilization.

1.5.2. Mandatory Attendance: Construction Manager, Project Engineer, Inspector of Record, Architect of Record, Contractor, Contractor's Project Manager, and Contractor's Job/Project Superintendent.

1.5.3. Optional Attendance: Architect's consultants, and utility company representatives.

1.5.4. Construction Manager shall preside at conference and the Project Architect shall prepare and record minutes and distribute copies.

1.5.5. Agenda:

1.5.5.1. Execution of Owner-Contractor Agreement.

1.5.5.2. Issue Notice to Proceed.

1.5.5.3. Submission of executed bonds and insurance certificates.

1.5.5.4. Distribution of Contract Documents.

1.5.5.5. Submission of list of Subcontractors, list of Products, Schedule of Values, and Progress Schedule.

1.5.5.6. Designation of responsible personnel representing the parties.

1.5.5.7. Procedures for processing Change Orders.

1.5.5.8. Procedures for Request for Information.

1.5.5.9. Procedures for testing and inspecting.

1.5.5.10. Procedures for processing applications for payment.

1.5.5.11. Procedures for Project closeout.

1.5.5.12. Use of Premises.

1.5.5.13. Work restrictions.

1.5.5.14. SCCOE’s occupancy requirements or options.

1.5.5.15. Responsibility for temporary facilities and controls.

1.5.5.16. Construction waste management and recycling.

1.5.5.17. Parking availability.

1.5.5.18. Office, work and storage areas.

1.5.5.19. Equipment deliveries and priority.

1.5.5.20. Security.

1.5.5.21. Progress cleaning.

1.5.5.22. Review required submittals and (if applicable) LEED Certification requirements.

1.6. PROGRESS MEETINGS

1.6.1. Construction Manager shall schedule and administer meetings throughout progress of the Work at a minimum of every week.

1.6.2. Construction Manager or Project Engineer will make arrangements for meetings, prepare agenda, and preside at meetings. Project Architect shall record minutes (Field Reports), and distribute copies.

1.6.3. Attendance Required: Job Superintendent, Construction Manager, Project Engineer, Project Inspector, Architect of Record, Subcontractors, and suppliers as appropriate to agenda topics for each meeting.

1.6.4. Agenda:

1.6.4.1. Review minutes of previous meetings (Field Reports).

1.6.4.2. Review of Work progress.

1.6.4.3. Field observations, problems, and decisions.

1.6.4.4. Identification of problems which impede planned progress.

1.6.4.5. Review of submittals schedule and status of submittals.

1.6.4.6. Review of off-site fabrication and delivery schedules.

1.6.4.7. Maintenance of construction schedule.

1.6.4.8. Corrective measures to regain projected schedules.

1.6.4.9. Planned progress during succeeding work period.

1.6.4.10. Coordination of projected progress.

1.6.4.11. Maintenance of quality and work standards.

1.6.4.12. Effect of proposed changes on progress schedule and coordination.

1.6.4.13. Other business relating to Work.

1.6.5. SCCOE has authority to schedule mandatory meetings other than those listed, as

necessary.

1.7. PRE-INSTALLATION CONFERENCES

1.7.1. When required in individual specification section, Contractor shall convene a pre-installation conference prior to commencing Work of the section. Refer to individual specification section for timing requirements of conference.

1.7.2. Contractor shall require its Subcontractors and suppliers directly affecting, or affected by, Work of the specific section to attend.

1.7.3. Notify the Construction Manager, Project Engineer, Inspector of Record, and Architect of Record four (4) days in advance of meeting date.

1.7.4. A pre-installation conference may coincide with a regularly scheduled progress meeting.

1.7.5. Contractor shall prepare agenda, preside at conference, record minutes, and distribute copies within two (2) days after conference to participants.

1.7.6. The purpose of the meeting will be to review Contract Documents, conditions of installation, preparation and installation procedures, and coordination with related Work and manufacturer's recommendations.

1.7.7. Pre-installation Schedule: As a minimum, Work being installed under the Contract Documents technical sections will require pre-installation conferences. Contractor shall review the technical specifications and add all additional requirements for pre-installation meetings contained in those sections.

1.8. POST CONSTRUCTION DEDICATION

1.8.1. Attendance Required: Project Superintendent, Contractor, Project Manager, major Subcontractors, Construction Manager, Project Engineer, Project Inspector, and Architect of Record.

1.8.2. Preparation prior to Dedication: Contractor and appropriate Subcontractors and suppliers shall:

1.8.3. Assist SCCOE in operation of mechanical devices and systems.

1.8.3.1. Verify operation and adjust controls for communication systems.

1.8.3.2. Assist SCCOE in operation of lighting systems.

END OF DOCUMENT

DOCUMENT 01 32 16

CONSTRUCTION SCHEDULE – NETWORK ANALYSIS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Coordination and Meetings; and

1.1.5. Submittals.

1.2. REFERENCES

1.2.1. Construction Planning and Scheduling Manual - A Manual for General Contractors and the Construction Industry, The Associated General Contractors of America (AGC).

1.2.2. CSI - Construction Specifications Institute MP-2-1 Master Format.

1.2.3. U.S. National Weather Service - Local Climatological Data.

1.3. PERFORMANCE REQUIREMENTS

1.3.1. Ensure adequate scheduling during construction activities so Work may be prosecuted in an orderly and expeditious manner within stipulated Contract Time.

1.3.2. Ensure coordination of Contractor and Subcontractors at all levels.

1.3.3. Ensure coordination of submittals, fabrication, delivery, erection, installation, and testing of products, materials and equipment.

1.3.4. Ensure on-time delivery of SCCOE furnished products, materials and equipment.

1.3.5. Ensure coordination of jurisdictional reviews.

1.3.6. Prepare applications for payment.

1.3.7. Monitor progress of Work.

1.3.8. Prepare proper requests for changes to Contract Time.

1.3.9. Prepare proper requests for changes to Construction Schedule.

1.3.10. Assist in detection of schedule delays and identification of corrective actions.

1.4. QUALITY ASSURANCE

1.4.1. Perform scheduling work in accordance with Construction Planning and Scheduling Manual published by the AGC.

1.4.2. Maintain one copy of Construction Planning and Scheduling Manual on Site.

1.4.3. In the event of discrepancy between the AGC publication and the Contract Documents, provisions of the Contract Documents shall govern.

1.5. QUALIFICATIONS

1.5.1. **Scheduler**:

1.5.1.1. Contractor shall retain a construction scheduler to work in enough capacity to perform all of the Contractor's requirements to prepare the Construction Schedule. The Scheduler shall plan, coordinate, execute, and monitor a cost/resource loaded CPM schedule as required for Project and have a minimum of five (5) years direct experience using Primavera Project Management.

1.5.1.2. Scheduler will cooperate with SCCOE and shall be available on site for monitoring, maintaining and updating schedules in a timely manner.

1.5.1.3. SCCOE has the right to reject the Scheduler based upon a lack of experience as required by this Document or based on lack of performance and timeliness of schedule submittals/fragnets on past projects. Contractor shall within seven (7) calendar days of SCCOE's rejection, propose another scheduler who meets the experience requirements stated above.

1.5.2. **Administrative Personnel**: Five (5) years minimum experience in using and monitoring schedules on comparable projects.

1.6. SUBMITTALS

1.6.1. Submit Short Interval Schedule at each Construction Progress Meeting.

1.6.2. Submit Time Adjustment Schedule within five (5) days of commencement of a claimed delay.

1.6.3. Submit Recovery Schedules as required for timely completion of Work or when demanded by the SCCOE.

1.6.4. Submit job cost reports when demanded by the SCCOE.

1.6.5. Submit one (1) reproducible and two (2) copies of each schedule and cost report.

1.7. REVIEW AND EVALUATION

1.7.1. Contractor shall participate in joint review of Construction Schedule and Reports with SCCOE and Architect.

1.7.2. Within seven (7) days of receipt of SCCOE and/or Architect's comments provide satisfactory revision to Construction Schedule or adequate justification for activities in question.

1.7.3. In the event that an activity or element of Work is not detected by SCCOE or Architect review, such omission or error shall be corrected by next scheduled update and shall not affect Contract Time.

1.7.4. Acceptance by SCCOE of corrected Construction Schedule shall be a condition precedent to making any progress payments.

1.7.5. Cost-loaded values of Construction Schedule shall be basis for determining progress payments.

1.7.6. Review and acceptance by SCCOE and Architect of Preliminary Construction Schedule or Construction Schedule does not constitute responsibility whatsoever for accuracy or feasibility of schedules nor does such acceptance expressly or impliedly warrant, acknowledge or admit reasonableness of activities, logic, duration, manpower, cost or equipment loading stated or implied on schedules.

1.8. FORMAT

1.8.1. Prepare diagrams and supporting mathematical analyses using Precedence Diagramming Method, under concepts and methods outlined in AGC Construction Planning and Scheduling Manual, or other method pre-approved by SCCOE.

1.8.2. **Listings**: Reading from left to right, in ascending order for each activity.

1.8.3. **Diagram Size**: 42 inches maximum height x width required.

1.8.4. **Scale and Spacing**: To allow for legible notations and revisions.

1.8.5. Illustrate order and interdependence of activities and sequence of Work.

1.8.6. Illustrate complete sequence of construction by activity.

1.8.7. Provide legend of symbols and abbreviations used.

1.9. COST AND SCHEDULE REPORTS

1.9.1. **Activity Analysis**: Tabulate each activity of network diagram and identify for each activity:

1.9.1.1. Description.

1.9.1.2. Interface with outside contractors or agencies.

1.9.1.3. Number.

1.9.1.4. Preceding and following number.

1.9.1.5. Duration.

1.9.1.6. Earliest start date.

1.9.1.7. Earliest finish date.

1.9.1.8. Actual start date.

1.9.1.9. Actual finish date.

1.9.1.10. Latest start date.

1.9.1.11. Latest finish date.

1.9.1.12. Total and free float.

1.9.1.13. Identification of critical path activity.

1.9.1.14. Monetary value keyed to Schedule of Values.

1.9.1.15. Manpower requirements.

1.9.1.16. Responsibility.

1.9.1.17. Percentage complete.

1.9.1.18. Variance positive or negative.

1.9.2. **Cost Report**: Tabulate each activity of network diagram and identify for each activity:

1.9.2.1. Description.

1.9.2.2. Number.

1.9.2.3. Total cost.

1.9.2.4. Percentage complete.

1.9.2.5. Value prior to current period.

1.9.2.6. Value this period.

1.9.2.7. Value to date.

1.9.3. **Required Sorts**: List activities in sorts or groups:

1.9.3.1. By activity number.

1.9.3.2. By amount of float time in order of early start.

1.9.3.3. By responsibility in order of earliest start date.

1.9.3.4. In order of latest start dates.

1.9.3.5. In order of latest finish dates.

1.9.3.6. Application for payment sorted by Schedule of Values.

1.9.3.7. Listing of activities on critical path.

1.9.4. Listing of basic input data which generates schedule.

1.10. CONSTRUCTION SCHEDULE

1.10.1. Contractor shall develop and submit a cost loaded preliminary schedule of construction (or Preliminary Construction Schedule) as required by this Document and the Contract Documents. It shall be submitted in computer generated network format and shall be organized by Activity Codes representing the intended sequencing of the Work, and with time scaled network diagrams of activities. The Preliminary Construction Schedule shall include activities such as mobilization, preparation of submittals, specified review periods, procurement items, fabrication items, milestones, and all detailed construction activities.

1.10.2. Upon SCCOE's acceptance of the Preliminary Construction Schedule, Contractor shall update the accepted Preliminary Construction Schedule until Contractor's Construction Schedule is fully developed and accepted. Since updates to the Construction Schedule are the basis for payment to Contractor, submittal and acceptance of the Construction Schedule and updates shall be a condition precedent to making of monthly payments, as indicated in the General Conditions.

1.10.3. Failure to submit an adequate or accurate Preliminary Construction Schedule, Construction Schedule, updates thereto or failure to submit on established dates, will be considered a breach of Contract.

1.10.4. Failure to include any activity shall not be an excuse for completing all Work by required Completion Date.

1.10.5. Activities of long intervals shall be broken into increments no longer than fourteen (14) days or a value over $20,000.00, unless approved by the SCCOE or it is a non-construction activity for procurement and delivery.

1.10.6. The Construction Schedule shall comply with the following and include the following:

1.10.6.1. Provide a written narrative describing Contractor's approach to mobilization, procurement, and construction during the first thirty (30) calendar days including crew sizes, equipment and material delivery, Site access, submittals, and permits.

1.10.6.2. Shall designate critical path or paths.

1.10.6.3. Procurement activities to include mobilization, shop drawings and sample submittals.

1.10.6.4. Identification of key and long-lead elements and realistic delivery dates.

1.10.6.5. Construction activities in units of whole days limited to fourteen (14) days for each activity except non-construction activities for procurement and delivery.

1.10.6.6. Approximate cost and duration of each activity.

1.10.6.7. Shall contain seasonal weather considerations.

1.10.6.8. Indicate a date for Project Completion that is no later than Completion Date subject to any time extensions processed as part of a Change Order.

1.10.6.9. Conform to mandatory dates specified in the Contract Documents.

1.10.6.10. Contractor shall allow for inclement weather in the Proposed Baseline Schedule by incorporating an activity titled "Rain Day Impact Allowance" as the last activity prior to the Completion Milestone. No other activities may be concurrent with it. The duration of the Rain Day Impact Allowance activity will be in accordance with the Special Conditions, and will be calculated from the Notice to Proceed until the Completion.

1.10.6.11. Level of detail shall correspond to complexity of work involved.

1.10.6.12. Indicate procurement activities, delivery, and installation of SCCOE furnished material and equipment.

1.10.6.13. Designate critical path or paths.

1.10.6.14. Subcontractor work at all levels shall be included in schedule.

1.10.6.15. As developed, shall show sequence and interdependence of activities required for complete performance of Work.

1.10.6.16. Shall be logical and show a coordinated plan of Work.

1.10.6.17. Show order of activities and major points of interface, including specific dates of completion.

1.10.6.18. Duration of activities shall be coordinated with Subcontractors and suppliers and shall be best estimate of time required.

1.10.6.19. Shall show description, duration and float for each activity.

1.10.7. **Activity.** An activity shall meet the following criteria:

1.10.7.1. Any portion or element of Work, action, or reaction that is precisely described, readily identifiable, and is a function of a logical sequential process.

1.10.7.2. Descriptions shall be clear and concise. Beginning and end shall be readily verifiable. Starts and finishes shall be scheduled by logical restraints.

1.10.7.3. Responsibility shall be identified with a single performing entity.

1.10.7.4. Additional codes shall identify building, floor, bid opening and/or SCCOE's receipt of proposals, whichever is acceptable and CSI classification.

1.10.7.5. Assigned dollar value (cost-loading) of each activity shall cumulatively equal total contract amount. Mobilization, bond and insurance costs shall be separate. General requirement costs, overhead, profit, shall be prorated throughout all activities. Activity costs shall correlate with Schedule of Values.

1.10.7.6. Each activity shall have manpower-loading assigned.

1.10.7.7. Major construction equipment shall be assigned to each activity.

1.10.7.8. Activities labeled start, continue or completion are not allowed.

1.10.8. **Equipment and Materials.** For major equipment and materials show a sequence of activities including:

1.10.8.1. Preparation of shop drawings and sample submissions.

1.10.8.2. Review of shop drawings and samples.

1.10.8.3. Finish and color selection.

1.10.8.4. Fabrication and delivery.

1.10.8.5. Erection or installation.

1.10.8.6. Testing.

1.10.9. Include a minimum of fifteen (15) days prior to Completion Date for punch lists and clean up. No other activities shall be scheduled during this period.

1.11. SHORT INTERVAL SCHEDULE

1.11.1. The Four-Week Rolling Schedule shall be based on the most recent SCCOE Accepted Construction Schedule or Update. It shall include weekly updates to all construction, submittal, fabrication/procurement, and separate Work Contract activities. Contractor shall ensure that it accurately reflects the current progress of the Work.

1.11.2. Shall be fully developed horizontal bar-chart-type schedule directly derived from Construction Schedule.

1.11.3. Prepare schedule on sheet of sufficient width to clearly show data.

1.11.4. Provide continuous heavy vertical line identifying first day of week.

1.11.5. Provide continuous subordinate vertical line identifying each day of week.

1.11.6. Identify activities by same activity number and description as Construction Schedule.

1.11.7. Show each activity in proper sequence.

1.11.8. Indicate graphically sequences necessary for related activities.

1.11.9. Indicate activities completed or in progress for previous two (2) week period.

1.11.10. Indicate activities scheduled for succeeding three (3) week period.

1.11.11. Further detail should be added if necessary to monitor schedule or if requested by SCCOE.

1.12. REQUESTED TIME ADJUSTMENT SCHEDULE

1.12.1. Updated Construction Schedule shall not show a Completion Date later than the Contract Time, subject to any time extensions processed as part of a Change Order.

1.12.2. If an extension of time is requested, a separate schedule entitled "Requested Time Adjustment Schedule" shall be submitted to SCCOE and Architect.

1.12.3. Indicate requested adjustments in Contract Time which are due to changes or delays in completion of Work.

1.12.4. Extension request shall include forecast of Project Completion date and actual achievement of any dates listed in Contract Documents.

1.12.5. To the extent that any requests are pending at time of any Construction Schedule update, Time Adjustment Schedule shall also be updated.

1.12.6. Schedule shall be a time-scaled network analysis.

1.12.7. Accompany schedule with formal written time extension request and detailed impact analysis justifying extension.

1.12.8. Time impact analysis shall demonstrate time impact based upon date of delay, and status of construction at that time and event time computation of all affected activities. Event times shall be those as shown in latest Construction Schedule.

1.12.9. Activity delays shall not automatically constitute an extension of Contract Time.

1.12.10. Failure of Subcontractors shall not be justification for an extension of time.

1.12.11. Float is not for the exclusive use or benefit of any single party. Float time shall be apportioned according to needs of Project, as determined by the SCCOE.

1.12.12. Float suppression techniques such as preferential sequencing, special lead/lag logic restraints, extended activity durations, or imposed dates shall be apportioned according to benefit of Project.

1.12.13. Extensions will be granted only to extent that time adjustments to activities exceed total positive float of the critical path and extends Completion date.

1.12.14. SCCOE shall not have an obligation to consider any time extension request unless requirements of Contract Documents, and specifically, but not limited to these requirements, are complied with.

1.12.15. SCCOE shall not be responsible or liable for any construction acceleration due to failure of SCCOE to grant time extensions under Contract Documents should requested adjustments in Contract Time not substantially comply with submission and justification requirements of Contract for time extension requests.

1.12.16. In the event a Requested Time Adjustment Schedule and Time Impact Analysis are not submitted within ten (10) days after commencement of a delay it is mutually agreed that delay does not require a Contract Time extension.

1.13. RECOVERY SCHEDULE

1.13.1. When activities are behind Construction Schedule a supplementary Recovery Schedule shall be submitted.

1.13.2. Contractor shall prepare and submit to the SCCOE a Recovery Schedule whenever activities are behind Construction Schedule or at any time requested by the SCCOE, at no cost to the SCCOE.

1.13.3. Form and detail shall be sufficient to explain and display how activities will be rescheduled to regain compliance with Construction Schedule and to complete the Work by the Completion Date.

1.13.4. Maximum duration shall be one (1) month and shall coincide with payment period.

1.13.5. Ten (10) days prior to expiration of Recovery Schedule, Contractor shall have to show verification to determine if activities have regained compliance with Construction Schedule. Based upon this verification the following will occur:

1.13.5.1. Supplemental Recovery Schedule will be submitted to address subsequent payment period.

1.13.5.2. Construction Schedule will be resumed.

1.14. UPDATING SCHEDULES

1.14.1. Review and update schedules at least ten (10) days prior to submitting an Application for Payment.

1.14.2. Maintain schedules to record actual prosecution and progress.

1.14.3. Approved Change Orders which affect schedules shall be identified as separate new activities.

1.14.4. Change Orders of less than $5,000.00 value or less than three (3) days duration need not be shown unless critical path is affected.

1.14.5. No other revisions shall be made to schedules unless authorized by SCCOE.

1.14.6. **Schedule Narrative Report**: Contractor shall include a written report to explain the Monthly Schedule Update. The narrative shall, at a minimum, include the following headings with appropriate discussions of each topic:

1.14.6.1. Activities or portions of activities completed during previous reporting period.

1.14.6.2. Actual start dates for activities currently in progress.

1.14.6.3. Deviations from critical path in days ahead or behind.

1.14.6.4. List of major construction equipment used during reporting period and any equipment idle.

1.14.6.5. Number of personnel by trade engaged on Work during reporting period.

1.14.6.6. Progress analysis describing problem areas.

1.14.6.7. Current and anticipated delay factors and their impact.

1.14.6.8. Proposed corrective actions and logic revisions for Recovery Schedule.

1.14.6.9. Proposed modifications, additions, deletions and changes in logic of Construction Schedule.

1.14.6.10. In updating the Schedule, Contractor shall not modify Activity ID numbers, schedule calculation rules/criteria, or the Activity Coding Structure required.

1.14.7. Schedule update will form basis upon which progress payments will be made.

1.14.8. SCCOE will not be obligated to review or process Application for Payment until the Construction Schedule and Schedule Narrative Report have been submitted.

1.15. DISTRIBUTION

1.15.1. Following joint review and acceptance of updated schedules distribute copies to SCCOE, Architect, and all other concerned parties.

1.15.2. Instruct recipients to promptly report in writing any problem anticipated by projections shown in schedules.

END OF DOCUMENT

DOCUMENT 01 33 00

SUBMITTALS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions;

1.1.3. Instructions to Bidders;

1.1.4. Summary of Work;

1.1.5. Contract Forms and Submittals;

1.1.6. Product Options and Substitutions;

1.1.7. Requests for Information;

1.1.8. Contract Closeout and Final Cleaning;

1.1.9. Operation and Maintenance Data;

1.1.10. Warranties;

1.1.11. Record Documents;

1.1.12. Demonstration and Training;

1.2. DOCUMENT INCLUDES

1.2.1. Submittal procedures – Use of Primavera.

1.2.2. Shop drawings.

1.2.3. PCM (or other pre-approved program) Electronic Submittal Process

1.2.4. Product data.

1.2.5. Samples.

1.2.6. Manufacturers' Instructions.

1.2.7. Manufacturers' Certificates.

1.2.8. Mock-Up.

1.2.9. Deferred approval requirements.

1.3. [N/A] SUBMITTAL PROCEDURES – USE OF PRIMAVERA OR ANOTHER PRE-APPROVED PROGRAM

1.3.1. Contractor shall utilize for the submittal process **Primavera P6 Project Management® software (latest version) by Oracle (PCM)** or another program if pre-approved by the SCCOE**.**

1.3.2. Contractor shall transmit each submittal in conformance with requirements of this Document. For each submittal, Contractor shall:

1.3.2.1. Sequentially number the transmittal forms. Resubmitted submittals must have the original number with an alphabetic suffix;

1.3.2.2. Identify Project and Architect's project number, Contractor, Subcontractor or supplier; pertinent Drawing sheet and detail number(s), and specification Section number, as appropriate;

1.3.2.3. Apply Contractor's stamp, signed or initialed certifying that review, verification of Products required, field dimensions, adjacent construction work, and coordination of information is in accordance with the requirements of the Work and Contract Documents. Submittals without Contractor's stamp and signature will be returned without review.

1.3.3. Coordinate preparation and processing of submittals with performance of Work. Transmit each submittal sufficiently in advance of performance of Work to avoid delay.

1.3.3.1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.

1.3.3.2. Coordinate transmittal of different types of submittals for related parts of Work so processing will not be delayed because of the need to review submittals concurrently for coordination.

1.3.3.3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

1.3.4. Comply with Contract Documents for list of submittals and time requirements for scheduled performance of Work.

1.3.5. No extension of Contract Time will be authorized because of failure to transmit submittals to the Architect sufficiently in advance of the Work to permit processing.

1.3.6. Identify variations from Contract Documents and Product or system limitations which may be detrimental to successful performance of the completed Work.

1.3.7. Provide space for Contractor and Architect review stamps.

1.3.8. Revise and resubmit submittals as required, identify all changes made since previous submittal.

1.3.9. Distribute copies of reviewed submittals to concerned parties. Instruct parties to promptly report any inability to comply with provisions.

1.3.10. Submittals not requested will not be recognized or processed. Submittals not requested will be returned without review.

1.4. SHOP DRAWINGS

1.4.1. Prepare Project-specific information, drawn accurately to scale. Do not reproduce Contract Documents or copy standard information as the basis of shop drawings. Standard information prepared without specific reference to the Project is not a shop drawing.

1.4.2. Do not use or allow others to use Shop Drawings which have been submitted and have been rejected.

1.4.3. Preparation: Fully illustrate requirements in Contract Documents. Include the following information, as applicable:

1.4.3.1. Dimensions.

1.4.3.2. Identification of products.

1.4.3.3. Fabrication and installation drawings.

1.4.3.4. Roughing-in and setting diagrams.

1.4.3.5. Wiring diagrams showing field-installed wiring, including power, signal, and control wiring.

1.4.3.6. Shopwork manufacturing instructions.

1.4.3.7. Templates and patterns.

1.4.3.8. Schedules.

1.4.3.9. Design calculations.

1.4.3.10. Compliance with specified standards.

1.4.3.11. Notation of coordination requirements.

1.4.3.12. Notation of dimensions established by field measurements.

1.4.3.13. Relationship to adjoining construction clearly indicated.

1.4.3.14. Seal and signature of professional engineer if specified.

1.4.3.15. Wiring Diagrams: Differentiate between manufacturer-installed and field-installed wiring.

1.4.3.16. All deviations from the Contract Documents, clearly indicated.

1.4.3.17. Copy of letter indicating acceptance of deviations indicated on the submittal.

1.4.4. Sheet Size: Except for templates, patterns, and similar full-size drawings, submit Shop Drawings on sheets at least 8-1/2 by 11 inches (215 by 280 mm) but no larger than 30 by 40 inches (750 by 1000 mm).

1.4.5. Do not use Shop Drawings without an appropriate final stamp from the Contractor and SCCOE indicating action taken in connection with construction.

1.4.6. Deviations from Contract Documents require specific written acceptance by the SCCOE of the noted deviation and clear indication on the submittal.

1.5. ELECTRONIC SUBMITTAL PROCESS

1.5.1. Submittal Procedure for Large Format Shop Drawings.

1.5.1.1. Contractor shall provide six (6) paper copies of the large format Shop Drawings directly to the SCCOE and the Construction Manager (CM) and Contractor will upload/post an electronic transmittal (with a detailed description of the submittal including the subject, specification number and number of drawings) on PCM (or other pre-approved program).

1.5.1.2. Contractor shall verify that the Schedule of Submittals and all submittal log(s) on PCM (or other pre-approved program) are accurate and up to date.

1.5.1.3. The SCCOE and Architect will review and markup each Submittal and provide changes to Contractor for Contractor's incorporation into the Submittal.

1.5.1.4. This process will continue until the Contractor has provided a Submittal that is acceptable to the SCCOE and the Architect.

1.5.1.5. Once a Submittal is accepted, the SCCOE will provide a final accepted Submittal to the Contractor and the Contractor will closeout that one Submittal.

1.5.1.6. Contractor shall send one (1) copy of the completed record submittal of the large format documents to a vendor (Ford Graphics is suggested) for scanning and posting on PCM (or other pre-approved program).

1.5.2. Product Data, Calculations and Small Format Drawings

1.5.2.1. Contractor shall upload/post one (1) electronic copy (from manufacturer's website or pre-scanned) of the product literature, data, calculations, and/or small format shop drawings to PCM (or other pre-approved program) with a Transmittal (with a detailed description of the submittal) directly to the CM.

1.5.2.2. The SCCOE and Architect will review and markup each Submittal and provide changes to Contractor for Contractor's incorporation into the Submittal.

1.5.2.3. This process will continue until the Contractor has provided a Submittal that is acceptable to the SCCOE and the Architect.

1.5.2.4. Once a Submittal is accepted, the SCCOE will provide a final accepted Submittal to the Contractor and the Contractor will closeout that one Submittal.

1.5.2.5. Contractor shall send one (1) copy of the completed record submittal of the large format documents to a vendor (Ford Graphics is suggested) for scanning and posting on PCM (or other pre-approved program).

1.5.3. Sample Submittal Procedure – (Product / Assembly Samples)

1.5.3.1. Contractor shall provide four (4) physical samples directly to the SCCOE and the CM and Contractor will upload/post an electronic transmittal (with a detailed description of the submittal including the subject, specification number and number of drawings) on PCM (or other pre-approved program).

1.5.3.2. The SCCOE and Architect will review and markup each Submittal and provide changes to Contractor for Contractor's incorporation into the Submittal.

1.5.3.3. This process will continue until the Contractor has provided a Submittal that is acceptable to the SCCOE and the Architect.

1.5.3.4. Once a Submittal is accepted, the SCCOE will provide a final accepted Submittal to the Contractor and the Contractor will closeout that one Submittal.

1.5.3.5. Contractor shall send one (1) copy of the completed record submittal of the large format documents to a vendor (Ford Graphics is suggested) for scanning and posting on PCM (or other pre-approved program).

1.6. PRODUCT DATA

1.6.1. In addition to the above requirements, mark each copy to identify applicable products, models, options, and other data. Supplement manufacturers' standard data to provide information unique to this Project.

1.6.2. After review, distribute in accordance with the above provisions and provide copies for Record Documents described in the Contract Documents.

1.7. SAMPLES

1.7.1. In addition to the above requirements, submit samples to illustrate functional and aesthetic characteristics of the Product in accordance with this Document, with integral parts and attachment devices. Coordinate sample submittals for interfacing work.

1.7.2. Where specific colors or patterns are not indicated, provide materials and products specified in the full range of color, texture and pattern for selection by SCCOE. Range shall include standard stocked color/texture/pattern, standard color/texture/pattern not stocked, but available from manufacturer, and special color/ texture/pattern available from manufacturer as advertised in product data and brochures. Unless otherwise indicated in individual specification sections, SCCOE may select from any range at no additional cost to SCCOE.

1.7.3. Include identification on each sample, with full Project information.

1.7.4. Submit the number of samples that Contractor requires, plus one that will be retained by Architect and one by SCCOE.

1.7.5. Reviewed samples which may be used in the Work are indicated in individual specification Sections.

1.8. MANUFACTURERS' INSTRUCTIONS

1.8.1. When specified in individual specification Sections, submit manufacturers' printed instructions for delivery, storage, assembly, installation, start-up, adjusting, and finishing, in quantities specified for Product Data.

1.8.2. Identify conflicts between manufacturers' instructions and Contract Documents.

1.9. MANUFACTURERS' CERTIFICATES

1.9.1. When specified in individual specification Sections, submit manufacturers' certificates to Architect for review, in quantities specified for Product Data.

1.9.2. Indicate material or Product conforms to or exceeds specified requirements. Submit supporting reference date, affidavits, and certifications as appropriate.

1.9.3. Certificates may be recent or previous test results on material or Product, but must be acceptable to SCCOE.

1.10. MOCK-UP

1.10.1. Where indicated, provide mock-ups as required. Mock-ups shall be prepared per the specifications and shall accurately and reasonably represent the quality of construction the Contractor will provide. If the mock-up or portions thereof do not adequately represent the quality of the work specified, the Contractor shall modify the mock-up as needed.

1.10.2. Once completed to the SCCOE's satisfaction, the mock-up shall serve as the standard of quality for the work.

1.10.3. All mock-ups, at SCCOE's option, shall remain the property of the SCCOE. If not required by the SCCOE, Contractor shall remove and dispose of the mock-up.

1.10.4. Where indicated, on-site mock-ups, if accepted, may be integrated into the Work.

1.11. DEFERRED APPROVAL REQUIREMENTS

1.11.1. Installation of deferred approval items shall not be started until detailed plans, specifications, and engineering calculations have been accepted and signed by the Architect or Engineer in general responsible charge of design and signed by a California registered Architect or professional engineer who has been delegated responsibility covering the work shown on a particular plan or specification and approved by the agency having authority (e.g., State Fire Marshall, Division of the State Architect, gas company, electrical utility company, water SCCOE, etc.). Deferred approval items for this Project are as indicated in the Summary of Work.

1.11.2. Unless otherwise indicated in the Contract Documents or if SCCOE provides written approval of a longer time period, Contractor shall submit all deferred approval items for approval within thirty (30) days of the notice to proceed with the Construction Phase.

1.11.3. Deferred approval drawings and specifications become part of the approved documents for the Project when they are submitted to and approved by the agency having authority.

1.11.4. Submit material using electronic submittal process as defined above.

1.11.5. Identify and specify all supports, fasteners, spacing, penetrations, etc., for each of the deferred approval items, including calculations for each and all fasteners.

1.11.6. Submit documents to Architect for review prior to forwarding to the agency having authority.

1.11.7. Documents shall bear the stamp and signature of the Structural, Mechanical, or Electrical Engineer licensed in the State of California who is responsible for the work shown on the documents.

1.11.8. Architect and its subconsultants will review the documents only for conformance with design concept shown on the documents. The Architect will then forward the Submittal to agency having authority for approval.

1.11.9. Contractor shall respond to review comments made by agency having authority and revise and resubmit submittal to the Architect for re-submittal to agency having authority for final approval.

END OF DOCUMENT

DOCUMENT 01 35 45

[N/A] - COLLABORATIVE FOR HIGH PERFORMANCE SCHOOLS (CHPS)
SPECIAL ENVIRONMENTAL REQUIREMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Materials and Equipment; and

1.1.5. General Commissioning Requirements.

1.2. DESIGN REQUIREMENTS

1.2.1. **General**. SCCOE has established general environmental goals for design and construction of Project; Contractor, subcontractors, suppliers, and manufacturers are encouraged to participate where possible to achieve SCCOE's environmental goals.

1.2.1.1. Environmental goals should be achieved in manner that ultimately provides safe and healthy environment for building occupants with minimal impact on local, regional and global environment.

1.2.1.2. Contract Documents are not intended to limit alternative means of achieving environmental goals.

1.2.1.2.1. Suggestions from Contractor for implementing goals are encouraged.

1.2.2. **Environmental Goals**.

1.2.2.1. Refer to Specifications for more detailed construction requirements related to specific materials and systems.

1.2.2.1.1. **Energy Efficiency (Operations through Project).** Materials and systems are intended to maximize energy efficiency for operation of Project through service life.

1.2.2.1.2. **Indoor Environmental and Air Quality**. Materials are selected and processes specified, such as preconditioning and temporary ventilation, to maximize healthy indoor air quality. Cleaning, surface coating, and renewal or replacement of interior materials should be feasible with lowest practical use of toxic, irritating, or odorous compounds. Ventilation system design, construction, and commissioning ensure

adequate outside air supply under all anticipated conditions of use. Documentation of system design assumptions is included in Project Manual to enable SCCOE to use and modify the system as required to provide continued assurance of indoor air quality. Additionally, materials are selected to sustain healthy indoor environmental qualities.

1.2.2.1.3. **Resource Efficiency (Project Construction):** Materials and systems are to maximize environmentally-benign construction techniques, including construction waste recycling, reusable delivery packaging, and reusability of selected materials.

1.2.3. **Energy Conservation**. Maximize energy conservation strategies in order to reduce life-cycle energy requirements.

1.2.3.1. Reduce undesirable heat gain and heat loss through exterior envelope.

1.2.3.2. Use daylight as the primary lighting source in classrooms and supplement with integrated and energy-efficient electrical lighting systems.

1.2.3.3. Choose equipment with high-end energy performance characteristics, including lighting, HVAC systems, appliances, and office equipment.

1.2.3.4. Where appropriate, use thermal storage strategies such as thermal mass of building or ground to minimize total energy consumption.

1.2.3.5. Design mechanical systems for efficient operation throughout the typical operating range, from minimum to peak load.

1.2.4. **Sustainable Site Planning and Landscape**.

1.2.4.1. Maximize erosion and sedimentation control.

1.2.4.2. Minimize Site disturbance.

1.2.4.3. Maximize planted areas.

1.2.4.4. Reduce heat islands.

1.2.4.5. Where possible, reduce or eliminate light pollution from site lighting.

1.2.4.6. Reduce or eliminate use of pesticides.

1.2.4.7. Rely on indigenous, dry or xeriscape planting. Maintain existing planting on Site to reduce costs.

1.2.4.8. Implement seasonal plant and soil maintenance schedule to maintain healthy soil and landscaping.

1.2.4.9. Maximize use of storm water runoff.

1.2.4.10. Reduce water use with water efficient irrigation systems and local vegetation.

1.2.5. **Durable Materials**.

1.2.5.1. Select materials with longest useful service life.

1.2.5.2. Select materials that deteriorate minimally under installed conditions, exposures, and uses.

1.2.5.3. Select materials with surfaces that require minimal or no refinishing or resurfacing.

1.2.5.4. Select materials with protective coating requirements that do not involve frequent application of toxic or odorous components for materials that require surface renewal or protection

1.2.5.5. Select materials that can be re-used after their service life in this building.

1.2.5.6. Select materials that can be recycled at the end of their useful lives for materials that cannot be re-used.

1.2.6. **Resource Efficient Materials**. Use resource efficient materials; consider energy use over life cycle of material including harvesting, mining, manufacturing, transport, installation, use, operations, recycling and disposal.

1.2.6.1. Where possible and allowable, re-use existing Project materials to extent feasible within design concept expressed in Contract Documents.

1.2.6.2. Select materials that efficiently use resources such as energy, water, and component materials.

1.2.6.3. Use construction practices such as material reduction and dimensional planning that maximize efficient use of resources and materials.

1.2.6.4. Provide materials that utilize recycled content to maximum degree possible without being detrimental to product performance or indoor air quality.

1.2.6.5. Where possible and feasible, provide for non-destructive removal and re-use of materials after their service life in this building.

1.2.6.6. Select materials that use less embodied energy to manufacture.

1.2.6.6.1. Exceptions might include materials that result in net energy conservation during their useful life in building and building's life cycle.

1.2.6.7. Select materials that conserve energy during building operations.

1.2.6.8. Where possible, select materials harvested and manufactured regionally, within a 500-mile radius of the Project Site.

1.2.7. **Scarce, Irreplaceable, and Endangered Resources.**

1.2.7.1. Select materials from abundant resources.

1.2.7.1.1. For natural resources, determine abundance based on ratio of removal rate from existing stocks to natural replacement/renewal rate, where this information is available.

1.2.7.1.2. For mineral resources, determine abundance based on ratio of removal rate from terrestrial storage minus amount re-entering commerce through recycling or resource recovery compared to total in terrestrial storage, where this information is available.

1.2.7.2. Select renewable materials, and materials which can be replenished.

1.2.7.3. Select materials that create minimal or no damage to natural habitats and natural environment.

1.2.7.4. Select materials that can be easily refinished, repaired or refurbished to extend their useful life.

1.2.8. **Pollution**. Select materials that generate least amount of pollution during mining, manufacturing, transport, installation, use, and disposal.

1.2.8.1. Avoid materials that emit greenhouse gases

1.2.8.2. Avoid materials that require energy intensive extraction, manufacturing, processing, transport, installation, maintenance, or removal.

1.2.8.3. Avoid materials that contain ozone-depleting chemicals (e.g. CFCs or HCFCs).

1.2.8.4. Avoid materials that emit potentially harmful volatile organic chemicals (VOCs).

1.2.8.5. Employ construction practices that minimize dust production and combustion by-products.

1.2.8.6. Avoid materials that can leach harmful chemicals into ground water; do not allow potentially harmful chemicals to enter sewers or storm drains.

1.2.8.7. Protect soil against erosion and topsoil depletion.

1.2.8.8. Minimize noise generation during construction; screen mechanical equipment to block noise.

1.2.8.9. Select materials that can be reused or recycled and materials with significant percentage of recycled content; conform with or exceed specified Project recycled content percentages for individual materials; avoid materials difficult to recycle.

1.2.8.10. Protect natural habitats; restore natural habitats where feasible within scope of Project.

1.2.9. **Wood Products.**

1.2.9.1. Use woods from Forest Stewardship Council (FSC) accredited certified sustainably harvested sources, and verify that the material itself is FSC-certified.

1.2.9.2. Composite wood products with high-recycled content, which meet the indoor air quality data requirements, are acceptable.

1.2.10. **Water Efficiency.**

1.2.10.1. Reduce the use of municipally supplied potable water.

1.2.10.2. Reduce dependence on municipal storm water system for plumbing fixtures and irrigation. Eliminate irrigation or use micro-irrigation. Use no moisture sensors or clock timers on irrigation systems.

1.2.10.3. Maintain natural aquifer conditions.

1.2.10.4. Consider roofwater or groundwater collection system.

1.2.10.5. Consider graywater collection system for irrigation systems.

1.2.10.6. Commission irrigation, graywater, roofwater collection systems. Provide measurement and verification for these systems. Train maintenance staff on performance of all water collection and distribution systems.

1.3. SUBMITTALS

1.3.1. **Resource Efficient Product Data.**

1.3.1.1. Environmental Issues Data: Submit following information, including manufacturer's certifications, verifying information, and test data, where Specifications sections require data relating to environmental issues including but not limited to:

1.3.1.1.1. Project Recyclability. Submit information to assist SCCOE and Contractor in recycling materials involved in shipping, handling, and delivery, and for temporary materials necessary for installation of products.

1.3.1.1.2. Recycled Content. Submit information regarding product post industrial recycled and post consumer recycled content.

1.3.1.1.2.1. Use the "Recycled Content Certification Form", attached as Appendix A to this Section, signed by a corporate office holder (i.e. Chairman of the Board, President, Vice President, Secretary, or similar position of authority).

1.3.1.1.3. Product Recyclability. Submit information regarding product and product's component's recyclability including potential sources accepting recyclable materials.

1.3.1.1.4. Provide certification for all wood products provided by a Forest Stewardship Council (FSC) accredited certifier.

1.3.1.1.5. Provide final certification of well-managed forest of origin to provide final documentation of FSC-certified sustainably harvested status:

Acceptable wood "certified sustainably harvested" certifications shall include:

1.3.1.1.5.1. Wood suppliers' certificate issued by one of the Forest Stewardship Council-accredited certifying agencies, such as Smart wood (800-434-5491) or Forest Conservation Program (510-832-1415);

1.3.1.1.5.2. Suppliers' invoice detailing the quantities of certified wood products for project; and

1.3.1.1.5.3. Letter from one of a certifying agency corroborating that the products on the wood supplier's invoice originate from FSC-certified well-managed forests.

1.3.2. **Indoor Air Quality (IAQ) Data.**

1.3.2.1. Environmental Issues. Submit emission test data produced by acceptable testing laboratory listed in Quality Assurance Article for materials as required in each specific Specification section.

1.3.2.1.1. Laboratory reports shall contain emissions test data on VOCs including total VOCs (TVOC), specific individual VOCs, formaldehyde and other aldehydes as described in this Specification Section.

1.3.2.1.2. In special cases it may be necessary to identify other specific chemicals for listing based on known quantity present or on known odor, irritation or toxicity.

1.3.2.1.3. Identify all VOCs emitted by each material as required in these Specifications.

1.3.2.1.4. Specific test conditions and requirements are set forth in this Section. For required tests, submit documentation of sample acquisition, handling, and test specimen preparation, as well as test conditions, methods, and procedures. The tests consist of a ten (10) day conditioning period followed by a 96 hour test period.

1.3.2.1.4.1. Samples collected during the test period at 24, 48, and 96 hours shall be analyzed for TVOC and formaldehyde.

1.3.2.1.4.2. VOC samples collected at 96 hours shall be identified and quantified for all compounds that are Chemicals of Concern as indicated herein.

1.3.2.2. **Cleaning and Maintenance Products**. Provide data on manufacturers' recommended maintenance, cleaning, refinishing and disposal procedures for materials and products. These procedures are for final Contractor cleaning of the Project prior to Completion and for provided materials and products as required by the specific specification sections.

1.3.2.2.1. Where chemical products are recommended for these procedures, provide documentation to indicate that no component present in the

cleaning product at more than one percent (1%) of the total mass of the cleaning product is a carcinogen or reproductive toxicant as defined in the lists in this specification section.

1.3.2.2.2. For purposes of reporting, identification of product VOC contents shall not be limited to those regulated under Clean Air Act (CAA) but shall also include compounds exempted from the CAA definition and listing of VOCs.

1.3.2.2.3. California EPA and local air SCCOE definitions of VOCs based on CAA are not sufficient as they exempt compounds based on non-reactivity for outdoor air pollution control but still important for indoor air quality.

1.3.2.2.4. Avoid cleaning products containing alpha-pinene, d-limonene or other unsaturated carbon double bond alkenes due to chemical reactions with ozone to form aldehydes, acidic aerosols, and ultra fine particulate matter in indoor air. DGS has published specifications for Environmentally Preferable Janitorial Chemicals and a list of cleaning/maintenance products meeting these specifications. Both are available on the internet at: http://www.ciwmb.ca.gov/greenbuilding/Specs/Janitorial.doc and http://www.resd.dgs.ca.gov/BPM/lists.htm.

1.3.3. **Certificates.**

1.3.3.1. **Environmental Issues Certifications.**

1.3.3.1.1. Submit documentation certifying accuracy of post-industrial and post-consumer recycled content, and recyclability.

1.3.3.1.2. Prior to Completion, submit certificate signed by corporate office holder (i.e. Chairman of the Board, President, Vice President, Secretary, or similar position of authority) of Contractor, subcontractor, supplier, vendor, installer or manufacturer, provided they are primarily responsible for manufacture of product, indicating:

1.3.3.1.2.1. Post-industrial and post-consumer recycled content of materials installed are same as those required by Project requirements;

1.3.3.1.2.2. Product recyclability of materials installed is the same as those required by Project requirements; and

1.3.3.1.2.3. Indoor air quality requirements. Certification shall state products and materials provided are essentially same, and contain essentially same components as products and materials tested.

1.3.3.1.3. Comply with requirements specified in Document 01770 – Closeout Procedures.

1.3.4. **Closeout Submittals**. Submit data relating to environmental issues.

1.3.4.1. Submit environmental product certifications, in two (2) forms:

1.3.4.1.1. Two (2) CD-ROMs organized by CSI 16 Division Format.

1.3.4.1.2. Four (4) three-ring binders organized by CSI 16 Division Format with Table of Contents and with dividers for each division.

1.4. QUALITY ASSURANCE

1.4.1. **Environmental Project Management and Coordination**. Contractor to identify one person on Contractor's staff to be responsible for environmental issues compliance and coordination.

1.4.1.1. Experience. Environmental project manager to have experience relating to sustainable building construction.

1.4.1.2. Responsibilities. Carefully review Contract Documents for environmental issues, coordinate work of trades, subcontractors, and suppliers; instruct workers relating to environmental issues; and oversee Project Environmental Goals.

1.4.1.3. **Meetings**. Discuss Environmental Goals at following meetings:

1.4.1.3.1. Pre-construction meeting.

1.4.1.3.2. Pre-installation meetings.

1.4.1.3.3. Regularly scheduled job-site meetings.

1.4.1.3.4. Special sustainability issues meetings.

1.4.2. **Environmental Issues Criteria:**

1.4.2.1.1. Comply with requirements listed in various Specification sections.

1.4.3. **Acceptable Indoor Air Emissions Testing Laboratories.**

1.4.3.1. **Berkeley Analytical Associates**. 815 Harbour Way South, Suite 6, Richmond, California 94804; telephone 510.236.2325; fax 510.236.2335; e-mail berkeleyanalytical@att.net.

1.4.3.2. **Air Quality Sciences, Inc.** 1337 Capital Circle, Atlanta, Georgia 30067; telephone 770.933.0638; fax 770.933.0641; e-mail info@aqs.com.

1.4.3.3. **Other Laboratories.**

1.4.3.3.1. Selection of testing laboratories shall include assessment of prior experience in conducting indoor source emissions tests.

1.4.3.3.2. Many laboratories participate in and are certified by American Industrial Hygiene Association laboratory accreditation program; http://www.aiha.org/.

1.4.3.3.2.1. These laboratories are accredited to do analysis for hazards at levels of concern for industrial workplaces and not necessarily accredited, organized, or able to perform analysis for chemicals and particulate matter at concentrations of concern for indoor air.

1.4.3.3.3. The proposed laboratory shall be an independent company or organization not related to manufacturer of product to be tested.

1.4.3.3.4. Submit documentation on proposed laboratory for review and approval by SCCOE.

1.4.4. **Indoor Air Emissions Tests:**

1.4.4.1. Provide environmental chamber test data from tests based on most recent ASTM Standard. (Refer to ASTM, Annual Book of Standards; http://www.astm.org.)

1.4.4.2. Tests shall be conducted according to guidance contained in ASTM Standard D5116-97 on material test specimens pre-conditioned in clean air prior to testing.

1.4.4.2.1. Review test specimen collection, documentation, collection, preparation and shipping procedures with testing laboratory prior to preparing and shipping sample.

1.4.4.2.2. Test specimens shall be packaged in the normal manner at the factory and shipped directly to testing laboratory by the manufacturer. For materials that are not packaged in convenient consumer units, alternate procedures to preserve the chemical integrity of the specimen are required. Obtain test laboratory procedure sheet covering the handling and shipping of materials. If such information is not provided by the laboratory, then wrap the specimen in a manner that will eliminate direct contact with air or packaging materials other than an inert air barrier such as foil or laboratory grade plastic sheet wrapping material.

1.4.4.2.3. **Conditioning**. Condition all test specimens for ten (10) days in clean air. Clean air should be free from the Chemicals of Concern. Hold in clean vessels approximately the size of the test chambers and ventilated at the same air flow rate to be used in the test period. Suspend or place specimens on wire racks so that air freely circulates around all sides during the conditioning period. The air temperature and relative humidity during the conditioning period shall be 23±2ºC and 50±10% RH. Otherwise, the material must be held in an environmental chamber for the entire period.

1.4.4.2.4. For wet-applied products and material assemblies, a realistic test specimen shall be prepared using the substrate material on which it will be applied in the building. Alternately, it may be necessary to use a substrate material that closely simulates the actual building substrate.

1.4.4.2.5. For material assemblies (e.g., floor and wall systems where the finish material is placed over a substrate, either with or without the use of adhesives), individual components of the assembly system shall be tested separately. If all components meet the emissions criteria established herein, no further testing shall be required. For assemblies where one component, such as a floor or wall covering adhesive, does not meet the criteria, the assembled system may be tested with specimen preparation following the manufacturer's recommended procedures for application of wet components and assembly of the system. If there is a difference between the manufacturers' recommended procedures and procedures required by the project specifications, the project specifications shall be followed.

1.4.4.2.6. Wall and other types of paints shall be tested according to the specifications for the particular material. For example, if two coats are to be applied over a primer coat, then the test specimen shall be prepared accordingly, dried between coats per manufacturer's label instructions, and tested as a complete assembly after required conditioning. The total quantity of paint applied shall be reported based on the weight of the assembly immediately before and after the application of each coat.

1.4.4.3. The maximum concentration for any chemical emitted at 96 hours in emissions tests shall not result in a modeled indoor air concentration greater than one half (½) the chronic inhalation REL concentration of California Office of Environmental Health Hazard Assessment (OEHHA) Chronic Reference Exposure Limit (REL), with the exception of formaldehyde.

1.4.4.4. **Formaldehyde**. No single product shall contribute more than one half (½) the OEHHA staff recommended indoor air limit of 33 µg/m3 (27 ppb) for formaldehyde. The calculated concentration of formaldehyde shall not exceed 16.5 µg/m3. Same modeling procedure as described above shall be used for formaldehyde. This concentration limit shall apply to all building and occupancy types.

1.4.4.5. Construction adhesives used in Work shall comply with following requirement: no component present in adhesive at more than one percent (1%) of total mass of adhesive shall be a carcinogen or reproductive toxicant as defined in the Chronic Reference Exposure Levels for organic chemicals with possible indoor sources, based on the California OEHHA list as of June 2014 (The most recent list shall be used for this specification as published http://www.oehha.ca.gov/air/allrels.html)..

1.4.4.6. Provide calculations of modeled concentrations based on emissions test results.

1.4.4.6.1. Calculations shall be submitted with all other documentation. This requires the calculation of emission factors based on emissions tests, then application of the emission factors, product loading factors in the building, and building parameters in a steady state mass-balance model. The model assumes zero outdoor concentrations, perfect mixing and no sink effects. Alternatively, follow procedures in the most recent applicable ASTM standards and submit assumptions and calculations.

1.4.4.6.2. The concentration of a compound in the building shall be calculated using the following Equation;

$$\text{Concentration} = \frac{\text{(Emission factor) * (Loading factor)}}{\text{(Air change rate)}}$$

For this equation, the units are: $$\mu g/m3 = \frac{(\mu g/m2\ hr) * (m2/m3)}{(h\text{-}1)}$$

This can be simplified as follows: $$\text{Concentration} = \frac{\text{Emission rate}}{\text{Air change rate}}$$

Note that the weekly average air change rate must be used in the calculations of concentrations of contaminants.

1.4.4.6.3. **Calculation of emission rate**. Determine the emission rate by multiplying the emission factor by the amount of the material to be used in the building or air handler zone being evaluated. Multiply the emission factor by the area of the material in the building zone being assessed. Note that in some cases a length or mass may be the appropriate unit for emission factor that must then be multiplied by the length or mass of the emission source.

1.4.4.6.4. Provide to the laboratory the total area of the zone being assessed by consulting the Contract Documents or the design engineer, to identify the total area served by the air handler that serves the area(s) within it where the material will be applied. If the material is used in multiple zones, then calculations shall be made to determine the concentration in the zone with the highest loading ratio of material to volume or material to weekly average minimum air change rate, whichever is greater.

1.4.4.6.5. Provide to the laboratory the volume of the space served by the air handler by multiplying the floor area by the floor-to-floor clear height (top of finish floor to bottom of structure of floor above) and multiply by 0.9 (to take account of the portion of the volume that is occupied by solid objects). This value represents the ventilated volume for purposes of the calculations required here.

1.4.4.6.6. Determine the air change rate by dividing the volume of outside air introduced into the space per hour by the ventilated volume of the space.

1.4.4.6.7. Determine the weekly average air change rate by adding the minimum design air change rate during ventilation system operating hours times the number of hours the system is operated to an assumed air change rate from infiltration during ventilation system non-operational hours times the number of hours the system is off; then divide the total by one hundred sixty-eighty (168), the number of hours in a week. Where no values are available from the Contact Documents, use default values as follows:

1.4.4.6.7.1. **Offices.**

1.4.4.6.7.1.1. Where design data are not available to calculate the weekly average air change rate, the modeling shall assume a weekly average air change rate for office buildings of 0.75 air changes per hour (ach). This "default" office air exchange rate is based on a typical weekly office building fifty-five (55) hour operating schedule and an assumed off-hours air change rate of 0.3 ach (assumed air change rate during normal operating hours is in excess of 1.0 per hour).

1.4.4.6.7.1.2. Where specific information is available, the Project specific data should be used to calculate the weekly average air change rate. A default building air change rate of 0.2 per hour during non-HVAC operations should be used.

1.4.4.6.7.2. **Schools.**

1.4.4.6.7.2.1. Modeling shall assume weekly average air change rate for school buildings of 0.9 per hour. This air change rate is based on an assumed forty (40) hours per week of ventilation system operation at 3.0 ach and one hundred twenty-eight (128) hours per week of 0.2 ach through infiltration.

1.4.4.6.7.2.2. Where specific information is available, the Project specific data should be used to calculate the weekly average air change rate. A default building air exchange rate of 0.2 per hour during non-HVAC operations should be used.

1.4.4.6.7.3. Other building types or occupancy types: Use ASHRAE Standard 62.1 2001default occupant densities and ventilation rates for hours of operation and 0.2 ach for non operating hours unless actual rates are known in which case the actual rates and hours of operation are to be used.

1.4.4.7. **Environmental Chamber Testing**. Indoor Air Emissions Testing Laboratories may use a range of acceptable loading ratios in order to make use of various size chambers, since these are not standardized across laboratories. Loading ratios ranging from 0.25 m2/m3 to 0.45 m2/m3 will be acceptable.

1.4.4.7.1. For dry products, loading ratios within reasonable limits are not critical for determining emission factors; conditioning of test specimens prior to testing will reduce or eliminate differences that may occur in unconditioned samples due to evaporation-limited emissions and sink effects from adsorption of VOCs during final stages of manufacturing or while in packaging during transport to and storage at the laboratory.

1.4.4.7.2. Higher loading ratios lower expected emission factor; however, the relationship is not linear, especially at higher concentrations. Therefore, where strong formaldehyde (or other chemical) sources are known or expected to be present, loading ratios should be selected to represent a median value for the plausible range of actual building loading ratios.

1.4.4.7.3. Loading ratios used shall be included in test report.

1.4.4.7.4. Contractor shall provide to product manufacturers information on actual quantity of material to be used in Project. The product manufacturers will then forward this information to Indoor Air Emissions Testing Laboratory so loading ratios can be adjusted toward actual loading ratio of Project. However, for most low-emitting materials used in construction, actual loading ratio will not significantly affect emission rates except for strong formaldehyde sources, primarily products using urea-formaldehyde resins.

1.4.4.8. **Sample Preparation Requirements.**

1.4.4.8.1. Substrates for environmental chamber emissions tests of individual Products or materials (materials tested separately):

1.4.4.8.1.1. Dry solid sheet type products.

1.4.4.8.1.1.1. Sheet stainless steel or aluminum tray to provide tight fit at edges and reduce emissions from edge of material specimen. If material does not fit very snugly, then use aluminized, low-emitting, clean room tape to seal edges. Dry fabric type products:

1.4.4.8.1.1.2. No substrate necessary.

1.4.4.8.1.2. Wet products such as adhesives and sealers:

1.4.4.8.1.2.1. Sheet stainless steel, aluminum, or glass unless product is to be applied to gypsum board or other highly absorbent material. If substrate is a highly absorbent material, use a sample the substrate pre-conditioned for 24 hours to the temperature and humidity of the test chamber.

1.4.4.8.1.3. Substrates for specific products.

1.4.4.8.1.3.1. Composite wood products (Section 06400): sample to be suspended or supported in chamber with all edges exposed and no edge masking.

1.4.4.8.1.3.2. Gypsum Board (Section 09260): no substrate (testing required ONLY if recycled content gypsum board or if water resistant types are used).

1.4.4.8.1.3.3. Acoustical Ceiling Panels (Section 09510): no substrate, sample to be suspended or supported in chamber with no edge masking.

1.4.4.8.1.3.4. Resilient flooring (Section 09650): stainless steel tray, fitted tightly so that only the upper surface is exposed. Alternately, cover back of flooring with sheet stainless steel and seal edges with low-VOC emitting aluminized clean room tape so only wear surface of flooring is exposed.

1.4.4.8.1.3.5. Carpet Tile and Broadloom Carpet (Section 09680): stainless steel tray, fitted tightly so that only the upper surface is exposed.

1.4.4.8.1.3.6. Flat and eggshell Paints (Section 09900): 5/8" gypsum board.

1.4.4.8.1.3.7. Semi-gloss paints (Section 09900): Where applied to metal, use sheet stainless steel. Where applied to gypsum board, use gypsum board conditioned as described in subsection c below.

1.4.4.8.1.3.8. Joint Sealers (Section 07900): Steel channel 0.64 cm by 0.64 cm by 25.4 cm Channel shall be filled with sealant.

1.4.4.8.2. Substrates for environmental chamber emissions tests of assemblies of products or materials (materials tested in an assembly):

1.4.4.8.2.1. Laminates or wood veneers applied with adhesives (Section 06400): Medium density fiberboard (MDF).

1.4.4.8.2.2. Resilient flooring applied with adhesives (Section 09650): Sheet stainless steel or glass plate.

1.4.4.8.2.3. Carpet Tile/Broadloom Carpet applied with adhesives and adhesives (Section 09685/Section 09680): Sheet stainless steel or glass plate.

1.4.4.8.2.4. Wall Coverings applied with adhesives (Section 09700 Series): 5/8” gypsum board. Prior to preparation of the test specimen, Gypsum board substrate shall be pre-conditioned for at least 24 hours at 23 ± 2oC and 50 ± 10% RH while ventilated with clean air. [Ventilation rate is not important.]

1.4.4.8.3. Protocol for Paint Testing: Preparation and handling of paint test specimen.

1.4.4.8.3.1. Flat and Eggshell Paints.

1.4.4.8.3.1.1. Apply paints to 5/8" thick gypsum board. Hold Gypsum board substrate for at least 24 hours at 23 ± 2oC and 50 ± 10% RH while ventilated with clean air. Accurately weigh substrate just prior to painting, mask borders to avoid paint dripping on edges and leave center area for paint. Alternative approaches to protecting the edges are acceptable and shall be reported if used.

1.4.4.8.3.1.2. Apply paint using standardized roller procedure that simulates application of paint in building. For most wall paint applications use a 4” wide 3/8” nap roller intended for smooth surfaces.

1.4.4.8.3.1.3. Stir paint in container and transfer 100 mL of paint to heavy-duty aluminum foil disposable tray.

1.4.4.8.3.1.4. Saturate roller cover with paint by running back and forth in tray.

1.4.4.8.3.1.5. Apply paint to substrate using four strokes, two in vertical direction and two in horizontal direction, so entire area is uniformly covered.

1.4.4.8.3.1.6. Remove tape from substrate and re-weigh substrate.

1.4.4.8.3.1.7. Difference in weight determines amount of applied paint and coverage in grams of wet paint per square meter of substrate surface.

1.4.4.8.3.1.8. Place substrate on 6" by 6" piece of sheet stainless steel to cover entirely the back surface. Attach substrate to stainless steel with strips of low VOC aluminized clean room tape so only painted surface is exposed. For a blank specimen, similarly prepare an unpainted piece of gypsum. Alternate procedures to cover unpainted surfaces of gypsum board may be used and must be adequately described in the laboratory report if used.

1.4.4.8.3.1.9. Place sample in conditioning environment immediately and hold for ten (10) days.

1.4.4.8.3.1.10. Where multiple coats, which may include primer, are being tested, apply paints and follow manufacturers’ instructions for drying time between coats. Report weight of test specimen prior to and after each coat of paint is applied. Hold specimen in conditioning environment between coats. The ten (10) day conditioning period begins after application of final coat. Apply semi-gloss paint to clean steel sheet following same procedure as above for “flat and

eggshell paints." No tape should be used. Sheet should be weighed immediately before and after painting.

1.4.4.9. **Chemical Analyses.**

1.4.4.9.1. VOC Analysis: Make multi-point calibrations using pure compounds whenever such compounds are available from commercial suppliers (such as Aldrich Chemical Company, Sigma Aldrich). Quantitative analyses performed using surrogate compounds shall be indicated in reported test results. Identify EPA and ASTM standard methods and practices, and testing laboratory calibration procedures, which should include a calibration at least once every three (3) months.

1.4.4.9.2. Formaldehyde and Acetaldehyde Analysis: Formaldehyde and Acetaldehyde analysis shall be performed following ASTM Standard D 5197-09e1"Standard Test Method for Formaldehyde and other Carbonyl Compounds in Air (Active Sampler Methodology)."

1.4.4.10. **Reporting Requirements**. In addition to reporting requirement stated elsewhere in Specifications, reports shall include: (a) all compounds emitted from sample that are on the most recent Chronic Reference Exposure Level- Air Toxicology and Epidemiology list as published by the California Office of Environmental Health Hazard Assessment and listed in their website at http://www.oehha.org/air/allrels.html, (b) all compounds on the California Proposition 65 list (http://www.oehha.ca.gov/prop65/prop65_list/files/P65single111811.pdf), and (c) all compounds on the California Toxic Air Contaminant list (http://www.arb.ca.gov/toxics/cattable.htm). In addition, the ten (10) most abundant compounds shall be reported separately if not listed on any of these lists. For these compounds, report following:

1.4.4.10.1. Measured chamber concentrations at each required time point;

1.4.4.10.2. Calculated emission factors; and

1.4.4.10.3. Calculated building concentrations and assumptions used to make calculation.

1.4.5. State Agency Buy Recycled Campaign (SABRC) Recycled Content (http://www.calrecycle.ca.gov/BuyRecycled/StateAgency/). Implement the SABRC recycled-content goals for specific building Products, including but not limited to:

1.4.5.1. Paper products;

1.4.5.2. Glass products (windows, glazing, fiberglass, tile, construction blocks, loose-grain abrasives);

1.4.5.3. Plastic products (carpet, plastic lumber, furniture made from plastic, fencing, parking bumpers, toilet partitions, entry mats, signage, sheet plastic and other plastic-containing building products);

1.4.5.4. Solvents;

1.4.5.5. Tire-derived products (entry-mats, resilient flooring, wheelchair and other ramps, playground surfacing, parking bumpers, speed bumps, tree ties, road surfacing);

1.4.5.6. Steel products (structural steel, steel framing, architectural metal, reinforcing bars, sheet metal, metal siding, metal roofing, lockers, toilet partitions, office furniture for filing and storage);

1.4.5.7. Paint (allowed only in exterior installations); and

1.4.5.8. Compost.

1.5. DELIVERY, STORAGE, AND HANDLING

1.5.1. Packaging. Deliver materials in recyclable or in reusable packaging such as cardboard, wood, paper, or reusable blankets, which will be reclaimed by supplier or manufacturer for recycling.

1.5.1.1. General. Minimize packaging materials to maximum extent possible while still ensuring protection of materials during delivery, storage, and handling.

1.5.1.1.1. Unacceptable Packaging Materials: Polyurethane, polyisocyanate, polystyrene, polyethylene, and similar plastic materials such as “foam” plastics and “shrink-fit” plastics.

1.5.1.2. Reusable Blankets. Deliver and store materials in reusable blankets and mats reclaimed by manufacturers or suppliers for reuse where program exists or where program can be developed for such reuse.

1.5.1.3. Pallets. Where pallets are used, suppliers shall be responsible to ensure pallets are removed from Site for reuse or for recycling.

1.5.1.4. Corrugated Cardboard and Paper. Where paper products are used, recycle as part of construction waste management recycling program, or return to material’s manufacturer for use by manufacturer or supplier.

1.5.1.5. Sealants, Paint, Primers, Adhesives, and Coating Containers. Return to supplier or manufacturer for reuse where such program is available.

1.6. PROJECT CONDITIONS

1.6.1. **Certifications.**

1.6.1.1. Environmental Product Certification.

1.6.1.1.1. Include manufacturer certification indicating product contains maximum recycled content possible without being detrimental to product performance.

1.6.1.1.2. Include certification indicating cleaning materials comply with requirements of these Specifications.

1.6.2. **Construction Ventilation and Preconditioning.**

1.6.2.1. Temporary Construction Ventilation. Maintain sufficient temporary ventilation of areas where materials are being used that emit VOCs. Maintain ventilation continuously during installation, and until emissions dissipate after installation. If continuous ventilation is not possible via building's HVAC system(s) then ventilation shall be supplied via open windows and temporary fans, sufficient to provide no less than three air changes per hour.

1.6.2.1.1. Period after installation shall be sufficient to dissipate odors and elevated concentrations of VOCs. Where no specific period is stated in these Specifications, a time period of 72 hours shall be used.

1.6.2.1.2. Ventilate areas directly to outside; ventilation to other enclosed areas is not acceptable.

1.6.2.2. During dust producing activities (e.g. drywall installation and finishing) turn ventilation system off, and openings in supply and return HVAC system shall be protected from dust infiltration. Provide temporary ventilation as required.

1.6.2.3. Preconditioning. Prior to installation, allow products which have odors and significant VOC emissions to off-gas in dry, well-ventilated space for fourteen (14) calendar days to allow for reasonable dissipation of odors and emissions prior to delivery to Project site.

1.6.2.3.1. Condition Products without containers and packaging to maximize off-gassing of VOCs

1.6.2.3.2. Condition Products in ventilated warehouse or other building. Comply with substitution requirements for consideration of other locations.

1.6.3. **Protection.**

1.6.3.1. Moisture Stains. Materials with evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials; immediately remove from Site and properly dispose. Take special care to prevent accumulation of moisture on installed materials and within packaging during delivery, storage, and handling to prevent development of molds and mildew on packaging and on Products.

1.6.3.1.1. Immediately remove from Site and properly dispose of materials showing signs of mold and signs of mildew, including materials with moisture stains.

1.6.3.1.2. Replace moldy materials with new, undamaged materials.

1.6.3.2. Ducts. Seal ducts during transportation, delivery, and construction to prevent accumulation of construction dust and construction debris inside ducts.

1.7. SEQUENCING

1.7.1. Environmental Issues.

1.7.1.1. On-Site Application. Where odorous and/or high VOC emitting Products are applied on-site, apply prior to installation of porous and fibrous materials. Where this is not possible, protect porous materials with polyethylene vapor retarders.

1.7.1.2. Complete interior finish material installation no less than fourteen (14) days prior to Completion to allow for building flush out.

2. PRODUCTS

2.1. CHEMICALS OF CONCERN

2.1.1. **Chemicals of Concern.** Chemicals listed below as toxic air contaminants, carcinogens, teratogens, reproductive toxins, and chemicals with established Chronic Reference Exposure Levels (REL).

2.1.2. **Carcinogens.** Chemicals listed as probable or known human carcinogens in the latest published edition of the following two (2) lists:

2.1.2.1. California Environmental Protection Agency, Air Resources Board (ARB), list of Toxic Air Contaminants (California Air Toxics): http://www.arb.ca.gov/toxics/id/taclist.htm.

2.1.2.2. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): http://www.oehha.ca.gov/prop65/prop65_list/Newlist.html.

2.1.3. **Reproductive Toxicants**. Chemicals known to cause reproductive toxicity including birth defects or other reproductive harm in the latest published edition of the following list:

2.1.3.1. California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA), Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): http://www.oehha.ca.gov/prop65/prop65_list/files/P65single111811.pdf.

2.1.4. **Chemicals with established Chronic Reference Exposure Levels (REL**). Chronic RELs have been developed for hazardous airborne substances as of December 2008. A chronic REL is an airborne concentration level that would pose no significant health risk to individuals indefinitely exposed to that level. RELs are based solely on health considerations, and are developed from the best available data in the scientific literature. The California Environmental Protection Agency, Office of Environmental Health Hazard Assessment (OEHHA) establishes and publishes RELs. The most recent list shall be used for this Specification as published at http://www.oehha.ca.gov/air/hot_spots/pdf/CPFs042909.pdf.

2.2. SUBSTITUTIONS

2.2.1. Substitutions Environmental Issues: Requests for substitutions shall comply with requirements specified in the Contract Documents and with the following additional information required where environmental issues are specified:

2.2.1.1. Indicate each proposed substitution complies with requirements for VOCs;

2.2.1.2. SCCOE reserves the right to reject proposed substitutions where data for VOCs is not provided or where emissions of individual VOCs are higher than for specified Products; and

2.2.1.3. Comply with specified recycled content and other environmental requirements.

3. EXECUTION

3.1. FIELD QUALITY CONTROL

3.1.1. Building Flush Out: Just prior to Completion, flush out building continuously (i.e. 24 hours per day, seven (7) days a week) using maximum tempered outside air (or maximum amount of outside air while achieving reasonable indoor temperature) for at least fourteen (14) calendar days. If interruptions of more than a few hours are required for testing and balancing purposes, extend flush out period accordingly.

3.1.1.1. When Contractor is required to perform touch-up work, provide temporary construction ventilation during installation and extend building flush-out by a minimum of four (4) days after touch-up installation with maximum tempered outside air for 24 hour per day.

3.1.1.2. If construction schedule permits, extend flush-out period beyond fifteen (15) days.

3.1.1.3. Return ventilation system to normal operation following flush-out period to minimize energy consumption.

3.2. CLEANING

3.2.1. **Final Cleaning Environmental Issues.**

3.2.1.1. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains, and foreign substances; polish transparent and glossy surfaces using cleaning and maintenance products as described in Part 1 of this Section.

3.2.1.2. Clean equipment and fixtures to sanitary condition using cleaning and maintenance products as described in Part 1 of this Document.

3.2.1.3. Vacuum carpeted and soft surfaces with high efficiency particulate arrestor (HEPA) vacuum.

3.2.1.4. If ducts were not sealed during construction, and contain dust or dirt, clean ducts using HEPA vacuum immediately prior to Completion and prior to using ducts to circulate air. Oil film on sheet metal shall be removed before shipment to Site. However, ducts shall be inspected to confirm that no oil film is present. If present, remove oil.

3.2.1.5. Replace all air filters (i.e., pre and final filters) just prior to Completion.

3.2.1.6. Remove and properly dispose of recyclable materials using construction waste management program described in the Specifications.

3.3. PROTECTION

3.3.1. Environmental Issues.

3.3.1.1. Protect interior materials from water intrusion or penetration; where interior Products not intended for wet applications are exposed to moisture, immediately remove from Site and dispose of properly.

3.3.1.2. Protect installed Products using methods that do not support growth of molds and mildews.

3.3.1.2.1. Immediately remove from Site Products with mold or mildew.

END OF DOCUMENT

Project Name: _____

RECYCLED CONTENT CERTIFICATION FORM

This form is to be completed by a Corporate Officer of the Product Manufacturer for the General Contractor. Contractor must return the certification, completed for each product with recycled content as required by Specifications. Attach additional sheets if necessary.

CONTRACTOR Name: Address: Telephone, fax, e-mail:	SUBCONTRACTOR/INSTALLER Name: Address: Telephone, fax, e-mail:	PRODUCT MANUFACTURER Name: Address: Telephone, fax, e-mail:

Item #	***Product Category[1&2] (Include if applicable)***	***Product Description CSI section number***[3] (Needed for all products)	Quantity Bid	***Unit of measure***	Cost of material, (Excluding installation labor)	***Weight in pounds***	% Virgin Content [5]	% Post-consumer [6]	% Post-industrial [7]	Total %[8]
							As a percent of total weight			
		CSI section:								100
		CSI section:								100
		CSI section:								100
		CSI section:								100
		CSI section:								100
		CSI section:								100

Printed Name: (a corporate officer) Title Date Signature

GENERAL NOTES:

A. The Public Contract Code Sections, listed below, apply to California public (DGS) projects only. The required document has been adapted for use on other types of projects, including public schools.

B. Public Contract Code Sections 10233, 10308.5, and 10354 require all vendors and contractors to certify in writing, under penalty of perjury, to the state agency awarding a contract, the minimum, if not the exact percentage, of post-consumer and post-industrial material in the materials, goods, or supplies offered or used.

C. Public Contract Code Section 12205(a) requires all state agencies to require all contractors to certify in writing, under penalty of perjury, the minimum, if not the exact percentage, of post-consumer and post-industrial material in the materials, goods, or services provided or used.

NOTES:

(1) Product Category: (Fill in above, if applicable. This information is used to determine compliance with the State Agency Buy Recycled Campaign.)

1. Compost/Co-compost
2. Glass Products
3. Lubricating Oils
4. Paint
5. Plastic Products
6. Paper Products
7. Printing and Writing Papers
8. Solvents
9. Steel Products
10. Tires
11. Tire-derived Products

(2) Product category is used for State agency reporting for State projects, excluding public schools. Products that are made from multiple material types should be reported in the product category of the material type representing most of the product. The amount of material used in the product can be measured by weight or volume. If, for instance, a chair is made from steel, aluminum, and plastic and most of the material, either by weight or volume, is plastic, report it as a plastic product. If, however, most of the product, either by weight or volume, is steel, report the purchase as a steel product.

(3) Identify the Construction Specifications Institute (CSI) Specification Section number for the product, as indicated in the Project Specifications.

(4) Below are products preliminarily identified in the Project Specifications as having minimum recycled content requirements. Refer to the Project Specifications for individual sections in the specifications for recycled content level that must be achieved. Recycled content guidelines shall include, but not be limited to, the products below (to be revised for each project):

1. Parking Bumpers (Section 2760)
2. Fluid-Applied Waterproofing (Section 07140)
3. Concrete reinforcement (Section 03200)
4. Bentonite Waterproofing (Section 07170)
5. Structural steel (Section 05120)
6. Metal Decking (Section 05300)
7. Building Insulation (Section 07210)
8. Steel doors and frames (Section 08110)
9. Glazing (Section 08800)
10. Paints and Coatings (Section 09900)
11. Cold-Formed Metal Framing (Section 05400)
12. Gypsum board

(Sections 09255, 09260, 09265)

13. Ceramic tile (Section 09300)
14. Acoustical ceilings (Section 09510)
15. Resilient flooring (Section 09650)
16. Carpeting (Sections 09682, 09686)
17. Metal Toilet Compartments (Section 10160)
18. Identifying Devices (Section 10400)
19. Architectural Woodwork (Section 06400)

(5) Virgin material content is that portion of the product made from non-recycled material, that is, the material is neither post-industrial nor post-consumer material.

(6) Post-consumer material is defined as "a finished material which would have been disposed of as a solid waste, having completed its life cycle as a consumer item, and does not include manufacturing wastes." This is material such as a newspaper that is read, recycled and then made into recycled content newsprint or some other recycled product. Post-consumer material is generally any product that is bought by the consumer, used, and then recycled into another product.

(7) Post-industrial (also referred to as pre-consumer or secondary material) is defined as "fragments of finished products or finished products of a manufacturing process, which has converted a resource into a commodity of real economic value, but does not include excess virgin resources of the manufacturing process." This is material such as newsprint that is trimmed from a roll in the paper plant that is returned to the beginning of the process to make recycled content newsprint. The material (product) did not get to the consumer before being recycled. Post-industrial material DOES NOT include post-consumer material. FOR EXAMPLE: If a Printing and Writing Paper contained 20% post-consumer material, you would indicate 20 in the post-consumer column and 80 in the virgin column. If the product had 40% secondary material and 20% post-consumer material, you would indicate 40 in the post-industrial column, 20 in the post-consumer column, and 40 in the virgin column.

(8) The sum of the percentages for virgin, post-consumer, and post-industrial content must equal 100 percent.

D0CUMENT 01 40 00

QUALITY REQUIREMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Drawings;

1.1.5. Construction Schedule – Network Analysis;

1.1.6. General Definitions and References.

1.2. SUMMARY

1.2.1. This Document includes administrative and procedural requirements for quality assurance and quality control.

1.2.2. Testing and inspecting services by the SCCOE are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Documents' requirements.

1.2.2.1. Specific quality-assurance and -control requirements for individual construction activities are specified in the Specifications for those activities. Requirements in those Specifications may also cover production of standard products.

1.2.2.2. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Documents' requirements.

1.2.2.3. Requirements for Contractor to provide quality-assurance and -control services required by SCCOE, SCCOE's consultants, or authorities having jurisdiction are not limited by provisions of this Document.

1.3. DEFINITIONS

1.3.1. 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.

1.3.2. Quality-Control Services: Tests, inspections, procedures, and related actions during and after execution of the Work to evaluate that actual products incorporated into the Work and completed construction comply with requirements. Services do not include contract enforcement activities performed by SCCOE or its consultants.

1.3.3. Mock-ups: Full-size, physical assemblies that are constructed on-site. Mock-ups are used to verify selections made under sample submittals, to demonstrate aesthetic effects and, where indicated, qualities of materials and execution, and to review construction, coordination, testing, or operation; they are not Samples. Approved mock-ups establish the standard by which the Work will be judged.

1.3.4. Laboratory Mock-ups: Full-size, physical assemblies that are constructed at testing facility to verify performance characteristics.

1.3.5. Preconstruction Testing: Tests and inspections that are performed specifically for the Project before products and materials are incorporated into the Work to verify performance or compliance with specified criteria.

1.3.6. Product Testing: Tests and inspections that are performed by an NRTL (National Recognized Testing Laboratory), an NVLAP (National Voluntary Laboratory Accreditation Program), or a testing agency qualified to conduct product testing and acceptable to authorities having jurisdiction, to establish product performance and compliance with industry standards.

1.3.7. Source Quality-Control Testing: Tests and inspections that are performed at the source, i.e., plant, mill, factory, or shop.

1.3.8. Field Quality-Control Testing: Tests and inspections that are performed on-site for installation of the Work and for completed Work.

1.4. CONFLICTING REQUIREMENTS

1.4.1. General: 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 uncertainties and requirements that are different but apparently equal, to SCCOE for a decision before proceeding.

1.4.2. 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 SCCOE for a decision before proceeding.

1.5. SUBMITTALS

1.5.1. Qualification Data: For testing agencies specified in "Quality Assurance" below to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5.2. Schedule of Tests and Inspections: Prepare in tabular form and include the following:

1.5.2.1. Specification number and title.

1.5.2.2. Description of test and inspection.

1.5.2.3. Identification of applicable standards, codes or regulations.

1.5.2.4. Identification of test and inspection methods.

1.5.2.5. Number of tests and inspections required.

1.5.2.6. Time schedule or time span for tests and inspections.

1.5.2.7. Entity responsible for performing tests and inspections.

1.5.2.8. Requirements for obtaining samples.

1.5.2.9. Unique characteristics of each quality-control service.

1.5.3. Reports: Prepare and submit certified written reports that include the following:

1.5.3.1. Date of issue.

1.5.3.2. Project title and number.

1.5.3.3. Name, address, and telephone number of testing agency.

1.5.3.4. Dates and locations of samples and tests or inspections.

1.5.3.5. Names of individuals making tests and inspections.

1.5.3.6. Description of the Work and test and inspection method.

1.5.3.7. Identification of product and Specification.

1.5.3.8. Complete test or inspection data.

1.5.3.9. Test and inspection results and an interpretation of test results.

1.5.3.10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.

1.5.3.11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Documents' requirements.

1.5.3.12. Name and signature of laboratory inspector.

1.5.3.13. Recommendations on retesting and reinspecting.

1.5.3.14. Descriptions of deficiencies noted, and corrective action undertaken to resolve such deficiencies.

1.5.3.14.1. Deficiencies observed shall immediately be brought to the attention of the Contractor's field superintendent, and trade foreman. In the event deficiencies are not corrected, or if an interpretation of the Contract Documents is required, the Testing Agency shall immediately notify the SCCOE and applicable consultant, Architect, or Engineer.

1.5.3.14.2. The Testing Agency shall maintain a deficiency list of all items not corrected and shall reinspect the area after the deficiency has been corrected. The list shall include a description of the deficiency, the date and time the deficiency was observed,

who was notified, the date of reinspection and description of any corrective action taken. Distribute the deficiency list at least once per month.

1.5.3.15.15. At the end of the Project, the Testing Agency shall submit a final signed report stating whether the work tested and inspected conforms to the Contract Documents' requirements.

1.5.4. Permits, Licenses, and Certificates: For SCCOE'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.

1.6. QUALITY ASSURANCE

1.6.1. General: Qualifications paragraphs in this Article establish the minimum qualification levels required; individual Specifications specify additional requirements.

1.6.2. 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. Where required by the individual Specifications, Installer employing workers trained and approved by manufacturer, Installer being acceptable to manufacturer, and/or Installer being an authorized representative of manufacturer for both installation and maintenance.

1.6.3. 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.

1.6.4. 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.

1.6.5. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in the State of California, and who is experienced in providing engineering services of the kind indicated.

1.6.6. Engineering services are defined as those performed for installations of the system, assembly, or products that are similar to those indicated for this Project in material, design, and extent.

1.6.7. Specialists: Certain Specifications may require that specific construction activities shall be performed by entities who are recognized experts in those operations. Specialists shall satisfy qualification requirements indicated and shall be engaged for the activities indicated.

1.6.7.1. Requirement for specialists shall not supersede building codes or regulations governing the Work.

1.6.8. Testing Agency Qualifications: An NRTL, an NVLAP, Division of the State of Architect's Accepted Laboratory, or an independent agency with the experience and capability to conduct testing and inspecting indicated; and with additional qualifications stated in

individual Specifications; and where required by and acceptable to authorities having jurisdiction.

1.6.8.1. NRTL: A Nationally Recognized Testing Laboratory according to 29 CFR 1910.7.

1.6.8.2. NVLAP: A testing agency accredited according to NIST's (National Institute of Standards and Technology) National Voluntary Laboratory Accreditation Program.

1.6.8.3. Tests shall be made by an accredited testing agency with a minimum of 5 years of experience in the specific type of testing to be performed. Except as otherwise provided, sampling and testing of all materials and the laboratory methods and testing equipment shall be in accordance with the applicable standards and methods of the California Building Standards code.

1.6.8.4. For each type of inspection and testing service to be performed, the Testing Agency shall submit certification, signed and sealed by the Agency's professional engineer, of compliance with all applicable requirements of the following:

1.6.8.4.1. ASTM E329, "Specification for Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction."

1.6.8.4.2. "Recommended Requirements for Independent Laboratory Qualifications" published by the American Council of Independent Laboratories.

1.6.8.5. Furnish written certification to the SCCOE that all equipment to be used has been calibrated in accordance with applicable ASTM standards within the last year and is in proper working order.

1.6.8.6. Testing Agency Personnel Qualifications: Testing and inspection services shall be performed only by trained and experienced technicians currently qualified for the work they are to perform. Documentation of such training and experience shall be submitted to the SCCOE and/or its consultants upon request.

1.6.8.7. Each independent inspection and testing agency engaged on the Project shall be authorized by authorities having jurisdiction to operate in the state where the Project is located.

1.6.8.8. Factory-Authorized Service Representative Qualifications: An authorized representative of manufacturer who is trained and approved by manufacturer to inspect installation of manufacturer's products that are similar in material, design, and extent to those indicated for this Project.

1.6.9. Preconstruction Testing: Where a testing agency is indicated to perform preconstruction testing for compliance with specified requirements for performance and test methods, comply with the following:

1.6.9.1. Contractor responsibilities include the following:

1.6.9.1.1. Verify by its Quality Assurance/Quality Control procedures that an element is ready for testing prior to requesting a test.

1.6.9.1.2. Provide test specimens representative of proposed products and construction.

1.6.9.1.3. Submit specimens in a timely manner with sufficient time for testing and analyzing results to prevent delaying the Work.

1.6.9.1.4. Provide sizes and configurations of test assemblies, mock-ups, and laboratory mock-ups to adequately demonstrate capability of products to comply with performance requirements.

1.6.9.1.5. Build site-assembled test assemblies and mock-ups using installers who will perform same tasks for Project.

1.6.9.1.6. Build laboratory mock-ups at testing facility using personnel, products, and methods of construction indicated for the completed Work.

1.6.9.1.7. When testing is complete, remove test specimens, assemblies, mock-ups, and laboratory mock-ups; do not reuse products on Project.

1.6.9.2. Testing Agency Responsibilities: Submit a certified written report of each test, inspection, and similar quality-assurance service to SCCOE 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' requirements.

1.6.10. Mock-ups: Before installing portions of the Work requiring mock-ups, build mock-ups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:

1.6.10.1. Build mock-ups in location and of size indicated or, if not indicated, as directed by SCCOE or its consultant.

1.6.10.2. Notify SCCOE and its consultants seven (7) days in advance of dates and times when mock-ups will be constructed.

1.6.10.3. Demonstrate the proposed range of aesthetic effects and workmanship.

1.6.10.4. Obtain SCCOE and its consultant's approval of mock-ups before starting work, fabrication, or construction.

1.6.10.4.1. Allow seven (7) days for initial review and each re-review of each mock-up.

1.6.10.5. Incorporate seismic design of nonstructural components as listed in Division 01 Document "Seismic Design Requirements for Non-Structural Components" into mock-ups.

1.6.10.6. Maintain mock-ups during construction in an undisturbed condition as a standard for judging the completed Work.

1.6.10.7. Demolish and remove mock-ups when directed, unless otherwise indicated.

1.6.11. Laboratory Mock-Ups: Comply with requirements of preconstruction testing and those specified in individual Specifications in Divisions 02 through 49.

1.7. QUALITY CONTROL

1.7.1. SCCOE Responsibilities: Where quality-control services are indicated as SCCOE's responsibility, SCCOE will engage a qualified testing agency to perform these services.

1.7.1.1. SCCOE will furnish Contractor with names, addresses, and telephone numbers of testing agencies engaged and a description of types of testing and inspecting the testing agencies are engaged to perform.

1.7.1.2. Payment for these services will be made from testing and inspecting allowances, as authorized by Change Orders.

1.7.1.3. Costs for retesting and reinspecting construction that replaces or is necessitated by Work that failed to comply with the Contract Documents will be charged to Contractor, and the Guaranteed Maximum Price will be adjusted by Change Order per the Contract Documents.

1.7.2. Tests and inspections not explicitly assigned to SCCOE are Contractor's responsibility. 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.

1.7.2.1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform the quality-control services.

1.7.2.1.1. Contractor shall not employ same entity engaged by SCCOE, unless agreed to in writing by SCCOE.

1.7.2.2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.

1.7.2.3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.

1.7.2.4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.

1.7.2.5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

1.7.3. 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 Document "Submittal Procedures."

1.7.4. 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' requirements.

1.7.5. Testing Agency Responsibilities: Cooperate with SCCOE, SCCOE's consultants, and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.

1.7.5.1. Notify SCCOE, SCCOE's consultants, and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.

1.7.5.2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.

1.7.5.3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.

1.7.5.4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.

1.7.5.5. Do not release, revoke, alter, or increase the Contract Documents' requirements or approve or accept any portion of the Work.

1.7.5.6. Do not perform any duties of Contractor.

1.7.6. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify testing agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:

1.7.6.1. Access to the Work.

1.7.6.2. Incidental labor and facilities necessary to facilitate tests and inspections.

1.7.6.3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.

1.7.6.4. Facilities for storage and field curing of test samples.

1.7.6.5. Delivery of samples to testing agencies.

1.7.6.6. Preliminary design mix proposed for use for material mixes that require control by testing agency.

1.7.6.7. Security and protection for samples and for testing and inspecting equipment at Project Site.

1.7.6.8. Furnish tools, samples of materials, design mixes, equipment and assistance as requested.

1.7.6.9. Provide and maintain, for the sole use of the Testing Agency, adequate facilities for the safe storage and proper curing of concrete test cylinders on the project site for the first 24 hours after casting as required by ASTM C31, Method of Making and Curing Concrete Test Specimens in the Field.

1.7.6.10. Build and store masonry test prisms in a manner acceptable to the Testing Agency. Prisms to be tested shall remain at the job site until moved by Testing Agency personnel.

1.7.6.11. Notify Testing Agency at least 10 working days in advance of any qualification testing for welding required herein.

1.7.6.12. Notify Testing Agency at least 24 hours prior to expected time for operations requiring testing or inspection services.

1.7.6.13. Make arrangements with the Testing Agency and pay for additional samples and tests made for the Contractor's convenience or for retesting of failed samples.

1.7.6.14. For deficiencies requiring corrective action, submit in writing a description of the deficiency and a proposed correction to the SCCOE. After review and approval, the proposed corrective action shall be implemented and inspected by the Testing Agency. It is Contractor's responsibility to ascertain that the deficiency is corrected and inspected prior to the work being covered.

1.7.6.15. Retention of an independent Testing Agency by the SCCOE shall in no way relieve Contractor of responsibility for performing all work in accordance with the Contract Documents' requirements.

1.7.7. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.

1.7.7.1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8. TESTS AND SPECIAL INSPECTIONS

1.8.1. Tests and Special Inspections: SCCOE will engage a qualified testing agency to conduct tests and special inspections required by authorities having jurisdiction.

1.8.2. Special Tests and Inspections: Conducted by a qualified testing agency as required by authorities having jurisdiction, as indicated in individual Specifications, and as follows:

1.8.2.1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.

1.8.2.2. Notifying SCCOE, SCCOE's consultants, and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.

1.8.2.3. Submitting a certified written report of each test, inspection, and similar quality-control service to SCCOE, with copy to Contractor and to authorities having jurisdiction.

1.8.2.4. Submitting a final report of special tests and inspections at Project Completion, which includes a list of unresolved deficiencies.

1.8.2.5. Interpreting tests and inspections and stating in each report whether tested and inspected Work complies with or deviates from the Contract Documents.

1.8.2.6. Retesting and reinspecting corrected work.

2. PRODUCTS

2.1. GENERAL

2.1.1. Do not use any materials or equipment represented by samples until tests, if required, have been made and the materials or equipment found to be acceptable. Any product which becomes unfit for use after acceptance shall not be incorporated into the Work.

3. EXECUTION

3.1. TEST AND INSPECTION LOG

3.1.1. Prepare a record of tests and inspections. Include the following:

3.1.1.1. Date test or inspection was conducted.

3.1.1.2. Description of the Work tested and inspected.

3.1.1.3. Date test or inspection results were transmitted to SCCOE.

3.1.1.4. Identification of testing agency or special inspector conducting test or inspection.

3.1.2. Maintain log at Project Site. Post changes and modifications as they occur. Provide access to test and inspection log for SCCOE's reference during normal working hours.

3.2. REPAIR AND PROTECTION

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

3.2.1.1. Provide materials and comply with installation requirements specified in other Specifications. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible.

3.2.1.2. Comply with Document "Cutting and Patching" and all related Contract Documents' requirements.

3.2.2. Protect construction exposed by or for quality-control service activities.

3.2.3. Repair and protection are Contractor's responsibility, regardless of the assignment of responsibility for quality-control services.

END OF DOCUMENT

DOCUMENT 01 41 00

REGULATORY REQUIREMENTS

PART 1 - GENERAL

1.01 RELATED DOCUMENTS AND PROVISIONS:

All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:

A. General Conditions, including, without limitation, Obtaining of Permits and Licenses and Work to Comply with All Applicable Regulations;

B. Special Conditions;

C. Quality Control.

1.02 DESCRIPTION:

This section covers the general requirements for regulatory requirements pertaining to the Work and is supplementary to all other regulatory requirements mentioned or referenced elsewhere in the Contract Documents.

1.03 REQUIREMENTS OF REGULATORY AGENCIES:

A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction of the Work, are hereby incorporated into these Contract Documents as if repeated in full herein and are intended to be included in any reference to Code or Building Code, unless otherwise specified, including, without limitation, the references in the list below. Contractor shall make available at the Site copies of all the listed documents applicable to the Work as the Owner and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").

This Project shall be governed by applicable regulations, including, without limitation, the California Building Code
Contractor shall keep and make available a copy of Part 1 and 2 of the most current version of Title 24 at the Site during construction.

B. Items of deferred approval shall be clearly marked on the first sheet of the Architect's and/or Engineer's approved Drawings. All items later submitted for approval shall be per: . (1) Building Standards Administrative Code, Part 1, Title 24, CCR

(2) California Building Code (CBC), Part 2, Title 24, CCR; (Uniform Building code volumes 1-3 and California Amendments).

(3) California Electrical Code (CEC), Part 3, Title 24, CCR; (National Electrical Code and California Amendments).

(4) California Mechanical Code (CMC), Part 4, Title 24, CCR; (Uniform Mechanical Code and California Amendments).

(5) California Plumbing Code (CPC), Part 5, Title 24, CCR; (Uniform Plumbing Code and California Amendments).

(6) California Fire Code (CFC), Part 9, Title 24, CCR; (Fire Plumbing Code and California Amendments).

(7) California Referenced Standards Code, Part 12, Title 24, CCR.

(8) State Fire Marshal Regulations, Public Safety, Title 19, CCR.

(9) Partial List of Applicable NFPA Standards:

(a) NFPA 13 - Automatic Sprinkler System.

(b) NFPA 14 - Standpipes Systems.

(c) NFPA 17A - Wet Chemical System

(d) NFPA 24 - Private Fire Mains.

(e) (California Amended) NFPA 72 - National Fire Alarm Codes.

(f) NFPA 253 - Critical Radiant Flux of Floor Covering System.

(g) NFPA 2001 - Clean Agent Fire Extinguishing Systems.

(10) California Division of the State Architect interpretation of Regulations.

PART 2 – PRODUCTS Not Used.

END OF DOCUMENT

DOCUMENT 01 42 13

ABBREVIATIONS AND ACRONYMS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions; and

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.2. ABBREVIATIONS AND ACRONYMS FOR STANDARDS AND REGULATIONS

1.2.1. Abbreviations and Acronyms for 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 as indicated in Thomson Gale™ (www.gale.com), Gale Research's "Encyclopedia of Associations" or "Encyclopedia of Associations: National Organizations of the U.S," or in Columbia Books' "National Trade & Professional Associations of the U.S."

1.2.2. Some of the applicable abbreviations and acronyms referenced in the Specifications or other Contract Documents have the following meanings, subject to updates or revisions based on the above-referenced publications:

- AA: Aluminum Association
- AAMA: Architectural Aluminum Manufacturers Association
- AASHTO: American Association of State Highway and Transportation Officials
- ABPA: Acoustical and Board Products Association
- ACI: American Concrete Institute
- AGA: American Gas Association
- AGC: Associated General Contractors
- AHC: Architectural Hardware Consultant
- AI: Asphalt Institute
- AIA: American Institute of Architects
- AIEE: American Institute of Electrical Engineers
- AISC: American Institute of Steel Construction
- AISI: American Iron and Steel Institute
- AMCA: Air Moving and Conditioning Association
- ANSI: American National Standards Institute
- APA: American Plywood Association
- ARI: Air Conditioning and Refrigeration Institute
- ASHRAE: American Society of Heating, Refrigeration and Air Conditioning Engineers
- ASME: American Society of Mechanical Engineers
- ASSE: American Society of Structural Engineers
- ASTM: American Society of Testing and Materials

- AWPB: American Wood Preservers Bureau
- AWPI: American Wood preservers Institute
- AWS: American Welding Society
- AWSC: American Welding Society Code
- AWI: Architectural Woodwork Institute
- AWWA: American Water Works Association
- BIA: Brick Institute of America
- CCR: California Code of Regulations
- CLFMI: Chain Link Fence Manufacturers Institute
- CMG: California Masonry Guild
- CRA: California Redwood Association
- CRSI: Concrete Reinforcing Steel Institute
- CS: Commercial Standards
- CSI: Construction Specifications Institute
- CTI: Cooling Tower Institute
- FGMA: Flat Glass Manufacturer's Association
- FIA: Factory Insurance Association
- FM: Factory Mutual
- FS: Federal Specification
- FTI: Facing Title Institute
- GA: Gypsum Association
- ICC: International Code Council
- IEEE: Institute of Electrical and Electronic Engineers
- IES: Illumination Engineering Society
- LIA: Lead Industries Association
- MIA: Marble Institute of America
- MLMA: Metal Lath Manufacturers Association
- MS: Military Specifications
- NAAMM: National Association of Architectural Metal Manufacturers
- NBHA: National Builders Hardware Association
- NBFU: National Board of Fire Underwriters
- NBS: National Bureau of Standards
- NCMA: National Concrete Masonry Association
- NEC: National Electrical Code
- NEMA: National Electrical Manufacturers Association
- NFPA: National Fire Protection Association/National Forest Products Association
- NMWIA: National Mineral Wool Insulation Association
- NTMA: National Terrazzo and Mosaic Association
- NWMA: National Woodwork Manufacturer's Association
- ORS: Office of Regulatory Services (California)
- OSHA: Occupational Safety and Health Act
- PCI: Precast Concrete Institute
- PCA: Portland Cement Association
- PDCA: Painting and Decorating Contractors of America
- PDI: Plumbing Drainage Institute
- PEI: Porcelain Enamel Institute
- PG&E: Pacific Gas & Electric Company
- PS: Product Standards
- SDI: Steel Door Institute; Steel Deck Institute
- SJI: Steel Joist Institute
- SSPC: Steel Structures Painting Council

- TCA: Tile Council of America
- TPI: Truss Plate Institute
- UBC: Uniform Building Code
- UL: Underwriters Laboratories Code
- UMC: Uniform Mechanical Code
- USDA: United States Department of Agriculture
- VI: Vermiculite Institute
- WCLA: West Coast Lumberman's Association
- WCLB: West Coast Lumber Bureau
- WEUSER: Western Electric Utilities Service Engineering Requirements
- WIC: Woodwork Institute of California
- WPOA: Western Plumbing Officials Association

1.2.3. Additional Abbreviations and Symbols: Refer to the above-referenced publications or to Drawings for additional abbreviations and for symbols.

END OF DOCUMENT

DOCUMENT 01 42 16

GENERAL DEFINITIONS AND REFERENCES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including without limitation, Contract Terms and Definitions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Special Conditions.

1.2. DEFINITIONS

General: Basic Contract definitions are included in the General Conditions of the Contract for Construction. The following are in addition to those definitions.

1.2.1. "Alternate": A cost or credit for certain Work that may be added to or deducted from the Project.

1.2.2. "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."

1.2.3. "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.

1.2.4. "Furnish": Supply and deliver to Project site, ready for unloading, unpacking, assembly, installation, and similar operations.

1.2.5. "Install": Operations at Project site including unloading, temporarily storing, unpacking, assembling, erecting, placing, anchoring, applying, working to dimension, finishing, curing, protecting, cleaning, and similar operations.

1.2.6. "Provide": Furnish and install, complete and ready for the intended use.

1.3. QUALITY ASSURANCE

1.3.1. For products or workmanship specified by association, trade, or Federal Standards, Contractor shall comply with requirements of the standard, except when more stringent requirements are specified in the Contract Documents, or are required by applicable codes.

1.3.2. Contractor shall conform to current reference standard publication in effect on the date of bid opening.

1.3.3. Unless directed otherwise by the Contract Documents, Contractor shall obtain copies of referenced standards.

1.3.4. Unless directed otherwise by the Contract Documents, Contractor shall maintain a copy of referenced standards at jobsite until Completion.

1.3.5. If specified standards conflict with Contract Documents, Contractor shall request clarification from the SCCOE or the Architect before proceeding.

1.3.6. Governing Codes shall be as shown in the Contract Documents including, without limitation, the Specifications.

1.4. STANDARDS

1.4.1. Standard Specifications: References to codes, specifications and standards referred to in the Contract Documents shall mean, and are intended to be, the latest edition, amendment or revision of such reference standard in effect as of the date of these Contract Documents. If those standard specifications are revised prior to Completion of any part of the Work to which such revision would pertain, Contractor may, if acceptable to and approved by the SCCOE, perform such Work in accordance with the revised standard specifications.

1.4.2. Conflicting Requirements: Where compliance with two or more standards is specified, and the standards may establish different or conflicting requirements for minimum quantities or quality levels, refer requirements that are different, but apparently equal, and uncertainties to the SCCOE for a decision before proceeding.

1.4.3. 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 the requirements. Refer uncertainties to SCCOE for a decision before proceeding.

1.4.4. Copies of Standards: Each entity engaged in construction on the Project is required to be familiar with industry standards applicable to that entity's construction activity. Copies of applicable standards are not bound with the Contract Documents.

1.4.5. Copies from the Publication Source: Where copies of standards are needed for performance of a required construction activity, Contractor shall obtain copies directly from the publication source.

1.5. SCHEDULE OF REFERENCES

The following information is intended only for the general assistance of Contractor. SCCOE does not represent the accuracy of the information. Contractor shall independently verify the information for each entities listed below:

AA	Aluminum Association 900 19th Street NW, Suite 300 Washington, DC 20006 www.aluminum.org	202/862-5100
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503	202/737-0202

	Washington, DC 20005 www.aabchq.com	
AAMA	American Architectural Manufacturers Association 1827 Walden Office Sq., Suite 104 Schaumburg, IL 60173-4268 www.aamanet.org	847/303-5664
AASHTO	American Association of State Highway and Transportation Officials 444 North Capitol Street, Suite 249 Washington, DC 20001 www.aashto.org	202/624-5800
AATCC	American Association of Textile Chemists and Colorists P.O. Box 12215 One Davis Drive Research Triangle Park, NC 27709-2215 www.aatcc.org	919/549-8141
ACI	American Concrete Institute P.O. Box 9094 Farmington Hills, MI 48333-9094 www.aci-int.org	248/848-3700
ACPA	American Concrete Pipe Association 222 West Las Colinas Blvd., Suite 641 Irving, TX 75039-5423 www.concrete-pipe.org	972/506-7216
ADC	Air Diffusion Council 11 South LaSalle St., Suite 1400 Chicago, IL 60603 http://www.flexibleduct.org/index.asp	312/201-0101
AFPA	American Forest and Paper Association 1111 19th St., NW, Suite 800 Washington, DC 20036 http://www.afandpa.org/	202/463-2700
AGA	American Gas Association 1515 Wilson Blvd. Arlington VA 22209 www.aga.com	703/841-8400
AHA	American Hardboard Association 1210 W. Northwest Hwy Palatine, IL 60067-1897 http://domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute Research Park Drive P.O. Box 14052 Lexington, KY 40512-4052	606/288-4960

	www.asphaltinstitute.org	
AIA	The American Institute of Architects 1735 New York Avenue, NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction One East Wacker Drive, Suite 3100 Chicago, IL 60601-2001 http://www.aisc.org/	800/644-2400
AITC	American Institute of Timber Construction 7012 S. Revere Pkwy., Suite 140 Englewood, CO 80112 www.aitc-glulam.org	303/792-9559
ALCA	Associated Landscape Contractors of America 12200 Sunrise Valley Drive, Suite 150 Reston, VA 20191 www.alca.org	703/620-6363
ALI	Associated Laboratories, Inc. P.O. Box 152837 1323 Wall St. Dallas, TX 75315 http://www.assoc-labs.com/	214/565-0593
ALSC	American Lumber Standards Committee P.O. Box 210 Germantown, MD 20875	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004-1893 www.amca.org	847/394-0150
ANLA	American Nursery and Landscape Association 1250 Eye Street, NW, Suite 500 Washington, DC 20005	202/789-2900
ANSI	American National Standards Institute 11 West 42nd Street, 13th Floor New York, NY 10036-8002 www.ansi.org	212/642-4900
APA	APA-The Engineered Wood Association P.O. Box 11700 Tacoma, WA 98411-0700 www.apawood.org	206/565-6600
APA	Architectural Precast Association P.O. Box 08669 Fort Myers, FL 33908-0669	941/454-6989

ARI	Air Conditioning and Refrigeration Institute 4301 Fairfax Drive, Suite 425 Arlington, VA 22203 www.ari/org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association Center Park 4041 Powder Mill Road, Suite 404 Calverton, MD 20705	301/231-9050
ASA	Acoustical Society of America 500 Sunnyside Blvd. Woodbury, NY 11797	516/576-2360
ASCE	American Society of Civil Engineers- World Headquarters 1801 Alexander Bell Drive Reston, VA 20190-4400 www.asce.org	800/548-2723 703/295-6000
ASHRAE	American Society of Heating, Refrigerating and Air Conditioning Engineers 1791 Tullie Circle, NE Atlanta, GA 30329-2305 www.ashrae.org	800/527-4723 404/636-8400
ASLA	American Society of Landscape Architects 4401 Connecticut Ave., NW, 5th Floor Washington, DC 20008-2369 www.asla.org	202/686-2752
ASME	American Society of Mechanical Engineers 345 East 47th Street New York, NY 10017-2392 www.asme.org	800/434-2763
ASPE	American Society of Plumbing Engineers 3617 Thousand Oaks Blvd., Suite 210 Westlake, CA 91362-3649	805/495-7120
ASQC	American Society for Quality Control 611 E. Wisconsin Avenue Milwaukee, WI 53201-3005 www.asqc.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 28901 Clemens Road Westlake, OH 44145 www.asse-plumbing.org	216/835-3040
ASTM	American Society for Testing and Materials 100 Barr Harbor Drive West Conshohocken, PA 19428-2959 www.astm.org	610/832-9500

AWCI	Association of the Wall and Ceiling Industries--International 307 E. Annandale Road, Suite 200 Falls Church, VA 22042-2433 www.awci.org	703/534-8300
AWPA	American Wood-Preservers' Association 3246 Fall Creek Highway, Suite 1900 Granbury, TX 76049-7979	817/326-6300
AWS	American Welding Society 550 NW LeJeune Road Miami, FL 33126 www.amweld.org	800/443-9373 305/443-9353
AWWA	American Water Works Association 6666 West Quincy Avenue Denver, CO 80235 www.awwa.org	800/926-7337 303/794-7711
BHMA	Builders' Hardware Manufacturers Association 355 Lexington Avenue, 17th Floor New York, NY 10017-6603	212/661-4261
CBM	Certified Ballast Manufacturers Association 1422 Euclid Avenue, Suite 402 Cleveland, OH 44115-2094	216/241-0711
CGA	Compressed Gas Association 1725 Jefferson Davis Hwy, Suite 1004 Arlington, VA 22202-4102 www.cganet.com	703/412-0900
CISCA	Ceilings & Interior Systems Construction Association 1500 Lincoln Hwy, Suite 202 St. Charles, IL 60174 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 5959 Shallowford Road, Suite 419 Chattanooga, TN 37421	423/892-0137
CPSC	Consumer Product Safety Commission East West Towers 4330 East-West Hwy. Bethesda, MD 20814	800/638-2772
CPPA	Corrugated Polyethylene Pipe Association 432 N. Superior Street Toledo, OH 43604	800/510-2772 419/241-2221
CRA	California Redwood Association 405 Enfrente Drive, Suite 200	415/382-0662

	Novato, CA 94949	
CRI	Carpet and Rug Institute 310 S. Holiday Avenue Dalton, GA 30722-2048 www.carpet-rug.com	800/882-8846 706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173-4758 www.crsi.org	847/517-1200
CTI	Ceramic Tile Institute of America 12061 W. Jefferson Blvd. Culver City, CA 90230-6219	310/574-7800
DHI	Door and Hardware Institute 14170 Newbrook Drive Chantilly, VA 20151-2223 www.dhi.org	703/222-2010
DIPRA	Ductile Iron Pipe Research Association 245 Riverchase Pkwy East, Suite O Birmingham, AL 35244	205/988-9870
DOC	Department of Commerce 14th Street and Constitution Avenue, NW Washington, DC 20230	202/482-2000
DOT	Department of Transportation 400 Seventh Street, SW Washington, DC 20590	202/366-4000
EJMA	Expansion Joint Manufacturers Association 25 N. Broadway Tarrytown, NY 10591-3201	914/332-0040
EPA	Environmental Protection Agency 401 M Street, SW Washington, DC 20460	202/260-2090
FCICA	Floor Covering Installation Contractors Association P.O. Box 948 Dalton, GA 30722-0948	706/226-5488
FM	Factory Mutual 1151 Boston-Providence Turnpike P.O. Box 9102 Norwood, MA 02062-9102 www.factorymutual.com	781/255-4300
FS	Federal Specifications Unit (Available from GSA) 470 East L'Enfant Plaza, SW, Suite 8100	202/619-8925

	Washington, DC 20407	
GA	Gypsum Association 810 First Street NE, Suite 510 Washington, DC 20002 www.usg.com	202/289-5440
GANA	Glass Association of North America 3310 SW Harrison Street Topeka, KS 66611-2279 www.glasswebsite.com/gana	913/266-7013
HMA	Hardwood Manufacturers Association 400 Penn Center Blvd., Suite 530 Pittsburgh, PA 15235-5605 www.hardwood.org	412/828-0770
HPVA	Hardwood Plywood and Veneer Association 1825 Michael Farraday Drive P.O. Box 2789 Reston, VA 22195-0789 www.hpva.org	703/435-2900
IEEE	Institute of Electrical and Electronic Engineers 345 E. 47th Street New York, NY 10017-2394 www.ieee.org	800/678-4333 212/705-7900
IESNA	Illuminating Engineering Society of North America 120 Wall Street, 17th Floor New York, NY 10005-4001 www.iesna.org	212/248-5000
ITS	Intertek Testing Services P.O. Box 2040 607/753-6711 3933 US Route 11 Cortland, NY 13045-7902 www.itsglobal.com	800/345-3851
LMA	Laminating Materials Association 116 Lawrence Street Hillsdale, NJ 07642-2730 www.lma.org	201/664-2700
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850-4329	301/869-5800
ML/SFA	Metal Lath/Steel Framing Association (A Division of the NAAMM) 8 South Michigan Avenue, Suite 1000 Chicago, IL 60603	312/456-5590
MSS	Manufacturers Standardization Society for the Valve and Fittings Industry	703/281-6613

	127 Park Street, NE Vienna, VA 22180-4602	
NAA	National Arborist Association P.O. Box 1094 603/673-3311 Amherst, NH 03031-1094 www.natlarb.com	800/733-2622
NAAMM	National Association of Architectural Metal Manufacturers 8 South Michigan Avenue, Suite 1000 Chicago, IL 60603 www.gss.net/naamm	312/782-5590
NAIMA	North American Insulation Manufacturers Association 44 Canal Center Plaza, Suite 310 Alexandria, VA 22314 www.naima.org	703/684-0084
NAPA	National Asphalt Pavement Association NAPA Building 5100 Forbes Blvd. Lanham, MD 20706-4413	301/731-4748
NCSPA	National Corrugated Steel Pipe Association 1255 23rd Street, NW, Suite 850 Washington, DC 20037 www.ncspa.org	202/452-1700
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877-4121	301/977-3698
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814-5372	301/657-3110
NEI	National Elevator Industry 185 Bridge Plaza North, Suite 310 Fort Lee, NJ 07024	201/944-3211
NEMA	National Electrical Manufacturers' Association 1300 N. 17th Street, Suite 1847 Rosslyn, VA 22209 www.nema.org	703/841-3200
NFPA	National Fire Protection Association One Batterymarch Park P.O. Box 9101 Quincy, MA 02269-9101 www.nfpa.org	800/344-3555 617/770-3000
NHLA	National Hardwood Lumber Association P.O. Box 34518	901/377-1818

	Memphis, TN 38184-0518 www.natlhardwood.org	
NIA	National Insulation Association 99 Canal Center Plaza, Suite 222 Alexandria, VA 22314 www.insulation.org	703/683-6422
NPA	National Particleboard Association 18928 Premiere Court Gaithersburg, MD 20879-1569 www.pbmdf.com	301/670-0604
NPCA	National Paint and Coatings Association 1500 Rhode Island Avenue, NW Washington, DC 20005-5597 www.paint.org	202/462-6272
NRCA	National Roofing Contractors Association O'Hare International Center 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.roofonline.org	800/323-9545
NRMCA	National Ready Mixed Concrete Association 900 Spring Street Silver Spring, MD 20910 www.nrmca.org	301/587-1400
NSF	NSF International P.O. Box 130140 Ann Arbor, MI 48113-0140 www.nsf.org	313/769-8010
NUSIG	National Uniform Seismic Installation Guidelines 12 Lahoma Court Alamo, CA 94526	510/946-0135
NWWDA	National Wood Window and Door Association 1400 E. Touhy Avenue, G-54 Des Plaines, IL 60018 www.nwwda.org	800/223-2301 847/299-5200
SHA	Occupational Safety and Health Administration (U.S. Department of Labor) 200 Constitution Ave., NW Washington, DC 20210	202/219-8148
PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077-1083 www.portcement.org	847/966-6200
PDCA	Painting and Decorating Contractors of America	800/332-7322 703/359-0826

	3913 Old Lee Hwy, Suite 33-B Fairfax, VA 22030 www.pdca.com	
PDI	Plumbing and Drainage Institute 45 Bristol Drive, Suite 101 South Easton, MA 02375	800/589-8956 508/230-3516
RFCI	Resilient Floor Covering Institute 966 Hungerford Drive, Suite 12-B Rockville, MD 20805-1714	301/340-8580
RIS	Redwood Inspection Service c/o California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949-7206	415/382-0662
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60012 www.sdi.org	847/462-1930
SDI	Steel Door Institute 30200 Detroit Road Cleveland, OH 44145-1967	216/889-0010
SMA	Stucco Manufacturers Association 14006 Ventura Blvd. Sherman Oaks, CA 91403	213/789-8733
SMACNA	Sheet Metal and Airconditioning Contractors National Association, Inc. P.O. Box 221230 Chantilly, VA 20151-1209 www.smacna.org	703/803-2980
SPI	Society of the Plastics Industry, Inc. Spray Polyurethane Division 1801 K Street, NW, Suite 600K Washington, DC 20006 www.socplas.org	800/951-2001 202/974-5200
SSPC	Steel Structures Painting Council 40 24th Street, 6th Floor Pittsburgh, PA 15222-4643	412/281-2331
TCA	Tile Council of America 100 Clemson Research Blvd. Anderson, SC 29625	864/646-8453
TPI	Turfgrass Producers International 1855-A Hicks Road Rolling Meadows, IL 60008	800/405-8873 847/705-9898
UL	Underwriters Laboratories, Inc.	800/704-4050

	333 Pfingston Road Northbrook, IL 60062 www.ul.com	847/272-8800
UNI	Uni-Bell PVC Pipe Association 2655 Villa Creek Drive, Suite 155 Dallas, TX 75234 www.members.aol.com/unibell1	972/243-3902
USDA	U.S. Department of Agriculture 14th St. and Independence Ave., SW Washington, DC 20250	202/720-8732
WA	Wallcoverings Association 401 N. Michigan Avenue Chicago, IL 60611-4267	312/644-6610
WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281-3145	503/639-0651
WCMA	Window Covering Manufacturers Association 355 Lexington Ave., 17th Floor New York, NY 10017-6603	212/661-4261
WIC	Woodwork Institute of California P.O. Box 980247 West Sacramento, CA 95798-0247	916/372-9943
WLPDIA	Western Lath/Plaster/Drywall Industries Association 8635 Navajo Road San Diego, CA 92119	619/466-9070
WMMPA	Wood Moulding & Millwork Producers Association 507 First Street Woodland, CA 95695 www.wmmpa.com	800/550-7889 916/661-9591
WRI	Wire Reinforcement Institute 203 Loudoun Street, SW Leesburg, VA 20175-2718	703/779-2339
WWPA	Western Wood Products Association Yeon Building 522 S.W. 5th Avenue Portland, OR 97204-2122	503/224-3930

END OF DOCUMENT

DOCUMENT 01 45 29

TESTING LABORATORY SERVICES

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including “Tests and Inspections”; and

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any).

1.2. DOCUMENT INCLUDES

1.2.1. Observation and Supervision.

1.2.2. Testing Laboratories and Agencies

1.2.3. Tests and Inspections

1.2.4. Selection and Payment

1.2.5. SCCOE's Testing Laboratory Responsibilities

1.2.6. Laboratory reports.

1.2.7. Limits on testing laboratory authority.

1.2.8. Contractor responsibilities.

1.2.9. Schedule of inspections and tests.

1.2.10. Project Inspector’s Access to Site

1.3. REFERENCES

1.3.1. ASTM D3740 - Practice for Evaluation of Agencies Engaged in Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction.

1.3.2. ASTM E329 - Recommended Practice for Inspection and Testing Agencies for Concrete, Steel, and Bituminous Materials as Used in Construction.

1.3.3. CBC - California Building Code.

1.3.4. UBC - Uniform Building Code.

1.3.5. Title 24, Parts 1 and 2, of the California Code of Regulations. Contractor shall keep a copy of these available at the job Site for ready reference during construction

1.4. OBSERVATION AND SUPERVISION

1.4.1. The SCCOE and Architect or their appointed representatives will review the Work and the Contractor shall provide facilities and access to the Work at all times as required to facilitate this review. Administration by the Architect and any consulting Structural Engineer will be in accordance with applicable regulations, including, without limitation, 24 C.C.R. § 4-341.

1.4.2. Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to 24 C.C.R. § 4-343. Contractor shall supervise and direct the Work and maintain a competent superintendent on the Project who is authorized to act in all matters pertaining to the Work. The Contractor shall inspect all materials, as they arrive, for compliance with the Contract Documents. Contractor shall reject defective Work or materials immediately upon delivery or failure of the Work or material to comply with the Contract Documents. The Contractor shall submit verified reports as indicated in the Contract Documents, including, without limitation, the Specifications and as required by 24 C.C.R. § 4-336.

1.5. TESTING LABORATORIES AND AGENCIES

1.5.1. Testing agencies and tests shall be in conformance with the Contract Documents and the requirements of 24 C.C.R. § 4-335.

1.5.2. Testing and inspection in connection with earthwork shall be under the direction of the SCCOE's consulting soils engineer ("Soils Engineer").

1.5.3. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory ("Testing Laboratory" or "Laboratory"). The Testing Laboratory shall be under direction of an engineer registered in the State of California, shall conform to requirements of ASTM E329, and shall be employed by or in contract with the SCCOE.

1.6. TESTS AND INSPECTIONS

1.6.1. Contractor shall be responsible for notifying SCCOE and Project Inspector of all required tests and inspections. Contractor shall notify SCCOE and Project Inspector forty-eight (48) hours in advance of performing any Work requiring testing or inspection.

1.6.2. Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.

1.6.3. SCCOE will pay for first inspections and tests required by the Title 24 and other inspections or tests that SCCOE and/or Architect may direct to have made, including, but not limited to, the following principal items:

1.6.3.1. Tests and observations for earthwork and pavings.

1.6.3.2. Tests for concrete mix designs, including tests of trial batches.

1.6.3.3. Tests and inspections for structural steel work.

1.6.3.4. Field tests for framing lumber moisture content.

1.6.3.5. Additional tests directed by SCCOE that establish that materials and installation comply with the Contract Documents.

1.6.3.6. Test and observation of welding and expansion anchors.

1.6.3.7. Factory observation of components and assembly of modular prefabrication structures and buildings.

1.6.4. SCCOE may at its discretion, pay and back charge Contractor for:

1.6.4.1. Retests or reinspections, if required, and tests or inspection required due to Contractor error or lack of required identifications of material.

1.6.4.2. Uncovering of work in accordance with Contract Documents.

1.6.4.3. Testing done on weekends, holidays, and overtime will be chargeable to Contractor for the overtime portion.

1.6.4.4. Testing done off site.

1.6.5. Testing and inspection reports and certifications:

1.6.5.1. If initially received by Contractor, Contractor shall provide to each of the following a copy of the agency or laboratory report of each test or inspection or certification: SCCOE; Construction Manager, if any; Architect; Consulting Engineer, if any; Other Engineers on the Project, as appropriate; and; Project Inspector.

1.7. SELECTION AND PAYMENT

1.7.1. SCCOE will hire and pay for services of an independent Testing Laboratory to perform specified inspection and testing as specified by SCCOE's Testing Laboratory.

1.7.2. SCCOE's hiring of Testing Laboratory shall in no way relieve Contractor of its obligation to perform work in accordance with requirements of Contract Documents.

1.8. SCCOE'S TESTING LABORATORY RESPONSIBILITIES

1.8.1. Test samples of mixes submitted by Inspector.

1.8.2. Perform specified inspection, sampling, and testing of Products in accordance with specified standards.

1.8.3. Notify Architect and Contractor of observed irregularities or non-conformance of Work or Products.

1.8.4. Attend preconstruction conferences and progress meetings when requested by Architect.

1.9. LABORATORY REPORTS

1.9.1. After each inspection and test, SCCOE shall then submit one copy of laboratory report to Contractor. Reports of test results of materials and inspections found not to be in compliance with the requirements of the Contract Documents shall be forwarded immediately.

1.9.2. Each Testing Laboratory shall submit a verified report covering all of the tests which were required to be made by that agency during the progress of the Project. Such report shall be furnished each time that Work is suspended, covering the tests up to that time and at the Completion of the Project, covering all tests.

1.10. LIMITS ON TESTING LABORATORY AUTHORITY

1.10.1. Laboratory may not release, revoke, alter, or enlarge on requirements of Contract Documents.

1.10.2. Laboratory may not approve or accept any portion of the Work.

1.10.3. Laboratory may not assume any duties of Contractor.

1.10.4. Laboratory has no authority to stop the Work.

1.11. CONTRACTOR RESPONSIBILITIES

1.11.1. Submit proposed items for testing as required herein and/or as further required in the Contract Documents to Architect for review in accordance with applicable specifications.

1.11.2. Cooperate with Laboratory personnel, and provide access to the Work and to manufacturer's facilities.

1.11.3. Notify Architect, SCCOE, and Testing Laboratory 48 hours prior to expected time for operations requiring inspection and testing services.

1.11.4. When tests or inspections cannot be performed after such notice, reimburse SCCOE for Laboratory personnel and travel expenses incurred due to the Contractor's negligence.

1.11.5. Contractor shall notify SCCOE a sufficient time in advance of the manufacture of material to be supplied by Contractor pursuant to the Contract Documents, which must by terms of the Contract be tested, in order that the SCCOE may arrange for the testing of same at the source of supply.

1.11.5.1. Any material shipped by the Contractor from the source of supply prior to having satisfactorily passed such testing and inspection or prior to the receipt of notice that such testing and inspection will not be required shall not be incorporated in the Work.

1.11.6. Contract and pay for services of SCCOE's Testing Laboratory to perform additional inspections, sampling and testing required when initial tests indicate Contractor's work and/or materials does not comply with Contract Documents.

1.12. SCHEDULE OF INSPECTIONS AND TESTS

The Testing Laboratory shall perform tests and inspections for the following in conformance with the (CBC) California Building Code (International Building Code with State of California Amendments), California Code of Regulations, Title 24, Part 2:

- Structural Tests and Special Inspections (Chapter 17A)
  - Special Inspections (§ 1704A)
- Soils and Foundations (Chapter 18A)
  - Geotechnical Investigations (§ 1803A)
- Concrete (Chapter 19A)
  - Specifications for Tests and Materials
  - Concrete Quality, Mixing and Placing
  - Concrete Reinforcement and Anchor Testing Inspection (§ 1916A)
- Masonry (Chapter 21A)
  - Masonry Construction Materials (§ 2103A)
  - Masonry Quality (§ 2103A)
  - Quality Assurance (§ 2105A)
- Structural Steel (Chapter 22A)
    - Structural Steel (§ 2205A)
    - Identification & Protection of Steel for Structural Purposes (§ 2203A)
  - Inspection and Tests of Structural Steel (§ 2212A)
- Wood (Chapter 23)
  - Minimum Standards and Quality (§ 2303)
  - Wood Construction (§ 1704A.6)
- Exterior Walls (Chapter 14)
    - Masonry Units (§ 1404.4)
    - Masonry Construction Materials (§ 2103A)
  - Exterior Insulation and Finish Systems (§ 1408)
- Roof Assemblies and Roofing Structures (Chapter 15)
  - Materials (§ 1506)
- Aluminum (Chapter 20)
  - Materials (§ 2002.1)
  - Inspection (§ 2003.1)

1.12.1. **Plumbing**

Testing as specified in Division 15 including, but not limited to: Sterilization, soil waste and vent, water piping, source of water, gas piping, downspouts and storm drains.

1.12.2. **Automatic Fire Sprinklers (where applicable)**

Testing as specified in Division 15 shall include, but not be limited to: hydrostatic pressure.

1.12.3. **Heating, Ventilating and Air Conditioning**

Testing as specified in Division 15 shall include, but not be limited to: Ductwork tests, cooling tower tests, boiler tests, controls testing, piping tests, water and air systems, and test and balance of heating and air conditioning systems.

1.12.4. **Electrical**

Testing as specified in Division 16, including, but not limited to: Equipment testing, all electrical system operations, grounding system and checking insulation after cable is pulled.

1.13. **PROJECT INSPECTOR'S ACCESS TO SITE**

1.13.1. A Project Inspector employed by the SCCOE in accordance with the requirement of State of California Code of Regulations, Title 24, Part 1 will be assigned to the Work. Project Inspector's duties are specifically defined in 24. C.C.R. §4-342, and as indicated in the General Conditions.

1.13.2. SCCOE and Construction Manager shall at all times have access for the purpose of inspection to all parts of the Work and to the shops wherein the Work is in preparation, and Contractor shall at all times maintain proper facilities and provide safe access for such inspection.

1.13.3. The Work in all stages of progress shall be subject to the personal continuous observation of the Inspector. Inspector shall have free access to any or all parts of the Work at any time. Contractor shall furnish the Inspector reasonable facilities for obtaining such information as may be necessary to keep Inspector fully informed respecting the progress and manner of the Work and the character of the materials. Inspection of the Work shall not relieve the Contractor from any obligation set forth in the Contract Documents.

1.13.4. The Inspector is not authorized to change, revoke, alter, enlarge or decrease in any way any requirement of the Contract Documents, drawings, specifications or subsequent change orders.

1.13.5. Whenever there is insufficient evidence of compliance with any of the provisions of Title 24 or evidence that any material or construction does not conform to the requirements of Title 24, the Division of the State Architect may require tests as proof of compliance. Test methods shall be as specified herein or by other recognized and accepted test methods determined by the Division of the State Architect. All tests shall be performed by a testing laboratory accepted by the Division of the State Architect.

END OF DOCUMENT

DOCUMENT 01 50 00
TEMPORARY FACILITIES AND CONTROLS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Site Standards; and

1.1.5. Temporary Tree and Plant Protection.

1.2. TEMPORARY UTILITIES

1.2.1. **Electric Power and Lighting**:

1.2.1.1. Contractor will furnish and pay for power during the course of the work to the extent power is not in the building(s) or on the Site. Contractor shall be responsible for providing temporary facilities required on the Site to point of intended use.

1.2.1.2. Contractor shall furnish, wire for, install, and maintain temporary electrical lights wherever it is necessary to provide illumination for the proper performance and/or observation of the Work: a minimum of 20 foot-candles for rough work and 50 foot-candles for finish work.

1.2.1.3. Contractor shall be responsible for maintaining existing lighting levels in the Project vicinity should temporary outages or service interruptions occur.

1.2.2. **Heat and Ventilation**:

1.2.2.1. Contractor shall provide temporary heat to maintain environmental conditions to facilitate progress of the Work, to meet specified minimum conditions for the installation and curing of materials, and to protect materials and finishes from damage due to improper temperature and humidity conditions. Portable heaters shall be standard units complete with controls.

1.2.2.2. Contractor shall provide forced ventilation and dehumidification, as required, of enclosed areas for proper installation and curing of materials, to disperse humidity, and to prevent hazardous accumulations of dust, fumes, vapors, and gases.

1.2.2.3. Contractor shall pay the costs of installation, maintenance, operation, and removal of temporary heat and ventilation, including costs for fuel consumed, required for the performance of the Work.

1.2.3. **Water**:

1.2.3.1. Contractor will furnish and pay for water during the course of the work. Contractor shall be responsible for providing temporary facilities required.

1.2.3.2. Contractor shall make potable water available for human consumption.

1.2.4. **Sanitary Facilities**:

1.2.4.1. Contractor shall provide sanitary temporary facilities in no fewer numbers than required by law and such additional facilities as may be directed by the Inspector for the use of all workers. The facilities shall be maintained in a sanitary condition at all times and shall be left at the Site until removal is directed by the SCCOE or Contractor completes all Work.

1.2.4.2. Use of toilet facilities in the Site shall not be permitted except by consent of the Project Inspector and SCCOE.

1.2.5. **Telephone Service**:

1.2.5.1. Contractor shall arrange with local telephone service company for telephone service for the performance of the Work. Contractor shall, at a minimum, provide in its field office one line for telephone and one line for fax machine.

1.2.5.2. Contractor shall pay the costs for telephone and fax lines installation, maintenance, service, and removal; for Construction Site Office, Construction Manager's Office and Inspector's Office.

1.2.6. **Fire Protection:**

1.2.6.1. Contractor shall provide and maintain fire extinguishers and other equipment for fire protection. Such equipment shall be designated for use for fire protection only and shall comply with all requirements of the California Fire, State Fire Marshall and/or its designee.

1.2.6.2. Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

1.2.7. **Trash Removal:**

1.2.7.1. Contractor shall provide trash removal on a timely basis from all Site Offices and throughout the Site.

1.2.8. **Temporary Facilities:**

1.2.8.1. Contractor shall provide sufficient space and facilities for its own force's needs.

1.2.8.2. In addition, unless otherwise indicated in the Contract Documents, Contractor shall provide the following facilities, trailers, offices, furniture and:

1.2.8.2.1. One (1) office trailer that will accommodate a meeting space for 10-12 people.

1.2.8.2.2. Basic furniture: chair, desks, plan table, conference room table, and chairs.

1.2.8.2.3. Basic services: fixed line for phone, fax, and high-speed internet service.

1.3. CONSTRUCTION AIDS

1.3.1. **Plant and Equipment:**

1.3.1.1. Contractor shall furnish, operate, and maintain a complete plant for fabricating, handling, conveying, installing, and erecting materials and equipment; and for conveyances for transporting workmen. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.

1.3.1.2. Contractor shall maintain plant and equipment in safe and efficient operating condition. Damages due to defective plant and equipment, and uses made thereof, shall be repaired by Contractor at no expense to the SCCOE.

1.3.2. No SCCOE tools or equipment shall be used by Contractor or its subcontractors for the performance of the Work.

1.4. BARRIERS AND ENCLOSURES

1.4.1. Contractor shall obtain SCCOE's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

1.4.2. Contractor shall provide a six (6) foot high, chain link perimeter fence with posts driven into the ground and fabric screen as a temporary barrier around construction area. Contractor shall provide and maintain temporary enclosures to prevent public entry and to protect persons using other buildings and portions of the Site and/or Premises. Contractor shall remove temporary fence, barriers and enclosure upon Completion of the Work.

1.4.3. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, for the public, and for deliveries and other services and activities.

1.5. SECURITY

Contractor shall secure all construction equipment, machinery and vehicles, park and store only within fenced area, and render inoperable during non-work hours. Contractor is responsible for ensuring that no construction materials, tools, equipment, machinery or vehicles can be used for unauthorized entry or other damage or interference to activities and security of existing facilities adjacent to and in the vicinity of the Project Site.

1.6. TEMPORARY CONTROLS

1.6.1. **Noise Control**:

1.6.1.1. Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work, and Contractor shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.

1.6.1.2. Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to SCCOE a minimum of forty-eight (48) hours in advance of their performance.

1.6.2. **Noise and Vibration**:

1.6.2.1. Equipment and impact tools shall have intake and exhaust mufflers.

1.6.2.2. Contractor shall cooperate with SCCOE to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

1.6.3. **Dust and Dirt**:

1.6.3.1. Contractor shall conduct demolition and construction operations to minimize the generation of dust and dirt, and prevent dust and dirt from interfering with the progress of the Work and from accumulating in the Work and adjacent areas including, without limitation, occupied facilities.

1.6.3.2. Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.

1.6.3.3. Contractor shall ensure that all hauling equipment and trucks carrying loads of soil and debris shall have their loads sprayed with water or covered with tarpaulins, and as otherwise required by local and state ordinance.

1.6.3.4. Contractor shall prevent dust and dirt from accumulating on walks, roadways, parking areas, and planting, and from washing into sewer and storm drain lines.

1.6.4. **Surface and Subsurface Water:**

Contractor shall not permit surface and subsurface water, and other liquids, to accumulate in or about the vicinity of the Premises. Should accumulation develop, Contractor shall control the water or other liquid, and suitably dispose of it by means of temporary pumps, piping, drainage lines, troughs, ditches, dams, or other methods.

1.6.5. **Pollution**:

1.6.5.1. No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.

1.6.5.2. Contractor shall comply with applicable regulatory requirements and anti-pollution ordinances during the conduct of the Work including, without limitation, demolition, construction, and disposal operations.

1.6.6. **Lighting**

If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

1.7. JOB SIGN(S)

1.7.1. **General:**

1.7.1.1. Contractor shall provide and maintain and locate a Project identification sign with the design, text, and colors designated by SCCOE and/or the Architect.

1.7.1.2. Signs other than the specified Project sign and or signs required by law, for safety, or for egress, shall not be permitted, unless otherwise approved in advance by the SCCOE.

1.7.2. **Materials:**

1.7.2.1. Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.

1.7.2.2. Sign Surface: Minimum 3/4-inch exterior grade plywood.

1.7.2.3. Rough Hardware: Galvanized.

1.7.2.4. Paint: Exterior quality, of type and colors selected by the SCCOE and/or the Architect.

1.7.3. **Fabrication:**

1.7.3.1. Contractor shall fabricate to provide smooth, even surface for painting.

1.7.3.2. Size: 4'-0" x 8'-0", unless otherwise indicated.

1.7.3.3. Contractor shall paint exposed surfaces of supports, framing, and surface material with exterior grade paint: one coat of primer and one coat of finish paint.

1.7.3.4. Text and Graphics: As indicated.

1.8. PUBLICITY RELEASES

Contractor shall not release any information, story, photograph, plan, or drawing relating to information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s).

END OF DOCUMENT

DOCUMENT 01 52 10

SITE STANDARDS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS:

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including without limitation, Site Access, Conditions, and Regulations;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Drug-Free Workplace Certification;

1.1.5. Tobacco-Free Environment Certification;

1.1.6. Criminal Background Investigation/Fingerprinting Certification; and

1.1.7. Temporary Facilities and Controls.

1.2. REQUIREMENTS OF THE SCCOE

1.2.1. **Drug-Free Schools and Safety Requirements:**

1.2.1.1. All school sites and other SCCOE Facilities have been declared “Drug-Free Zones.” No drugs, alcohol, smoking or the use of tobacco products are allowed at any time in any buildings, Contractor-owned vehicles or vehicles owned by others while on SCCOE property. No students, staff, visitors, or contractors are to use drugs on these sites.

1.2.1.2. Contractor shall post: "Non-Smoking Area" in a highly visible location on Site. Contractor may designate a smoking area outside of SCCOE property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area must be kept clean at all times.

1.2.1.3. Contractor shall ensure that no alcohol, firearms, weapons, or controlled substances enter or are used at the Site. Contractor shall immediately remove from the Site and terminate the employment of any employee(s) found in violation of this provision.

1.2.2. **Language**: Unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students or public will not be allowed.

1.2.3. **Disturbing the Peace (Noise and Lighting):**

1.2.3.1. Contractor shall observe the noise ordinance of the Site at all times including, without limitation, all applicable local, city, and/or state laws, ordinances, and/or regulations regarding noise and allowable noise levels.

1.2.3.2. The use of radios, etc., shall be controlled to keep all sound at a level that cannot be heard beyond the immediate area of use. SCCOE reserves the right to prohibit the use of radios at the Site, except for handheld communication radios.

1.2.3.3. If portable lights are used after dark, the lights must be located so as not to direct light into neighboring properties.

1.2.4. **Traffic**:

1.2.4.1. Driving on the Premises shall be limited to periods when students and public are not present. If driving or deliveries must be made during the school hours, two (2) or more ground guides shall lead the vehicle across the area of travel. In no case shall driving take place across playgrounds or other pedestrian paths during recess, lunch, and/or class period changes. The speed limit on-the Premises shall be five (5) miles per hour (maximum) or less if conditions require.

1.2.4.2. All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by SCCOE in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.

1.2.4.3. SCCOE shall designate a construction entry to the Site. If Contractor requests, SCCOE determines it is required, and to the extent possible, SCCOE shall designate a staging area so as not to interfere with the normal functioning of school facilities. Location of gates and fencing shall be approved in advance with SCCOE and at Contractor's expense.

1.2.4.4. Parking areas shall be reviewed and approved by SCCOE in advance. No parking is to occur under the drip line of trees or in areas that could otherwise be damaged.

1.2.4.5. All of the above shall be observed and complied with by the Contractor and all workers on the Site. Failure to follow these directives could result in individual(s) being suspended or removed from the work force at the discretion of the SCCOE. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

END OF DOCUMENT

DOCUMENT 01 56 39

TEMPORARY TREE AND PLANT PROTECTION

WHERE SUBSTANTIAL TREE PROTECTION WILL BE REQUIRED ON THE SITE, OBTAIN AN ARBORIST TO REVIEW THIS DOCUMENT PRIOR TO BIDDING.

1. GENERAL

1.1. RELATED DOCUMENTS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Temporary Facilities and Controls.

1.2. SUMMARY

This Document includes the protection and trimming of existing trees that interfere with, or are affected by, execution of the Work, whether temporary or permanent construction.

1.3. DEFINITIONS

Tree Protection Zone: Area surrounding individual trees or groups of trees to remain during construction, and defined by the drip line of individual trees or the perimeter drip line of groups of trees, unless otherwise indicated.

1.4. SUBMITTALS

1.4.1. Product Data: For each type of product indicated.

1.4.2. Tree Pruning Schedule: Written schedule from arborist detailing scope and extent of pruning of trees to remain that interfere with or are affected by construction.

1.4.3. Qualification Data: For tree service firm and arborist.

1.4.4. Certification: From arborist, certifying that trees indicated to remain have been protected during construction according to recognized standards and that trees were promptly and properly treated and repaired when damaged.

1.4.5. Maintenance Recommendations: From arborist, for care and protection of trees affected by construction during and after completing the Work.

1.5. QUALITY ASSURANCE

1.5.1. Tree Service Firm Qualifications: An experienced tree service firm that has successfully completed tree protection and trimming work similar to that required for this Project and that will assign an experienced, qualified arborist to Project site during execution of tree protection and trimming.

1.5.2. Arborist Qualifications: An arborist certified by ISA (International Society of Arboriculture) or licensed in the jurisdiction where Project is located.

1.5.3. Tree Pruning Standard: Comply with ANSI A300 (Part 1), "Tree, Shrub, and Other Woody Plant Maintenance--Standard Practices (Pruning)."

1.5.3.1. Before tree protection and trimming operations begin, meet with SCCOE to review tree protection and trimming procedures and responsibilities.

2. PRODUCTS

2.1. MATERIALS

2.1.1. Unless otherwise specified, Contractor shall select materials as recommended by arborist or landscape architect.

2.1.2. Drainage Fill: Selected crushed stone, or crushed or uncrushed gravel, washed, ASTM D 448, Size 24, with 90 to 100 percent passing a 2-1/2-inch (63-mm) sieve and not more than 10 percent passing a 3/4-inch (19-mm) sieve.

2.1.3. Topsoil: Natural or cultivated surface-soil layer containing organic matter and sand, silt, and clay particles; friable, pervious, and black or a darker shade of brown, gray, or red than underlying subsoil; reasonably free of subsoil, clay lumps, gravel, and other objects more than 1 inch (25 mm) in diameter; and free of weeds, roots, and toxic and other nonsoil materials.

2.1.3.1. Obtain topsoil only from well-drained sites where topsoil is 4 inches (100 mm) deep or more; do not obtain from bogs or marshes.

2.1.4. Filter Fabric: Manufacturer's standard, nonwoven, pervious, geotextile fabric of polypropylene, nylon, or polyester fibers.

2.1.5. Chain-Link Fence: Metallic-coated steel chain-link fence fabric of 0.120-inch- (3-mm-) diameter wire; a minimum of 48 inches (1200 mm) high; with 1.9-inch- (48-mm-) diameter line posts; 2-3/8-inch- (60-mm-) diameter terminal and corner posts; 1-5/8-inch- (41-mm-) diameter top rail; and 0.177-inch- (4.5-mm-) diameter bottom tension wire; with tie wires, hog ring ties, and other accessories for a complete fence system.

2.1.6. Select mulch as recommended by arborist or landscape architect.

2.1.7. Organic Mulch: Use shredded hardwood, ground or shredded bark, or wood and bark chips, all free of deleterious materials.

3. EXECUTION

3.1. PREPARATION

3.1.1. Temporary Fencing: Install temporary fencing around tree protection zones to protect remaining trees and vegetation from construction damage. Maintain temporary fence and remove when construction is complete.

3.1.2. Install chain-link fence according to ASTM F 567 and manufacturer's written instructions.

3.1.3. Protect tree root systems from damage caused by runoff or spillage of noxious materials while mixing, placing, or storing construction materials. Protect root systems from ponding, eroding, or excessive wetting caused by dewatering operations.

3.1.4. Mulch areas inside tree protection zones and other areas indicated.

3.1.4.1. Select mulch as recommended by arborist or landscape architect.

3.1.4.2. Apply 2-inch (50-mm) to 3-inch (75-mm) average thickness of organic mulch. Do not place mulch within 6 inches (150 mm)] of tree trunks.

3.1.5. Do not store construction materials, debris, or excavated material inside tree protection zones. Do not permit vehicles or foot traffic within tree protection zones; prevent soil compaction over root systems.

3.1.6. Maintain tree protection zones free of weeds and trash.

3.1.7. Do not allow fires within tree protection zones.

3.2. EXCAVATION

3.2.1. Install shoring or other protective support systems to minimize sloping or benching of excavations where construction or utility excavation is near trees to be protected.

3.2.2. Do not excavate within tree protection zones, unless otherwise indicated.

3.2.3. Where excavation for new construction is required within tree protection zones, hand clear and excavate to minimize damage to root systems. Use narrow-tine spading forks and comb soil to expose roots.

3.2.3.1. Do not allow exposed roots to dry out before placing permanent backfill. Provide temporary earth cover or pack with peat moss and wrap with burlap. Water and maintain in a moist condition. Temporarily support and protect roots from damage until they are permanently relocated and covered with soil.

3.2.4. Where utility trenches are required within tree protection zones, tunnel under or around roots by drilling, auger boring, pipe jacking, or digging by hand.

3.2.4.1. Root Pruning: Do not cut main lateral roots or taproots; cut only smaller roots that interfere with installation of utilities. Cut roots with sharp pruning instruments; do not break or chop.

3.3. REGRADING

3.3.1. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade beyond tree protection zones. Maintain existing grades within tree protection zones.

3.3.2. Grade Lowering: Where new finish grade is indicated below existing grade around trees, slope grade away from trees as recommended by arborist, unless otherwise indicated.

3.3.2.1. Root Pruning: Prune tree roots exposed during grade lowering. Do not cut main lateral roots or taproots; cut only smaller roots. Cut roots with sharp pruning instruments; do not break or chop.

3.3.3. Minor Fill: Where existing grade is 6 inches (150 mm) or less below elevation of finish grade, fill with topsoil. Place topsoil in a single uncompacted layer and hand grade to required finish elevations.

3.3.4. Moderate Fill: Where existing grade is more than 6 inches (150 mm) but less than 12 inches (300 mm) below elevation of finish grade, place drainage fill, filter fabric, and topsoil on existing grade as follows:

3.3.4.1. Carefully place drainage fill against tree trunk approximately 2 inches (50 mm) above elevation of finish grade and extend not less than 18 inches (450 mm) from tree trunk on all sides. For balance of area within drip-line perimeter, place drainage fill up to 6 inches (150 mm) below elevation of grade.

3.3.4.2. Place filter fabric with edges overlapping 6 inches (150 mm) minimum.

3.3.4.3. Place fill layer of topsoil to finish grade. Do not compact drainage fill or topsoil. Hand grade to required finish elevations.

3.4. TREE PRUNING

3.4.1. Prune trees to remain that are affected by temporary and permanent construction.

3.4.2. Prune trees to remain to compensate for root loss caused by damaging or cutting root system. Provide subsequent maintenance during Contract period as recommended by arborist.

3.4.3. Pruning Standards: Prune trees according to ANSI A300 (Part 1), as recommended by arborist report.

3.4.4. Adjust pruning requirements per arborist's recommendations.

3.4.5. Cut branches with sharp pruning instruments; do not break or chop.

3.4.6. Modify below to specific project requirements.

3.4.7. Chip removed tree branches and dispose of or spread over areas identified by SCCOE.

3.5. TREE REPAIR AND REPLACEMENT

3.5.1. Promptly repair trees damaged by construction operations within 24 hours. Treat damaged trunks, limbs, and roots according to arborist's written instructions.

3.5.2. Remove and replace trees indicated to remain that die or are damaged during construction operations or that are incapable of restoring to normal growth pattern.

3.5.2.1. Provide new trees of 6-inch (150-mm) caliper size and of a when damaged trees more than 6 inches (150 mm) in caliper size, measured 12 inches (300 mm) above grade, are required to be replaced. Plant and maintain new trees as specified in Contract Documents.

3.5.3. Where recommended by arborist report, aerate surface soil, compacted during construction, 10 feet (3 m) beyond drip line and no closer than 36 inches (900 mm) to tree trunk. Drill 2-inch (50-mm) diameter holes a minimum of 12 inches (300 mm) deep at 24 inches (600 mm) o.c. Backfill holes with an equal mix of augered soil and sand.

3.6. DISPOSAL OF WASTE MATERIALS

3.6.1. Burning is not permitted.

3.6.2. Disposal: Remove excess excavated material and displaced trees from Site.

END OF DOCUMENT

DOCUMENT 01 57 10 - [N/A]

STORM WATER POLLUTION PREVENTION PLAN – CONSTRUCTION

IN ORDER TO ENROLL IN THE CONSTRUCTION STORM WATER PERMIT AND BEFORE CONSTRUCTION ACTIVITIES BEGIN, THE SCCOE WILL FILE CERTAIN SUBMITTALS REFERRED TO AS PERMIT REGISTRATION DOCUMENTS (PRDS) WITH THE REGIONAL WATER QUALITY CONTROL BOARD.

THE STATUS OF THE SCCOE'S PRDS (THE RISK ASSESSMENT, SITE MAP(S), AND STORM WATER POLLUTION PREVENTION PLAN (SWPPP)) ARE AS FURTHER INDICATED IN THE CONTRACT DOCUMENTS.

IF THE CONTRACT DOCUMENTS INDICATE THAT CONTRACTOR SHALL BE RESPONSIBLE FOR PREPARING SOME OR ALL OF THE PRDS, CONTRACTOR SHALL FOLLOW THE REQUIREMENTS HEREIN.

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISION

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Site Standards;

1.1.5. Collaborative For High Performance Schools (CHPS) -- Special Environmental.

1.2. The Clean Water Act and Porter Cologne Water Quality Act prohibit the discharge of any water containing pollutants from certain construction sites unless a National Pollutant Discharge Elimination System permit is first obtained and followed. The National Pollutant Discharge Elimination System General Permit for Storm Water Discharges Associated with Construction and Land Disturbance Activities (Construction Storm Water Permit) Order No. 2009-0009-DWQ as amended by Order No. 2010-0014-DWQ (NPDES No. CAS000002) issued by the California State Water Resources Control Board (State Water Board) authorizes the discharge of storm water and certain non-storm water from construction sites if certain conditions and measures are taken. The SCCOE has determined that the construction of this Project requires enrollment in the Construction Storm Water Permit.

2. SUBMITTALS

2.1. GENERAL

All submittals shall be made in a form conducive for the SCCOE to electronically upload the approved submittals to the Storm water Multi-Application Reporting and Tracking System (SMARTS).

2.2. RISK ASSESSMENT

2.2.1. Concurrent with the Submittal Schedule as indicated in the General Conditions,

Contractor shall prepare and submit a proposed "Risk Assessment" as set forth in the Construction Storm Water Permit.

2.2.2. The SCCOE's Qualified SWPPP Developer ("QSD") will review the Contractor's proposed Risk Assessment for compliance with the Construction Storm Water Permit. If changes to the proposed Risk Assessment are required to comply with the Construction Storm Water Permit, the SCCOE QSD will identify such changes to the Contractor.

2.2.3. Contractor shall make the changes specified by the SCCOE's QSD and shall submit the revised Risk Assessment to the SCCOE within seven (7) days of receipt of the changes identified by the SCCOE's QSD. If the changes had been acceptably made, the SCCOE's QSD will approve the Risk Assessment and provide the Contractor with a copy within seven (7) days of receipt of the revised Risk Assessment.

2.3. SITE MAPS

2.3.1. Concurrent with the Submittal Schedule as indicated in the General Conditions, Contractor shall prepare and submit proposed "Site Maps" as described in Attachment B of the Construction Storm Water Permit.

2.3.2. The SCCOE's QSD will review the Contractor's proposed Site Maps for compliance with the Construction Storm Water Permit. If changes to the proposed Site Maps are required to comply with the Construction Storm Water Permit, the SCCOE QSD will identify such changes to the Contractor.

2.3.3. Contractor shall make the changes specified by the SCCOE's QSD and shall submit the revised Site Maps to the SCCOE within seven (7) days of receipt of the changes identified by the SCCOE's QSD. If the changes had been acceptably made, the SCCOE's QSD will approve the Site Maps and provide the Contractor with a copy within seven (7) days of receipt of the revised SWPPP.

2.4. SWPPP

2.4.1. Concurrent with the Submittal Schedule as indicated in the General Conditions, Contractor shall prepare and submit to the SCCOE a proposed SWPPP for the Work.

2.4.2. The SCCOE's QSD will review the Contractor's proposed SWPPP for compliance with the Construction Storm Water Permit. If changes to the proposed SWPPP are required to comply with the Construction Storm Water Permit, the SCCOE QSD will identify such changes to the Contractor.

2.4.3. Contractor shall make the changes specified by the SCCOE's QSD and shall submit the revised SWPPP to the SCCOE within seven (7) days of receipt of the changes identified by the SCCOE's QSD. If the changes had been acceptably made, the SCCOE's QSD will approve the SWPPP and provide the Contractor with a copy within seven (7) days of receipt of the revised SWPPP.

2.5. RAIN EVENT ACTION PLAN (REAP) – CONTRACTOR'S OBLIGATIONS TO PREPARE

2.5.1. A Rain Event Action Plan (REAP) is a written document, specific for each rain event. A REAP should be designed so that when implemented it protects all exposed portions of

the site within 48 hours of any likely rain.

2.5.2. The General Permit requires Risk Level 2 and 3 dischargers to develop and implement a REAP designed to protect all exposed portions of their sites within 48 hours prior to any likely precipitation event. The REAP requirement is designed to ensure that the discharger has adequate materials, staff, and time to implement erosion and sediment control measures that are intended to reduce the amount of sediment and other pollutants generated from the active site. A REAP must be developed when there is likely a forecast of 50% or greater probability of precipitation in the Project area. (The National Oceanic and Atmospheric Administration (NOAA) defines a chance of precipitation as a probability of precipitation of 30% to 50% chance of producing precipitation in the project area. The NOAA defines the probability of precipitation as the likelihood of occurrence (expressed as a percent) of a measurable amount (0.01 inch or more) of liquid precipitation (or the water equivalent of frozen precipitation) during a specified period of time at any given point in the forecast area). Forecasts are normally issued for 12-hour time periods.

2.5.3. Contractor shall prepare and submit to the SCCOE a proposed REAP for the Work.

2.5.4. The SCCOE's QSD will review the Contractor's proposed REAP for compliance with the Construction Storm Water Permit. If changes to the proposed REAP are required to comply with the Construction Storm Water Permit, the SCCOE QSD will identify such changes to the Contractor.

2.5.5. Contractor shall make the changes specified by the SCCOE's QSD and shall submit the revised REAP to the SCCOE within seven (7) days of receipt of the changes identified by the SCCOE's QSD. If the changes had been acceptably made, the SCCOE's QSD will approve the REAP and provide the Contractor with a copy within seven (7) days of receipt of the revised REAP.

2.6. ACTIVE TREATMENT SYSTEM (ATS)

2.6.1. If Contractor determines that Site requires an ATS under the Construction Storm Water Permit, concurrent with the Submittal Schedule as indicated in the General Conditions, Contractor shall prepare and submit to the SCCOE a proposed ATS for the Work.

2.6.2. The SCCOE's QSD will review the Contractor's proposed ATS for compliance with the Construction Storm Water Permit. If changes to the proposed ATS are required to comply with the Construction Storm Water Permit, the SCCOE QSD will identify such changes to the Contractor.

2.6.3. Contractor shall make the changes specified by the SCCOE's QSD and shall submit the revised ATS to the SCCOE within seven (7) days of receipt of the changes identified by the SCCOE's QSD. If the changes had been acceptably made, the SCCOE's QSD will approve the ATS and provide the Contractor with a copy within seven (7) days of receipt of the revised ATS.

2.7. RECORDS

All electronic and hardcopy records required by the Construction Storm Water Permit shall be submitted to the SCCOE within seven (7) days of Completion of the Project.

3. PERMIT REGISTRATION DOCUMENTS

Prior to any activities on Site that disturb the Site's surface, the Permit Registration Documents (PRDs) required by the Construction Storm Water Permit must be filed with the Regional Water Quality Control Board. The SCCOE shall file the PRDs with the Regional Water Quality Control Board to activate coverage under the Construction Storm Water Permit.

4. IMPLEMENTATION REQUIREMENTS

4.1. Contractor shall not conduct any activities that may affect the Site's construction runoff water quality until the SCCOE provides Contractor with the Waste Discharger Identification Number (WDID) assigned to the Project by the State Water Board.

4.2. Contractor shall keep a copy of the approved SWPPP at the job site. The SWPPP shall be made available when requested by a representative of the Regional Water Quality Control Board, State Water Resources Control Board, United States Environmental Protection Agency, or the local storm water management agency. Requests from the public shall be directed to the SCCOE for response.

4.3. Contractor shall designate in writing to the SCCOE a Qualified SWPPP Practitioner (QSP) who shall be responsible for implementing the SWPPP, REAP (if applicable), ATS (if applicable), conducting non-storm water and storm water visual observations, and for ensuring that all best management practices (BMPs) required by the SWPPP and General Permit are properly implemented and maintained.

4.4. All measures required by the SWPPP shall be implemented concurrent with the commencement of construction. Pollution practices and devices shall be followed or installed as early in the construction schedule as possible with frequent upgrading of devices as construction progresses.

4.5. Contractor shall ensure that all measures are properly maintained and repaired to protect the water quality of discharges.

5. INSPECTION, SAMPLING, ANALYSIS, AND RECORD KEEPING REQUIREMENTS

The Contractor's QSP shall conduct all required visual observations, sampling, analysis, reporting, and record keeping required by the SWPPP and the Construction Storm Water Permit.

6. REPORTING REQUIREMENTS

Contractor shall prepare and provide all the reports, which include, but are not limited to the Annual Report and any NEL Violation Reports or NAL Exceedance Reports, all of which are required by the SWPPP and the Construction Storm Water Permit.

7. ANNUAL REPORT

By August 1 of each year (defined as July 1 to June 30) that had at least one continuous three (3) month period coverage under the General Permit, Contractor shall complete and submit to the SCCOE an Annual Report, as required by the General Permit. If the Project is complete prior to August 1, Contractor shall submit the report prior to acceptance of the Project.

8. COMPLETION OF WORK

8.1. Clean-up shall be performed as each portion of the Work progresses. All refuse, excess material, and possible pollutants shall be disposed of in a legal manner off-site and all temporary and permanent SWPPP devices shall be in place and maintained in good condition.

8.2. At Completion of Work, Contractor shall inspect installed SWPPP devices, and present the currently implemented SWPPP with all backup records to the SCCOE.

9. NOTICE OF TERMINATION (NOT)

A Notice of Termination (NOT) must be submitted by the Contractor to the SCCOE for electronic submittal by the Legally Responsible Person via SMARTS to terminate coverage under the General Permit. The NOT must include a final Site Map and representative photographs of the Project Site that demonstrate final stabilization has been achieved. The NOT shall be submitted to the SCCOE on or before the Contractor submits its final application for payment. If the Regional Water Board rejects the NOT for any reason, the Contractor shall revise the NOT as many times as necessary to obtain the Regional Water Board's approval. The Regional Water Board will consider a construction site complete when the conditions of Section II.D of the General Permit have been met.

10. QUALITY ASSURANCE

10.1. Before performing any of the obligations indicated herein, the Contractor's QSP shall meet the training and certification requirements in the Construction Storm Water Permit.

10.2. Contractor shall perform the Work in strict compliance with the approved SWPPP, REAP, ATS, and the Construction Storm Water Permit.

10.3. Contractor shall conduct at least a one-hour training session on the requirements of the SWPPP for each employee before an employee conducts any Work on the Site. Contractor shall maintain documentation of this employee training at the Site for review by the SCCOE or any regulatory agency.

11. PERFORMANCE REQUIREMENTS

11.1. The SWPPP is a minimum requirement. Revisions and modifications to the SWPPP are acceptable only if they maintain levels of protection equal to or greater than originally specified.

11.2. Read and be thoroughly familiar with all of the requirements of the SWPPP.

11.3. Inspect and monitor all work and storage areas for compliance with the SWPPP prior to any anticipated rain.

11.4. Complete any and all corrective measures as may be directed by the regulatory agency.

11.5. **Penalties**: Contractor shall pay any fees and any penalties that may be imposed by a regulatory agency for non-compliance with the SWPPP during the course of Work.

11.6. **Costs**: Contractor shall pay all costs associated with the implementation of the requirements of the SWPPP in order to maintain compliance with the Permit. This includes installation of all Housekeeping BMPs, General Site and Material Management BMPs, Inspection requirements, maintenance requirements, and all other requirements specified in the SWPPP.

12. MATERIALS

All temporary and permanent storm water pollution prevention facilities, equipment, and materials as required by or as necessary to comply with the SWPPP as described in the BMP Handbook.

END OF DOCUMENT

DOCUMENT 01 60 00

MATERIALS AND EQUIPMENT

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions.

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any); and

1.1.4. Imported Materials Certification.

1.2. MATERIALS AND EQUIPMENT

1.2.1. Only items approved by the SCCOE and/or Architect shall be used.

1.2.2. Contractor shall submit lists of Products and other Product information in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3. MATERIALS AND EQUIPMENT COLORS

1.3.1. The Contractor shall comply with all schedule(s) of colors provided by the SCCOE and/or Architect.

1.3.2. No individual color selections will be made until after approval of all pertinent materials and equipment and after receipt of appropriate samples in accordance with the Contract Documents, including, without limitation, the provisions regarding the submittals.

1.3.3. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.4. DELIVERY, STORAGE, AND HANDLING

1.4.1. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer. SCCOE may inspect materials prior to Contractor unloading the delivered materials. SCCOE may reject any materials that do not conform to the Contract Documents.

1.4.2. Contractor shall deliver fabrications in as large assemblies as practicable; where specified as shop-primed or shop-finished, package or crate as required to preserve such priming or finish intact and free from abrasion.

1.4.3. Contractor shall store materials in such a manner as necessary to properly protect them from damage. Materials or equipment damaged by handling, weather, dirt, or from any other cause will not be accepted.

1.4.4. Materials that have been warehoused for long periods of time, stored or transported in improper environment, improperly packaged, inadequately labeled, poorly protected, excessively shipped, deviated from normal distribution pattern, or reassembled are not acceptable.

1.4.5. Contractor shall store materials so as to cause no obstructions of sidewalks, roadways, or underground services. Contractor shall protect materials and equipment furnished pursuant to the Contract Documents.

1.4.6. Contractor may store materials on Site with prior written approval by SCCOE; all materials shall remain under Contractor's control and Contractor shall remain liable for any damage to the materials. Should the Project Site not have storage area available, the Contractor shall provide for off-site storage at no cost to SCCOE.

1.4.7. When any room in Project is used as a shop or storeroom, Contractor shall be responsible for any repairs, patching, or cleaning necessary due to that use. Location of storage space shall be subject to prior written approval by SCCOE.

2. PRODUCTS

2.1. MANUFACTURERS

2.1.1. Manufacturers listed in various sections of the Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of the items specified therein.

2.1.2. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable or as meeting the requirements of the Contract Documents.

2.2. FACILITIES AND EQUIPMENT

Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, execution, disposal, and distribution of materials and equipment as required for proper and timely performance of Work.

2.3. MATERIALS REFERENCE STANDARDS

Where materials are specified solely by reference to “standard specifications” or other general reference, and if requested by SCCOE, Contractor shall submit for review data on actual materials proposed to be incorporated into Work, listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

3. EXECUTION

3.1. WORKMANSHIP

3.1.1. Where not more specifically described in any other Contract Documents, workmanship shall conform to methods and operations of best standards and accepted practices of trade or trades involved and shall include items of fabrication, construction, or installation regularly furnished or required for completion (including finish and for successful operation, as intended).

3.1.2. Work shall be executed by tradespersons skilled in their respective field of work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.2. COORDINATION

3.2.1. Contractor shall coordinate installation of materials and equipment so as to not interfere with installation of other Work. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to SCCOE.

3.2.2. Contractor shall examine in-place materials and equipment for readiness, completeness, fitness to be concealed or to receive Work , and compliance with Contract Documents. Concealing or covering work constitutes acceptance of additional cost which will result should in-place materials and equipment be found unsuitable for receiving other work or otherwise deviating from the requirements of the Contract Documents.

3.3. COMPLETENESS

Contractor shall provide all portions of the Work, unless clearly stated otherwise, installed complete and operational with all elements, accessories, anchorages, utility connections, etc., in a manner to ensure well-balanced performance, in accordance with manufacturer's recommendations and in accordance with Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain systems; sinks fit within countertop, etc. Terms such as "installed complete," "operable condition," "for use intended," "connected to all utilities," "terminate with proper cap," "adequately anchored," "patch and refinish," and "to match similar" should be assumed to apply in all cases, except where completeness of functional or operable condition is specifically stated as not required.

3.4. APPROVED INSTALLER OR APPLICATOR

Contractor shall ensure that all installations are only performed by a manufacturer's approved installer or applicator.

3.5. MANUFACTURER'S RECOMMENDATIONS

All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should the Contract Documents differ from recommendations of manufacturer or directions of manufacturer's representative, Contractor shall analyze differences, make recommendations to the SCCOE and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the SCCOE and/or the Architect.

END OF DOCUMENT

DOCUMENT 01 66 10

DELIVERY, STORAGE AND HANDLING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Site Access, Conditions and Requirements; and

1.1.2. Special Conditions.

1.2. PRODUCTS

1.2.1. Products are as defined in the General Conditions.

1.2.2. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

1.2.3. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.3. TRANSPORTATION AND HANDLING

1.3.1. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

1.3.2. Contractor shall promptly inspect shipments to confirm that Products comply with Contract requirements, are of correct quantity, and are undamaged.

1.3.3. Contractor shall provide equipment and personnel to properly handle Products to prevent soiling, disfigurement, or damage.

1.4. STORAGE AND PROTECTION

1.4.1. Contractor shall store and protect Products in accordance with manufacturer's instructions, with seals and labels intact and legible. Contractor shall store sensitive Products in weather-tight, climate controlled enclosures.

1.4.2. Contractor shall place fabricated Products that are stored outside, on above-ground sloped supports.

1.4.3. Contractor shall provide off-site storage and protection for Products when Site does not permit on-site storage or protection.

1.4.4. Contractor shall cover Products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

1.4.5. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

1.4.6. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

1.4.7. Contractor shall arrange storage of Products to permit access for inspection and periodically inspect to assure Products are undamaged and are maintained under specified conditions.

END OF DOCUMENT

D0CUMENT 01 73 00

EXECUTION

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Coordination and Project Meetings;

1.1.5. Submittals;

1.1.6. Materials and Equipment;

1.1.7. Cutting and Patching;

1.1.8. Contract Closeout and Final Cleaning; and

1.1.9. General Commissioning Requirements.

1.2. SUMMARY

1.2.1. This Document includes general procedural requirements governing execution of the Work including, but not limited to, the following:

1.2.1.1. Construction layout;

1.2.1.2. Field engineering and surveying;

1.2.1.3. General installation of products;

1.2.1.4. Owner furnished, Contractor installed items;

1.2.1.5. Coordination of SCCOE-installed products;

1.2.1.6. Progress cleaning;

1.2.1.7. Staring and adjusting;

1.2.1.8. Protection of installed construction; and

1.2.1.9. Correction of the Work.

1.3. SUBMITTALS

1.3.1. Qualification Data: For land surveyor or professional engineer.

1.3.2. Certificates: Submit certificate signed by land surveyor or professional engineer certifying that location and elevation of improvements comply with requirements.

1.3.3. Landfill Receipts: Submit copy of receipts issued by a landfill facility, licensed to accept the materials as classified, for hazardous waste disposal.

1.3.4. Certified Surveys: Submit electronic files and three (3) paper copies signed by land surveyor or professional engineer.

1.3.5. Final Property Survey: Submit electronic files and three (3) paper copies showing the Work performed and record survey data.

2. EXECUTION

2.1. EXAMINATION

2.1.1. Existing Utilities: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning Site Work, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

2.1.1.1. Before construction, verify the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.

2.1.1.2. Furnish location data for Work related to Project that must be performed by public utilities serving the Project Site.

2.2. PREPARATION

2.2.1. Existing Utility Information: Furnish information to local utility 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.

2.2.2. 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.

2.2.3. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

2.2.4. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents, submit a request for information to

SCCOE per requirements of Document "Requests for Information." Include a detailed description of problem encountered, together with recommendations for any necessary changes to the Contract Documents.

2.3. CONSTRUCTION LAYOUT

2.3.1. 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 SCCOE and its consultant promptly.

2.3.2. General: Engage a land surveyor or professional engineer to lay out the Work using accepted surveying practices.

2.3.2.1. 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.

2.3.2.2. Establish dimensions within tolerances indicated. Do not scale Drawings to obtain required dimensions.

2.3.2.3. Inform installers of lines and levels to which they must comply.

2.3.2.4. Check the location, level and plumb, of every major element as the Work progresses.

2.3.2.5. Notify SCCOE and its consultant when deviations from required lines and levels exceed allowable tolerances.

2.3.2.6. Close site surveys with an error of closure equal to or less than the standard established by authorities having jurisdiction.

2.3.3. Site Improvements: Locate and lay out site improvements, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

2.3.4. Building Lines and Levels: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

2.3.5. Record Log: Maintain a log of layout control Work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by SCCOE and its consultant.

2.4. FIELD ENGINEERING

2.4.1. 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.

2.4.1.1. Do not change or relocate existing benchmarks or control points without prior written approval of SCCOE and its consultant. Report lost or destroyed

permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to SCCOE and its consultant before proceeding.

2.4.1.2. Require surveyor to replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

2.4.2. Benchmarks: Establish and maintain a minimum of two (2) permanent benchmarks on Project Site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.

2.4.2.1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

2.4.2.2. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work.

2.4.2.3. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

2.4.3. Records: Contractor shall maintain a complete, accurate log of all control and survey Work as it progresses. On request of SCCOE or Architect, Contractor shall submit documentation to verify accuracy of field engineering Work at no additional cost to the SCCOE.

2.4.4. Certified Survey: On completion of foundation walls, major site improvements, and other Work requiring field-engineering services, prepare a certified survey showing dimensions, locations, angles, and elevations of construction and sitework.

2.4.5. Final Property Survey: Prepare and submit a final property survey showing significant features (real property) for Project. Include on the survey a certification, signed by land surveyor or professional engineer, that principal metes, bounds, lines, and levels of Project are accurately positioned as shown on the survey and are in conformance with Contract Documents.

2.4.5.1. Show boundary lines, monuments, streets, site improvements and utilities, existing improvements and significant vegetation, adjoining properties, acreage, grade contours, and the distance and bearing from a Site corner to a legal point.

2.4.6. Compliance with Laws: Contractor is responsible for meeting all applicable codes, OSHA, safety, and shoring requirements.

2.4.7. Nonconforming Work: Contractor is responsible for any re-surveying required by correction of nonconforming Work.

2.5. INSTALLATION

2.5.1. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.

2.5.1.1. Make vertical Work plumb and make horizontal Work level.

2.5.1.2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.

2.5.1.3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

2.5.1.4. Maintain minimum headroom clearance of 7 feet in spaces without a suspended ceiling.

2.5.2. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

2.5.3. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Completion.

2.5.4. 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.

2.5.5. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels where possible.

2.5.6. 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.

2.5.7. Anchors and Fasteners: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

2.5.7.1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by SCCOE.

2.5.7.2. Allow for building movement, including thermal expansion and contraction.

2.5.7.3. 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.

2.5.8. 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.

2.5.9. Hazardous Materials: Use products, cleaners, and installation materials that are not classed as hazardous per the MSDS sheets for the products where possible. If hazardous materials are necessary, inform SCCOE where and when they will be used no less than 48 hours before use. Take all recommended precautions of the materials' manufacturers to ensure safe use and clean-up.

2.6. SCCOE-INSTALLED PRODUCTS

2.6.1. Site Access: Provide access to Project Site for SCCOE's construction forces.

2.6.2. Coordination: Coordinate construction and operations of the Work with work performed by SCCOE's construction forces.

2.6.2.1. Construction Schedule: Inform SCCOE of Contractor's preferred schedule for SCCOE's portion of the Work. Adjust Construction Schedule based on a mutually agreeable timetable. Notify SCCOE if changes to schedule are required due to differences in actual construction progress.

2.6.2.2. Preinstallation Conferences: Include SCCOE's construction forces at preinstallation conferences covering portions of the Work that are to receive SCCOE's work. Attend preinstallation conferences conducted by SCCOE's construction forces if portions of the Work depend on SCCOE's construction.

2.7. PROGRESS CLEANING

2.7.1. General: Clean Project Site and work areas daily, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

2.7.1.1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.

2.7.1.2. Do not hold materials more than seven (7) days during normal weather or three (3) days if the temperature is expected to rise above 80 degrees F.

2.7.1.3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations. Remove hazardous and unsanitary waste materials daily.

2.7.2. Site: Maintain Project Site free of waste materials and debris.

2.7.3. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.

2.7.3.1. Remove liquid spills promptly.

2.7.3.2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

2.7.4. 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.

2.7.5. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

2.7.6. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Completion.

2.7.7. Waste Disposal: Burying or burning waste materials on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

2.7.8. 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 Completion.

2.7.9. 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.

2.7.10. 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.

2.8. STARTING AND ADJUSTING

2.8.1. Start equipment and operating components to confirm proper operation. Replace or repair malfunctioning units and retest.

2.8.2. Adjust operating components for proper operation without binding. Adjust equipment for proper operation.

2.8.3. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

2.8.4. Manufacturer's Field Service: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Document "Quality Requirements."

2.9. PROTECTION OF INSTALLED CONSTRUCTION

2.9.1. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Completion.

2.9.2. Comply with manufacturer's written instruction for temperature and relative humidity unless otherwise addressed in the construction planning, sequences, and instructions. See Section 06 40 00 "Architectural Woodwork" for additional condition requirements of woodwork.

2.10. CORRECTION OF THE WORK

2.10.1. Repair or remove and replace defective construction. Restore damaged substrates and finishes. Comply with requirements in Document "Cutting and Patching."

2.10.1.1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

2.10.2. Restore permanent facilities used during construction to their specified condition.

2.10.3. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

2.10.4. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

2.10.5. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF DOCUMENT

DOCUMENT 01 73 10

CUTTING AND PATCHING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Hazardous Materials Procedures and Requirements;

1.1.5. Hazardous Materials Certification;

1.1.6. Lead-Based Materials Certification; and

1.1.7. Imported Materials Certification.

1.2. CUTTING AND PATCHING

1.2.1. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:

1.2.1.1. Make several parts fit together properly.

1.2.1.2. Uncover portions of Work to provide for installation of ill-timed Work.

1.2.1.3. Remove and replace defective Work.

1.2.1.4. Remove and replace Work not conforming to requirements of Contract Documents.

1.2.1.5. Remove Samples of installed Work as specified for testing.

1.2.1.6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.

1.2.1.7. Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.

1.2.2. In addition to Contract requirements, upon written instructions from SCCOE, Contractor shall uncover Work to provide for observations of covered Work in accordance with the

Contract Documents, remove samples of installed materials for testing as directed by SCCOE, and remove Work to provide for alteration of existing Work.

1.2.3. Contractor shall not cut or alter Work, or any part of it, in such a way that endangers or compromises the integrity of the Work, the Project, or Work of others.

1.2.4. Contractor shall not cut and patch operating elements or safety 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. Operating elements include the following:

1.2.4.1. Primary operational systems and equipment.

1.2.4.2. Air or smoke barriers.

1.2.4.3. Fire-suppression systems.

1.2.4.4. Mechanical systems piping and ducts.

1.2.4.5. Control systems.

1.2.4.6. Communication systems.

1.2.4.7. Conveying systems.

1.2.4.8. Electrical wiring systems.

1.2.5. Contractor shall not cut and patch miscellaneous elements or related components in a manner that could change their load-carrying capacity, that results in reducing capacity to perform as intended, or that results in increased maintenance or decreased operational life of safety. Miscellaneous elements include the following:

1.2.5.1. Water, moisture or vapor barriers.

1.2.5.2. Membranes and flashings.

1.2.5.3. Exterior curtain-wall construction.

1.2.5.4. Equipment supports.

1.2.5.5. Piping, ductwork, vessels and equipment.

1.2.5.6. Noise and vibration control elements and systems.

1.2.5.7. Shoring, bracing and sheeting.

1.3. REQUEST TO CUT, ALTER, PATCH OR EXCAVATE

1.3.1. Contractor shall submit written notice to SCCOE pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration ("Request") at least ten (10) days prior to any cutting or alterations that

may affect the structural safety of the Project, or Work of others, including the following:

1.3.1.1. The Work of the SCCOE or other trades.

1.3.1.2. Structural value or integrity of any element of the Project.

1.3.1.3. Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.

1.3.1.4. Efficiency, operational life, maintenance or safety of operational elements.

1.3.1.5. Visual qualities of sight-exposed elements.

1.3.2. Contractor's Request shall also include:

1.3.2.1. Identification of the Project.

1.3.2.2. Description of affected Work.

1.3.2.3. Necessity for cutting, alterations, or excavations.

1.3.2.4. Impacts of that Work on the SCCOE, other trades, or structural or weatherproof integrity of the Project.

1.3.2.5. Description of proposed Work:

1.3.2.5.1. Scope of cutting, patching, alterations, or excavations.

1.3.2.5.2. Trades that will execute Work.

1.3.2.5.3. Products proposed to be used.

1.3.2.5.4. Extent of refinishing to be done.

1.3.2.6. Alternates to cutting and patching.

1.3.2.7. Cost proposal, when applicable.

1.3.2.8. The scheduled date the Work is to be performed and the duration of time to complete the Work.

1.3.2.9. Written permission of other trades whose Work will be affected.

1.4. QUALITY ASSURANCE

1.4.1. Contractor shall ensure that cutting, fitting, and patching shall achieve security, strength, weather protection, appearance for aesthetic match, efficiency, operational life, maintenance, safety of operational elements, and the continuity of existing fire ratings.

1.4.2. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, and colors, and that materials shall match existing construction. Where there is dispute as to whether duplication is successful or has been achieved to a reasonable degree, the SCCOE's decision shall be final.

1.5. PAYMENT FOR COSTS

1.5.1. Costs caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the SCCOE or its consultants including but not limited to the Architect, inspector(s), engineers, and agents, will be paid by Contractor and/or deducted from the Contract Price by the SCCOE.

1.5.2. Contractor shall provide written cost proposals prior to proceeding with cutting and patching. SCCOE shall only pay for cost of Work if it is part of the Contract Price or if a change has been made to the Contract in compliance with the provisions of the General Conditions. Cost of Work performed upon instructions from the SCCOE, other than defective or nonconforming Work, will be paid by SCCOE on approval of written Change Order in accordance with the Contract Documents.

2. PRODUCTS

2.1. MATERIALS

2.1.1. Contractor shall provide for replacement and restoration of Work removed. Contractor shall comply with the Contract Documents and with the industry standard(s), for the type of Work, and the Specification requirements for each specific product involved. If not specified, Contractor shall recommend a product of a manufacturer or appropriate trade association for approval by the SCCOE.

2.1.2. Materials to be cut and patched include those damaged by the performance of the Work.

3. EXECUTION

3.1. INSPECTION

3.1.1. Contractor shall inspect existing conditions of the Site and the Work, including elements subject to movement or damage during cutting and patching, excavating and backfilling. After uncovering Work, Contractor shall inspect conditions affecting installation of new products.

3.1.2. Contractor shall report unsatisfactory or questionable conditions in writing to SCCOE as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by SCCOE.

3.2. PREPARATION

3.2.1. Contractor shall provide shoring, bracing and supports as required to maintain structural integrity for all portions of the Project, including all requirements of the Project.

3.2.2. Contractor shall provide devices and methods to protect other portions of Project from damage.

3.2.3. Contractor shall, provide all necessary protection from weather and extremes of temperature and humidity for the Project, including without limitation any work that may be exposed by cutting and patching Work. Contractor shall keep excavations free from water.

3.3. ERECTION, INSTALLATION AND APPLICATION

3.3.1. With respect to performance, Contractor shall ensure its Subcontractors:

3.3.1.1. Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.

3.3.1.2. Execute cutting and demolition by methods that will prevent damage to other Work, and provide proper surfaces to receive installation of repairs and new Work.

3.3.1.3. Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.

3.3.1.4. Contractor shall use original installer or fabricator to perform cutting and patching for:

3.3.1.5. Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.

3.3.1.6. Sight-exposed finished surfaces.

3.3.2. Contractor shall ensure its Subcontractors execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances, and finishes as shown or specified in the Contract Documents including, without limitation, the Drawings and Specifications.

3.3.3. Subcontractors shall fit Work airtight to pipes, sleeves, ducts, conduit, and other penetrations through surfaces. Contractor shall conform to all Code requirements for penetrations or the Drawings and Specifications, whichever calls for a higher quality or more thorough requirement. Contractor shall maintain integrity of both rated and non-rated fire walls, ceilings, floors, etc.

3.3.4. Contractor's Subcontractors shall restore Work which has been cut or removed and install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.

3.3.5. Contractor's Subcontractors shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF DOCUMENT

DOCUMENT 01 74 19

CONSTRUCTION WASTE MANAGEMENT AND DISPOSALS:

1. PART GENERAL

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.

2. SUMMARY

a Section includes administrative and procedural requirements for the following:

1 Salvaging nonhazardous construction waste.
2 Recycling nonhazardous construction waste.
3 Disposing of nonhazardous construction waste.

b Related Requirements:

1 Section 311000 "Site Clearing" for disposition of waste resulting from site clearing and removal of above- and below-grade improvements.

3. DEFINITIONS

a Construction Waste: Building, structure, and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

b Demolition Waste: Building, structure, and site improvement materials resulting from demolition operations.

c Disposal: Removal of demolition or construction waste and subsequent salvage, sale, recycling, or deposit in landfill, incinerator acceptable to authorities having jurisdiction, or designated spoil areas on Owner's property.

d Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

e Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

f Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

4. MATERIALS OWNERSHIP

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

b Historic items, relics, antiques, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, and other items of interest or value to Owner that may be uncovered during demolition remain the property of Owner.

1 Carefully salvage in a manner to prevent damage and promptly return to Owner.

5. ACTION SUBMITTALS

a Waste Management Plan: Submit plan within 30 days of date established for commencement of the Work.

6. INFORMATIONAL SUBMITTALS

a Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit report. Include the following information:

1 Material category.
2 Generation point of waste.
3 Total quantity of waste in cubic yards.
4 Quantity of waste salvaged, both estimated and actual in tons or cubic yards.
5 Quantity of waste recycled, both estimated and actual in tons or cubic yards.
6 Total quantity of waste recovered (salvaged plus recycled) in tons or cubic yards.
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.

h Statement of Refrigerant Recovery: Signed by refrigerant recovery technician responsible for recovering refrigerant, stating that all refrigerant that was present was recovered and that recovery was performed according to EPA regulations. Include name and address of technician and date refrigerant was recovered.

i Submittal procedures and quantities are specified in Document 01 30 00

7. QUALITY ASSURANCE

a Waste Management Coordinator Qualifications: Experienced firm, or individual employed and assigned by General Contractor, with a record of successful waste management coordination of projects with similar requirements. Superintendent may serve as Waste Management Coordinator.

b Waste Management Conference(s): Conduct conference(s) at Project site to comply with requirements in Section 013100 "Project Management and Coordination." Review methods and procedures related to waste management including, but not limited to, the following:

1 Review and discuss waste management plan including responsibilities of each contractor and 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.

8. WASTE MANAGEMENT PLAN

a General: Develop a waste management plan according to requirements in this Section. Plan shall consist of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measure throughout waste management plan.

b Waste Identification: Indicate anticipated types and quantities of site-clearing and construction waste generated by the Work. Include estimated quantities and assumptions for estimates.

c Waste Reduction Work Plan: List each type of waste and whether it will be salvaged, recycled, or disposed of in landfill or incinerator. Include points of waste generation, total quantity of each type of waste, quantity for each means of recovery, and handling and transportation procedures.

1 Salvaged Materials for Reuse: For materials that will be salvaged and reused in this Project, describe methods for preparing salvaged materials before incorporation into the Work.

2 Salvaged Materials for Sale: For materials that will be sold to individuals and organizations, include list of their names, addresses, and telephone numbers.

3 Salvaged Materials for Donation: For materials that will be donated to individuals and organizations, include list of their names, addresses, and telephone numbers.

4 Recycled Materials: Include list of local receivers and processors and type of recycled materials each will accept. Include names, addresses, and telephone numbers.

5 Disposed Materials: Indicate how and where materials will be disposed of. Include name, address, and telephone number of each landfill and incinerator facility.

6 Handling and Transportation Procedures: Include method that will be used for separating recyclable waste including sizes of containers, container labeling, and designated location where materials separation will be performed.

d Cost/Revenue Analysis: Indicate total cost of waste disposal as if there were no waste management plan and net additional cost or net savings resulting from implementing waste management plan. Include the following:

1 Total quantity of waste.

2 Estimated cost of disposal (cost per unit). Include transportation and tipping fees and cost of collection containers and handling for each type of waste.

3 Total cost of disposal (with no waste management).

4 Revenue from salvaged materials.

5 Revenue from recycled materials.

6 Savings in transportation and tipping fees by donating materials.

7 Savings in transportation and tipping fees that are avoided.

8 Handling and transportation costs. Include cost of collection containers for each type of waste.

9 Net additional cost or net savings from waste management plan.

2. PART PRODUCTS – Not Used.

3. PART EXECUTION

1. PLAN IMPLEMENTATION

a General: Implement approved waste management plan. Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

1 Comply with operation, termination, and removal requirements in Section 015000 "Temporary Facilities and Controls."

b Waste Management Coordinator: Engage a waste management coordinator to be responsible for implementing, monitoring, and reporting status of waste management work plan. Coordinator shall be present at Project site full time for duration of Project.

c Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work.

1 Distribute waste management plan to everyone concerned within three (3) days of submittal return.
2 Distribute waste management plan to entities when they first begin work on-site. Review plan 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 and recycled.
2 Comply with Section 015000 "Temporary Facilities and Controls" for controlling dust and dirt, environmental protection, and noise control.

2. RECYCLING CONSTRUCTION WASTE, GENERAL

a General: Recycle paper and beverage containers used by on-site workers.

b Recycling Incentives: Revenues, savings, rebates, tax credits, and other incentives received for recycling waste materials shall accrue to Contractor.

c 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.

d 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 as often as required to prevent overfilling bins.

3. 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 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 Section 329000 "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.

1 Clean Gypsum Board: Grind scraps of clean gypsum board using small mobile chipper or hammer mill. Screen out paper after grinding.

a Comply with requirements in Section 329000 "Planting" for use of clean ground gypsum board as inorganic soil amendment.

d Paint: Seal containers and store by type.

4. DISPOSAL OF WASTE

a General: Except for items or materials to be salvaged or recycled, 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 General: Except for items or materials to be salvaged or recycled, remove waste materials and legally dispose of at designated spoil areas on Owner’s property.

c Burning: Do not burn waste materials.

d Burning: Burning of waste materials is permitted only at designated areas on Owner's property, provided required permits are obtained. Provide full-time monitoring for burning materials until fires are extinguished.

END OF SECTION 01 74 19

DOCUMENT 01 77 00

CONTRACT CLOSEOUT AND FINAL CLEANING

1. GENERAL

1.1. RELATED DOCUMENTS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions including, without limitation, Documents on Work and Completion of Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Operation and Maintenance Data;

1.1.6. Warranties;

1.1.7. Record Documents;

1.1.8. Demonstration and Training; and

1.1.9. General Commissioning Requirements.

1.2. PRELIMINARY PROCEDURES

1.2.1. Before requesting inspection for determining date of Completion, complete the following. List items below that are incomplete in request.

1.2.1.1. Prepare a list of items to be completed and corrected ("Punch List"), the value of items on the list, and reasons why the Work is not complete.

1.2.1.2. Advise SCCOE of pending insurance changeover requirements.

1.2.1.3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

1.2.1.4. Obtain and submit releases permitting SCCOE unrestricted use of the Work and access to services and utilities. Include certificate of occupancy, operating certificates, and similar releases, if required.

1.2.1.5. Prepare and submit Project Record Documents, operation and maintenance manuals, Completion construction photograph prints and electronic files, damage or settlement surveys, property surveys, and similar final record information.

1.2.1.6. Deliver tools, spare parts, extra materials, and similar items to location designated by SCCOE. Label with manufacturer's name and model number where applicable.

1.2.1.7. Make final changeover of permanent locks and deliver keys to SCCOE. Advise SCCOE's personnel of changeover in security provisions.

1.2.1.8. Complete startup testing of systems.

1.2.1.9. Submit test/adjust/balance records.

1.2.1.10. Terminate and remove temporary facilities from Project Site, along with mockups, construction tools, and similar elements.

1.2.1.11. Advise SCCOE of changeover in heat and other utilities.

1.2.1.12. Submit changeover information related to SCCOE's occupancy, use, operation, and maintenance.

1.2.1.13. Complete final cleaning requirements, including touch-up painting.

1.2.1.14. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

1.3. RECORD DOCUMENTS AND SHOP DRAWINGS

1.3.1. Contractor shall legibly mark each item to record actual construction, including:

1.3.1.1. Measured depths of foundation in relation to finish floor datum.

1.3.1.2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.

1.3.1.3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.

1.3.1.4. Field changes of dimension and detail.

1.3.1.5. Details not on original Contract Drawings

1.3.1.6. Changes made by modification(s).

1.3.1.7. References to related Shop Drawings and modifications.

1.3.1.8. Contractor will provide one set of Record Drawings to SCCOE.

1.3.1.9. Contractor shall submit all required documents to SCCOE and/or Architect prior to or with its final Application for Payment.

1.4. COMPLETION

1.4.1. Preliminary Procedures: Before requesting inspection for determining date of Completion, complete the following:

1.4.1.1. Submit a final Application for Payment according to the Contract Documents.

1.4.1.2. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

1.4.1.3. Submit pest-control final inspection report and warranty.

1.4.1.4. Instruction of SCCOE Personnel:

1.4.1.4.1. Before final inspection, at agreed upon times, Contractor shall instruct SCCOE's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

1.4.1.4.2. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six (6) months.

1.4.1.4.3. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.4.1.4.4. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when need for such data becomes apparent during instruction.

1.4.1.4.5. Contractor shall use operation and maintenance manuals as basis for instruction. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.4.2. Inspection: Submit a written request for inspection.

1.4.3. **LIST OF INCOMPLETE ITEMS (PUNCH LIST)** Contractor shall notify SCCOE and Architect when Contractor considers the Work complete. Upon notification, SCCOE and Architect will prepare a list of minor items to be completed or corrected ("Punch List").

1.4.4. Contractor and/or its Subcontractors shall proceed promptly to complete and correct items on the Punch List. Failure to include an item on Punch List does not alter the responsibility of the Contractor to complete all Work in accordance with the Contract Documents.

1.4.5. Contractor shall comply with Punch List procedures as provided herein and in the Contract Documents, and maintain the presence of a Project Superintendent and Project Manager until the Punch List is complete to ensure proper and timely completion of the Punch List. Under no circumstances shall Contractor demobilize its forces prior to completion of the Punch List. Upon receipt of Contractor's written notice that all of the Punch List items have been fully completed and the Work is ready for final inspection and acceptance, SCCOE and Architect will inspect the Work and shall submit to Contractor a final inspection report noting the Work, if any, required in order to reach Completion in accordance with the Contract Documents. Absent unusual

circumstances, this report shall consist of the Punch List items not yet satisfactorily completed and any additional Punch List items not originally included.

1.4.6. Upon Contractor's completion of all items on the Punch List and any other uncompleted portions of the Work, the Contractor shall notify the SCCOE and Architect, who shall again inspect such Work. If the SCCOE and Architect find the Work complete and acceptable under the Contract Documents, the SCCOE will notify Contractor, who shall then jointly submit to the Architect and SCCOE its final Application for Payment.

1.4.7. **Costs of Multiple Inspections**. More than two (2) requests of SCCOE to make a final inspection shall be considered an additional service of SCCOE, the Architect and/or the Inspector, and all subsequent costs will be invoiced to Contractor and withheld from remaining payments, if funds are available.

1.4.8. Punch List shall be deemed complete only upon the SCCOE's determination that all items on the Punch List, and all updates to the Punch List, are complete.

1.5. WARRANTIES

1.5.1. Submittal Time: Submit written warranties on request of SCCOE for designated portions of the Work where commencement of warranties other than date of Completion is indicated.

1.5.2. Organize warranty documents into an orderly sequence as required by the Division 01 Document "Warranties."

2. PRODUCTS

2.1. MATERIALS

2.1.1. 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.

3. EXECUTION

3.1. FINAL CLEANING

3.1.1. Provide final cleaning. Conduct cleaning and waste-removal operations to comply with local laws and ordinances and Federal and local environmental and antipollution regulations. Contractor shall use cleaning methods and procedures that reduce the overall impact on human health and the natural environment by reducing the amount of disposed waste, pollution and environmental degradation. If Project is subject to LEED certification, Contractor shall ensure compliance with the applicable LEED requirements for final cleaning of the Site.

3.1.2. Contractor shall 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.

3.1.2.1. Complete the following cleaning operations before requesting final inspection:

3.1.2.1.1. 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.

3.1.2.1.2. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

3.1.2.1.3. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.

3.1.2.1.4. Remove tools, construction equipment, machinery, and surplus material from Project Site.

3.1.2.1.5. Remove snow and ice to provide safe access to building.

3.1.2.1.6. 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.

3.1.2.1.7. Clean all surfaces and other work in accordance with recommendations of the manufacturer.

3.1.2.1.8. Remove spots, mortar, plaster, soil, and paint from ceramic tile, stone, and other finish materials.

3.1.2.1.9. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.

3.1.2.1.10. Sweep concrete floors broom clean in unoccupied spaces.

3.1.2.1.11. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.

3.1.2.1.12. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.

3.1.2.1.13. Remove labels that are not permanent.

3.1.2.1.14. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

3.1.2.1.14.1. Do not paint over "UL" and similar labels, including mechanical and electrical nameplates.

3.1.2.1.15. Wipe surfaces of mechanical and electrical equipment and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.

3.1.2.1.16. Replace parts subject to unusual operating conditions.

3.1.2.1.17. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.

3.1.2.1.18. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.

3.1.2.1.19. Clean ducts, blowers, and coils if units were operated without filters during construction.

3.1.2.1.20. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.

3.1.2.1.21. Leave Project Site clean and ready for occupancy.

3.1.3. Pest Control: Engage an experienced, licensed exterminator to make a final inspection and rid Project of rodents, insects, and other pests.

3.1.4. Comply with safety standards for cleaning. Do not burn waste materials. Do not bury debris or excess materials on SCCOE's property. Do not discharge volatile, harmful, or dangerous materials into drainage systems. Remove waste materials from Project Site and dispose of lawfully.

END OF DOCUMENT

DOCUMENT 01 78 23

OPERATION AND MAINTENANCE DATA

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Completion of the Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Contract Closeout and Final Cleaning;

1.1.6. Warranties;

1.1.7. Record Documents;

1.1.8. General Commissioning Requirements.

1.2. QUALITY ASSURANCE

1.2.1. Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.1. FORMAT (Documents must be submitted electronically unless otherwise specified and/or agreed upon)

1.2.2. Contractor shall prepare data in the form of an instructional manual entitled “OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS” (“Manual”).

1.2.3. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size. When multiple binders are used, Contractor shall correlate data into related consistent groupings.

1.2.4. Cover: Contractor shall identify each binder with typed or printed title "OPERATION AND MAINTENANCE MANUAL & INSTRUCTIONS"; and shall list title of Project and identify subject matter of contents.

1.2.5. Contractor shall arrange content by systems process flow under section numbers and sequence of the Table of Contents of the Contract Documents.

1.2.6. Contractor shall provide tabbed fly leaf for each separate Product and system, with typed description of Product and major component parts of equipment.

1.2.7. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.

1.2.8. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.3. CONTENTS, EACH VOLUME

1.3.1. Table of Contents: Contractor shall provide title of Project; names, addresses, and telephone numbers of the Architect, any engineers, subconsultants, Subcontractor(s), and Contractor with name of responsible parties; and schedule of Products and systems, indexed to content of the volume.

1.3.2. For Each Product or System: Contractor shall list names, addresses, and telephone numbers of Subcontractor(s) and suppliers, including local source of supplies and replacement parts.

1.3.3. Product Data: Contractor shall mark each sheet to clearly identify specific Products and component parts, and data applicable to installation. Delete inapplicable information.

1.3.4. Drawings: Contractor shall supplement Product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Contractor shall not use Project Record Documents as maintenance drawings.

1.3.5. Text: The Contractor shall include any and all information as required to supplement Product data. Contractor shall provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

1.4. MANUAL FOR MATERIALS AND FINISHES

1.4.1. Building Products, Applied Materials, and Finishes: Contractor shall include Product data, with catalog number, size, composition, and color and texture designations. Contractor shall provide information for re-ordering custom manufactured Products.

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

1.4.3. Moisture Protection and Weather Exposed Products: Contractor shall include Product data listing applicable reference standards, chemical composition, and details of installation. Contractor shall provide recommendations for inspections, maintenance, and repair.

1.4.4. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.

1.4.5. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.5. MANUAL FOR EQUIPMENT AND SYSTEMS

1.5.1. Each Item of Equipment and Each System: Contractor shall include description of unit or system, and component parts and identify function, normal operating characteristics, and limiting conditions. Contractor shall include performance curves, with engineering data and tests, and complete nomenclature, and commercial number of replaceable parts.

1.5.2. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

1.5.3. Contractor shall include color coded wiring diagrams as installed.

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

1.5.5. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

1.5.6. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.

1.5.7. Contractor shall include manufacturer's printed operation and maintenance instructions.

1.5.8. Contractor shall include sequence of operation by controls manufacturer.

1.5.9. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

1.5.10. Contractor shall provide control diagrams by controls manufacturer as installed.

1.5.11. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.

1.5.12. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

1.5.13. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

1.5.14. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).

1.5.15. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.6. SUBMITTAL

1.6.1. Concurrent with the Schedule of Submittals as indicated in the General Conditions, Contractor shall submit to the SCCOE for review two (2) copies of a preliminary draft of proposed formats and outlines of the contents of the Manual.

1.6.2. For equipment, or component parts of equipment put into service during construction and to be operated by SCCOE, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

1.6.3. On or before the Contractor submits its final application for payment, Contractor shall submit two (2) copies of a complete Manual in final form. The SCCOE will provide comments to Contractor and Contractor must revise the content of the Manual as required by SCCOE prior to SCCOE's approval of Contractor's final Application for Payment.

1.6.4. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after receiving SCCOE's comments. Failure to do so will be a basis for the SCCOE withholding funds sufficient to protect itself for Contractor's failure to provide a final Manual to the SCCOE.

END OF DOCUMENT

DOCUMENT 01 78 36

WARRANTIES

2. GENERAL

2.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

2.1.1. General Conditions, including, without limitation, Warranty/Guarantee/Indemnity;

2.1.2. Special Conditions (if any);

2.1.3. Supplemental Conditions (if any);

2.1.4. Submittals;

2.1.5. Contract Closeout and Final Cleaning;

2.1.6. Operation and Maintenance Data;

2.1.7. Record Documents;

2.1.8. General Commissioning Requirements.

2.2. FORMAT (Documents must be submitted electronically unless otherwise specified and/or agreed upon)

2.2.1. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.

2.2.2. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list the title of Project.

2.2.3. Table of Contents: Contractor shall provide the title of Project; name, address, and telephone number of Contractor and equipment supplier, and name of responsible principal. Contractor shall identify each item with the number and title of the specific Specification, document, provision, or section in which the name of the Product or Work item is specified.

2.2.4. Contractor shall separate each Warranty with index tab sheets keyed to the Table of Contents listing, providing full information and using separate typed sheets as necessary. Contractor shall list each applicable and/or responsible Subcontractor(s), supplier(s), and/or manufacturer(s), with name, address, and telephone number of each responsible principal(s).

2.2.5. In addition to all Warranty documentation and information required herein, Contractor shall provide its Guarantee as required by the Contract Documents.

2.3. PREPARATION

2.3.1. Contractor shall obtain Warranties, executed in duplicate by each applicable and/or responsible Subcontractor(s), supplier(s), and manufacturer(s), within ten (10) days after completion of the applicable item or Work. Except for items put into use with SCCOE's permission, Contractor shall leave date of beginning of time of Warranty until the date of Completion is determined.

2.3.2. Contractor shall verify that Warranties.

2.3.3. are in proper form, contain full information, and are notarized, when required.

2.3.4. Contractor shall co-execute submittals when required.

2.3.5. Contractor shall retain warranties until time specified for submittal.

2.4. TIME OF SUBMITTALS

2.4.1. Schedule of Warranties. Contractor shall provide SCCOE with a Schedule of Warranties at least fourteen (14) days prior to submitting its other required submittals indicated herein. This will provide SCCOE the opportunity to review the anticipated Warranties and make any comments, suggestions or revisions the SCCOE may require.

2.4.2. For equipment or component parts of equipment put into service during construction with SCCOE's permission, Contractor shall submit a draft Warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.

2.4.3. On or before the Contractor submits its final application for payment, Contractor shall submit all Warranties and related documents in final form. The SCCOE shall indicate any Warranty-related Work that is being performed and incomplete at the time Contractor submits its final application for payment. SCCOE will provide comments to Contractor and Contractor must revise the content of the Warranties as required by SCCOE prior to SCCOE's approval of Contractor's final Application for Payment.

2.4.4. For items of Work that are not completed until after the date of Completion, Contractor shall provide an updated Warranty for those item(s) of Work within ten (10) days after acceptance, listing the date of acceptance as start of the Warranty period.

END OF DOCUMENT

DOCUMENT 01 78 39

RECORD DOCUMENTS

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Documents on Work and Completion of Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Contract Closeout and Final Cleaning;

1.1.6. Operation and Maintenance Data;

1.1.7. Warranties;

1.1.8. General Commissioning Requirements.

2. RECORD DOCUMENTS OR DRAWINGS

2.1. GENERAL

2.1.1. "Record Documents" and "Record Drawings" may also be referred to in the Contract Documents as "As-Built Drawings."

2.1.2. As indicated in the Contract Documents, SCCOE will provide Contractor with one set of reproducible plans of the original Drawings.

2.1.3. Contractor shall maintain at each Project Site one (1) set of marked-up Drawings and shall transfer all changes and information to those marked-up Drawings, as often as required in the Contract Documents, but in no case less than once each month. Contractor shall submit to the Project Inspector one set of reproducible vellums of the Project Record Documents ("As-Builts") showing all changes incorporated into the Work since the preceding monthly submittal. The As-Builts shall be available at the Project Site. The Contractor shall submit reproducible vellums at the conclusion of the Project following review of the blueline prints.

2.1.4. Label and date each Record Document "RECORD DOCUMENT" in legibly printed letters.

2.1.5. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused, without limitation, by Change Orders, Construction Directives, RFI's, and Addenda shall be accurately and legibly recorded by Contractor.

2.1.6. Locations and changes shall be done by Contractor in a neat and legible manner and, where applicable, indicated by drawing a "cloud" around the changed or additional information.

2.2. **RECORD DOCUMENT INFORMATION**

2.2.1. Contractor shall record the following information:

2.2.1.1. Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.

2.2.1.2. Actual numbering of each electrical circuit.

2.2.1.3. Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Drawings.

2.2.1.4. Locations of all items, not necessarily concealed, which vary from the Contract Documents.

2.2.1.5. Installed location of all cathodic protection anodes.

2.2.1.6. Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.

2.2.1.7. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.

2.2.1.8. Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

2.2.2. In some instances, this information may be recorded by dimension. In other instances, it may be recorded in relation to the spaces in the building near which it was installed.

2.2.3. Contractor shall provide additional Drawings as necessary for clarification.

2.2.4. Contractor shall provide in an electronic format as indicated in the Contract Documents, a copy of the Drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

2.2.4.1. With the SCCOE’s prior approval, Contractor may provide these reproducible Drawings in hard copy.

3. RECORD MATERIALS LOG

3.1.1. Materials Log shall be submitted prior to Completion.

3.1.2. Preparation: Mark Material Log to indicate the actual product installation where installation varies from that indicated in original Material Log.

3.1.3. Give particular attention to information on concealed materials and installations that cannot be readily identified and recorded later.

3.1.4. Mark copy with the proprietary name and characteristics of products, materials, and equipment furnished, including substitutions and product options selected.

3.1.5. Record the name of the manufacturer, supplier, installer, and other information necessary to provide a record of selections made.

3.1.6. The working copy of Materials Log shall be consistently maintained throughout construction, and shall be accessible at Project Site.

4. MAINTENANCE OF RECORD DOCUMENTS

4.1. Contractor shall store Record Documents apart from documents used for construction as follows:

4.1.1. Provide files and racks for storage of Record Documents.

4.1.2. Maintain Record Documents in a clean, dry, legible condition and in good order.

4.2. Contractor shall not use Record Documents for construction purposes.

END OF DOCUMENT

DOCUMENT 01 91 00 [N/A]

COMMISSIONING

1. GENERAL

1.1. RELATED DOCUMENTS AND PROVISIONS

Contractor shall review all Contract Documents for applicable provisions related to the provisions in this document, including without limitation:

1.1.1. General Conditions, including, without limitation, Documents on Work and Completion of Work;

1.1.2. Special Conditions (if any);

1.1.3. Supplemental Conditions (if any);

1.1.4. Submittals;

1.1.5. Collaborative For High Performance Schools (CHPS) -- Special Environmental Requirements; [N/A]

1.1.6. Contract Closeout and Final Cleaning;

1.1.7. Operation and Maintenance Data;

1.1.8. Warranties;

1.1.9. Record Documents; and

1.1.10. LEED Certification Sustainable Design Requirements. [N/A]

1.2. SUMMARY

1.2.1. Commissioning is a process for validating and documenting that the facility and its systems are constructed and perform in conformity with the Contract Documents.

1.2.2. The objective of the commissioning process is to verify that the performance of the facility and its systems meet or exceed the design intent.

1.2.3. Commissioning includes special facility start-up processes used to bring the facility to a fully operational state, free of deficiencies in an efficient and timely manner.

1.2.4. Training on related systems and equipment operation and maintenance shall be scheduled to commence only after start-up is complete and systems are verified to be 100% complete and functional.

1.3. DESCRIPTION

The following applies to all Contract Documents:

1.3.1. **Contractor Startup**: Sub-phase of Contractor's work ending with Acceptance of Work, during which Contractor performs a pre-planned program of activities including starting, testing, inspecting, adjusting balancing, correcting deficiencies and other similar activities.

1.3.1.1. The SCCOE, Construction Manager and Architect and the Inspector shall be present to observe, inspect and identify deficiencies in building systems operations.

1.3.2. The completion of startup means the entire Construction Project including startup and fine tuning has been performed to the requirements of the Contract Documents and is verified in writing by the SCCOE, Construction Manager and Architect.

1.3.3. **Fine Tuning**: Fine tuning is the responsibility of Contractors after SCCOE occupancy and ending one (1) year after SCCOE occupancy. During this time the Contractor is responsible for optimizing systems and correcting deficiencies arising under normal operating conditions.

1.3.3.1. Includes a period after occupancy where systems are optimized under "live" operating conditions and any outstanding construction deficiencies are corrected.

1.3.3.2. Fine Tuning shall extend from date of SCCOE occupancy to one year after occupancy.

1.4. DEFINITION OF TERMS

1.4.1. **Contractor's Pre-Commissioning Checklists**: Includes installation and start-up items as specified to be completed by the appropriate contractors prior to operational verification through the functional testing process.

1.4.2. **Installation Verification Process**: Includes the on-site inspection and review of related system components for conformance to Contract Documents. The Contractor shall verify systems readiness for functional testing procedures prior to the start of functional testing. Deficiencies will be documented by the Inspector for future resolution.

1.4.3. **Functional Performance Testing Process**: Includes the documented testing of system parameters, under actual or simulated operating conditions. Final performance commissioning of systems will begin only after the appropriate Contractor certifies that systems are 100% complete and ready for functional testing. The Contractor will be required to schedule, coordinate and perform device tests, calibration and functional performance test procedures.

1.4.4. **Deficiencies and Resolutions List:** Includes a list of noted deficiencies discovered as a result of the commissioning process. This list also includes the current disposition of issues, and the date of final resolution as confirmed by the Construction Manager and Inspector. Deficiencies are defined as those issues where products execution or performance does not satisfy the Project Contract Documents and/or the design intent.

1.5. COMMISSIONING SCHEDULE

1.5.1. Provide schedules for Contractor Start-Up work.

1.5.2. Incorporate in overall construction schedule.

1.5.3. Contractor's activities, which will be performed as specified under Fine Tuning, shall be completed within one (1) year from date of occupancy by the SCCOE.

1.6. CONTRACTOR RESPONSIBILITIES

1.6.1. Provide utility services required for the commissioning process.

1.6.2. Contractor is responsible for construction means, methods, job safety, and/or management function related to commissioning on the Project Site.

1.6.3. Contractor shall assign representatives with expertise and authority to act on behalf of Contractor and schedule the representatives to participate in and perform commissioning team activities including, but not limited to, the following:

1.6.3.1. Participate in design and construction-phase coordination meetings.

1.6.3.2. Participate in maintenance orientation and inspection.

1.6.3.3. Participate in operation and maintenance training sessions.

1.6.3.4. Participate in final review.

1.6.3.5. Certify that Work is complete and systems are operational according to the Contract Documents, including calibration of instrumentation and controls.

1.6.3.6. Evaluate performance deficiencies identified in test reports and, in collaboration with entity responsible for system and equipment installation, recommend corrective action.

1.6.3.7. Review and comment on final commissioning documentation.

1.6.4. Contractor shall integrate all commissioning activities into Contractor’s Construction Schedule.

1.6.5. Contractor’s Subcontractors shall assign representatives with expertise and authority to act on behalf of subcontractors and schedule the representatives to participate in and perform commissioning team activities including, but not limited to, the following:

1.6.5.1. Participate in design and construction-phase coordination meetings.

1.6.5.2. Participate in maintenance orientation and inspection.

1.6.5.3. Participate in procedures meeting for testing.

1.6.5.4. Participate in final review.

1.6.5.5. Provide schedule for operation and maintenance data submittals, equipment startup, and testing to Commissioning Authority for incorporation into the

commissioning plan. Update schedule on a weekly basis throughout the construction period.

1.6.5.6. Provide information to the Commissioning Authority for developing construction phase commissioning plan.

1.6.5.7. Participate in training sessions for SCCOE's operation and maintenance personnel.

1.6.5.8. Provide updated Project Record Documents to Commissioning Authority on a daily basis.

1.6.5.9. Gather and submit operation and maintenance data for systems, subsystems, and equipment to the Commissioning Authority, as specified in Division 01 Document "Operation and Maintenance Data."

1.6.5.10. Provide technicians who are familiar with the construction and operation of installed systems, who shall execute the test procedures developed by the Commissioning Authority, and who shall participate in testing of installed systems, subsystems, and equipment.

1.7. SUBMITTALS

1.7.1. Submit Draft and Final Contractor Start-up Forms as described in this Document. Submit Draft Report for Construction Manager and Architect's review and comment prior to Final Submission. Submit Final Report not later than twenty weeks before scheduled date of Acceptance of Work.

1.7.2. Prepare and submit one copy of report form to be used in preparation of system reports for:

1.7.2.1. Food Service Equipment.

1.7.2.2. Gymnasium Equipment and Scoreboards

1.7.2.3. Laboratory Fume Hoods

1.7.2.4. Elevators

1.7.2.5. Each mechanical system specified in Division 15.

1.7.2.6. Each Electrical system specified in Division 16.

1.7.3. Each System Report shall be submitted including the following:

1.7.3.1. Project Name

1.7.3.2. Name of System

1.7.3.3. Index of report's content

1.7.3.4. Adjacent to list of equipment, columns to indicate status of equipment operation, to date and to sign off equipment start-up.

1.7.3.5. Space to record equipment and operational problems which cannot be corrected with scheduled Contractor Start-Up program and which may delay Acceptance of Work.

1.7.3.6. Manufacturer's equipment start-up reports.

1.7.3.7. Systems' testing, balancing, and adjusting reports.

1.7.3.8. Equipment Report Forms shall include the following: Project name, name of equipment, starting and testing procedures to be performed and observations and test results to be recorded.

1.8. QUALITY ASSURANCE

1.8.1. Training Instructor Qualifications: Contractor shall provide factory-authorized service representatives, experienced in training, operation, and maintenance procedures for installed systems, subsystems, and equipment.

1.8.2. Test Equipment Calibration: Comply with test equipment manufacturer's calibration procedures and intervals. Recalibrate test instruments (per NIST requirements if applicable) immediately whenever instruments have been repaired following damage or dropping. Affix calibration tags to test instruments. Instruments shall have been calibrated within six months prior to use.

1.9. EQUIPMENT & SYSTEM SCHEDULE

1.9.1. The following equipment shall be commissioned in this Project:

System	Equipment	Note	Req'd by LEED
HVAC System	Chillers		X
	Boilers		X
	Pumps		X
	Cooling towers		X
	Variable frequency drives		X
	Air handlers		X
	Packaged AC units		X
	Terminal units for Office areas	2	X
	Unit heaters		X
	Heat exchangers		X
	Exhaust fans		X
	Supply fans		X
	Return fans		X
Building Management System	Sequences of Operation, Monitored Points, and Alarms		X
	Metering/Monitoring Devices and Equipment		X
	Software Commissioning, GUI presentation		

	commissioning, system access performance criteria, software tools/source code commissioning, instrument data sheets, middleware commissioning, Internet Protocol commissioning		
Electrical System	Sweep or scheduled lighting controls	2	X
	Daylight dimming controls		X
	Lighting occupancy sensors		X
	Electrical grounding		
Plumbing System	Domestic water heaters		X
Security Alarm Systems	Security cameras and monitoring system personal duress alarm system; Intercom system; Paging System.		
System	Equipment	Note	Req'd by LEED
Security Electronics	Security plumbing fixture water management system.		
	Door Controls.		
	Fire alarm system.		
	Distributed radio antenna system.		
	Access control system.		
Courtroom Systems	Room acoustics.		
	Sound masking system.		
	Assisted listening.		
	Video projection.		
	Audio system.		
	Lighting and lighting controls.		X
Fire/Life Safety Systems	All devices		
	Alarm drivers		
	HVAC/Fire System Integration		
	Event Notifying and Reporting Systems		
Communication System			

1.10. SYSTEM FAILURES

After a second failure of a system to successfully meet the criteria as set for in the functional performance testing process, the Contractor shall reimburse the SCCOE for cost associated with any additional retesting required due to uncorrected deficiencies. Costs shall include salary, benefits, overhead, travel costs and per diem lodging costs if applicable.

END OF DOCUMENT