March 19, 2021

Technical Specifications

Bid Set

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ALLANA BUICK & BERS

Making Buildings Perform Better

Terra Linda High School Breezeway Waterproofing and Railing

320 Nova Albion Way,
San Rafael, CA 94903

Prepared for:

Greystone West
621 W Spain Street,
Sonoma, CA 95476

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SUMMARY OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Site Access Conditions and Requirements;
   2. Special Conditions.

1.2 SUMMARY OF WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of this Contract consists of the following:
   1. Selective demolition and construction necessary for the Modernization to existing school buildings, including associated civil, architectural, structural, plumbing, mechanical and/or electrical work as indicated in the Drawings and Specifications. Generally, these categories of work involve new finishes, adaptive re-use and modification of certain selected areas, new cabinetry, handicap accessibility retrofits, re-roofing, and adding HVAC to instructional areas, library and administrative areas and pertain to changing and expanding selected infrastructure utilities, and extensive modifications. The Project will involve the "phasing" and barricading of work areas as indicated on the Plans and enumerated in these Specifications.

1.3 CONTRACTS

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

1.4 WORK BY OTHERS

A. Work on the Project that will be performed and completed prior to the start of the Work of this Contract:
   1. Asbestos removal/abatement.
   2. Lead paint removal/abatement.

B. Work on the Project that will be performed by others concurrent with the Work of this Contract:

   RESERVED

1.5 CODES, REGULATIONS, AND STANDARDS

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

B. Codes, regulations, and standards shall be as published effective as of date of bid opening, unless otherwise specified or indicated.

1.6 PROJECT RECORD DOCUMENTS

A. Contractor shall maintain on Site one set of the following record documents; Contractor shall record actual revisions to the Work:
1. Contract Drawings.
2. Specifications.
3. Addenda.
4. Change Orders and other modifications to the Contract.
5. Reviewed shop drawings, product data, and samples.
6. Field test records.
7. Inspection certificates.
8. Manufacturer's certificates.

B. Contractor shall store Record Documents separate from documents used for construction. Provide files, racks, and secure storage for Record Documents and samples.

C. Contractor shall record information concurrent with construction progress.

D. Specifications: Contractor shall legibly mark and record at each product section of the Specifications the description of the actual product(s) installed, including the following:
1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and Change Orders and written directives.

1.7 EXAMINATION OF EXISTING CONDITIONS

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

B. 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.

C. 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 District and the Architect.

1.8 CONTRACTOR'S USE OF PREMISES

A. If unoccupied and only with District'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 District chooses to beneficially occupy any building(s), Contractor must obtain the District'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.

B. 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.

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

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

E. No one other than those directly involved in the demolition and construction, or specifically designated by the District or the Architect shall be permitted in the areas of work during demolition and construction activities.

F. The Contractor shall install the construction fence and maintain that it will be locked when not in use. Keys to this fencing will be provided to the District.

1.9 PROTECTION OF EXISTING STRUCTURES AND UTILITIES

A. 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 District's satisfaction.

B. 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 District for disposition of same as indicated in the General Conditions.

1.10 UTILITY SHUTDOWNS AND INTERRUPTIONS

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

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

1.11 STRUCTURAL INTEGRITY

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

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

PART 2 - PRODUCTS

NOT USED

PART 3 - EXECUTION

NOT USED

END OF DOCUMENT

DOCUMENT 01 21 00

ALLOWANCES

PART 1 - GENERAL

1.1 SECTION INCLUDES

A. A. Non-specified work.

1.2 RELATED SECTIONS

A. Document 01 10 00 (Summary of Work)

B. Document 01 29 00 (Payments and Completion)

C. Document 01 32 19 (Submittal Procedures)

1.3 ALLOWANCES

A. Included in the Contract, a stipulated sum/price of $10,000 as an allowance for Unforeseen Conditions within the limits set forth in the Contract Documents. This Allowance shall not be utilized without written approval by the District.

B. Contractor's costs, without overhead and profit, for products, delivery, installation, labor, insurance, payroll, taxes, bonding and equipment rental will be included in Allowance Expenditure Directive authorizing expenditure of funds from this Allowance. No overhead and profit shall be added to the Allowance Expenditure Directive.

C. Funds will be drawn from Allowance only with District approval evidenced by an Allowance Expenditure Directive.

D. At Contract closeout, funds remaining in Allowance will be credited to District by Change Order.

E. Whenever costs are more than the Allowance, the amount covered by the Allowance will be approved at cost. The Contract Price shall be adjusted by Change Order for amounts in excess of the Allowance.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF DOCUMENT

DOCUMENT 01 22 00

ALTERNATES AND UNIT PRICING

PART 1 - ALTERNATES

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions;
   3. Bid Form and Proposal;
   4. Instruction to Bidders.

1.2 DESCRIPTION

A. The items of work indicated below propose modifications to, substitutions for, additions to and/or deletions from the various parts of the Work specified in other Sections of the Specifications. The acceptance or rejection of any of the alternates is strictly at the option of the District subject to District's acceptance of Contractor's stated prices contained in this Proposal.

1.3 GENERAL

A. Where an item is omitted, or scope of Work is decreased, all Work pertaining to the item whether specifically stated or not, shall be omitted and where an item is added or modified or where scope of Work is increased, all Work pertaining to that 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.

1.4 BASE BID

A. The Base Bid includes all work required to construct the Project completely and in accordance with the Contract Documents.

1.5 ALTERNATES

A. None

B. The above Alternate descriptions are general in nature and for reference purposes only. The Contract Documents, including, without limitation, the Drawings and Specifications, must be referred to for the complete scope of Work.

PART 2 - UNIT PRICING

2.1 GENERAL

A. Contractor shall completely state all required figures based on Unit Prices listed below. 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.

2.2 UNIT PRICES

A. Furnish unit prices for each of the named items on a square foot, lineal foot, or per each basis, as applies. Unit prices shall include all labor, materials, services, profit, overhead, insurance, bonds, taxes, and all other incidental costs of Contractor, subcontractors, and supplier(s).
   1. None

END OF DOCUMENT

DOCUMENT 01 25 13

PRODUCT OPTIONS AND SUBSTITUTIONS

PART 1 - - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. Instructions to Bidders;
   2. General Conditions, including, without limitation, Substitutions For Specified Items; and
   3. Special Conditions.

1.2 SUBSTITUTIONS OF MATERIALS AND EQUIPMENT

A. Catalog numbers and specific brands or trade names followed by the designation "or equal" are used in conjunction with material and equipment required by the Specifications to establish the standards of quality, utility, and appearance required. Substitutions which are equal in quality, utility, and appearance to those specified may be reviewed subject to the provisions of the General Conditions.

B. Wherever more than one manufacturer's product is specified, the first-named product is the basis for the design used in the work and the use of alternative-named manufacturers' products or substitutes may require modifications in that design. If such alternatives are proposed by Contractor and are approved by the District and/or the Architect, Contractor shall assume all costs required to make necessary revisions and modifications of the design resulting from the substitutions requested by the Contractor.

C. When materials and equipment are specified by first manufacturer's name and product number, second manufacturer's name and "or approved equal," supporting data for the second product, if proposed by Contractor, shall be submitted in accordance with the requirements for substitutions. The District’s Board has found and determined that certain item(s) shall be used on this Project based on the purpose(s) indicated pursuant to Public Contract Code section 3400(c). These findings, as well as the products and brand or trade names, have been identified in the Notice to Bidders.

D. The Contractor will not be allowed to substitute specified items unless the request for substitution is submitted as follows:
   1. District must receive any notice of request for substitution of a specified item a minimum of ten (10) calendar days prior to bid opening.
   2. Within 35 days after the date of the Notice of Award, the Contractor shall submit data substantiating the request(s) for all substitution(s) containing sufficient information to assess acceptability of product or system and impact on Project, including, without limitation, the requirements specified in the Special Conditions and the technical Specifications. Insufficient information shall be grounds for rejection of substitution.

E. If the District and/or Architect, in reviewing proposed substitute materials and equipment, require revisions or corrections to be made to previously accepted Shop Drawings and supplemental supporting data to be resubmitted, Contractor shall promptly do so. If any proposed substitution is judged by the District and/or Architect to be unacceptable, the specified material or equipment shall be provided.

F. Samples may be required. Tests required by the District and/or Architect for the determination of quality and utility shall be made at the expense of Contractor, with acceptance of the test procedure first given by the District.

G. In reviewing the supporting data submitted for substitutions, the District and/or Architect will use for purposes of comparison all the characteristics of the specified material or equipment as they appear in the manufacturer's published data even though all the characteristics may not have been particularly mentioned in the Contract Documents. If more than two (2) submissions of supporting data are required, the cost of reviewing the additional supporting data shall be borne by Contractor, and the District will deduct the costs from the Contract Price. The Contractor shall be responsible for any re-design costs occasioned by District's acceptance and/or approval of any substitute.

H. The Contractor shall, in the event that a substitute is less costly than that specified, credit the District with one hundred percent (100%) of the net difference between the substitute and the originally specified material. In this event, the Contractor agrees to execute a deductive Change Order to reflect that credit. In the event Contractor furnishes a material, process, or article more expensive than that specified, the difference in the cost of that material, process, or article so furnished shall be borne by Contractor.

I. In no event shall the District be liable for any increase in Contract Price or Contract Time due to any claimed delay in the evaluation of any proposed substitute or in the acceptance or rejection of any proposed substitute.

PART 2 - – PRODUCTS NOT USED.

PART 3 - – EXECUTION NOT USED.

END OF SECTION

DOCUMENT 01 26 00

CHANGES IN THE WORK

CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE PROVISIONS IN THE AGREEMENT, GENERAL CONDITIONS, AND SPECIAL CONDITIONS, IF USED, RELATED TO CHANGES AND/OR REQUESTS FOR CHANGES.

END OF DOCUMENT

SECTION 07 92 00

APPLICATIONFOR PAYMENT AND CONDITIONAL AND UNCONDITIONAL WAIVER AND RELEASE FORMS

CONTRACTOR SHALL COMPLY WITH ALL PROVISIONS IN THE GENERAL CONDITIONS RELATED TO APPLICATIONS FOR PAYMENT AND/OR PAYMENTS.

CONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8132)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check: _____

Amount of Check: $_____

Check Payable to: _____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) The following progress payments for which the claimant has previously given a conditional waiver and release but has not received payment:

Date(s) of waiver and release: _____

Amount(s) of unpaid progress payment(s): $_____

(4) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE
ON PROGRESS PAYMENT
(CIVIL CODE SECTION 8134)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Through Date: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job through the Through Date of this document. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has received the following progress payment: $_____

Exceptions

This document does not affect any of the following:

(1) Retentions.

(2) Extras for which the claimant has not received payment.

(3) Contract rights, including (A) a right based on rescission, abandonment, or breach of contract, and (B) the right to recover compensation for work not compensated by the payment.

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

CONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT
(CIVIL CODE SECTION 8136)

NOTICE: THIS DOCUMENT WAIVES THE CLAIMANT'S LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS EFFECTIVE ON RECEIPT OF PAYMENT. A PERSON SHOULD NOT RELY ON THIS DOCUMENT UNLESS SATISFIED THAT THE CLAIMANT HAS RECEIVED PAYMENT.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Conditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. This document is effective only on the claimant's receipt of payment from the financial institution on which the following check is drawn:

Maker of Check:

Amount of Check: $_____

Check Payable to: _____

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: $_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

UNCONDITIONAL WAIVER AND RELEASE
ON FINAL PAYMENT
(CIVIL CODE SECTION 8138)

NOTICE TO CLAIMANT: THIS DOCUMENT WAIVES AND RELEASES LIEN, STOP PAYMENT NOTICE, AND PAYMENT BOND RIGHTS UNCONDITIONALLY AND STATES THAT YOU HAVE BEEN PAID FOR GIVING UP THOSE RIGHTS. THIS DOCUMENT IS ENFORCEABLE AGAINST YOU IF YOU SIGN IT, EVEN IF YOU HAVE NOT BEEN PAID. IF YOU HAVE NOT BEEN PAID, USE A CONDITIONAL WAIVER AND RELEASE FORM.

Name of Claimant: _____

Name of Customer: _____

Job Location: _____

Owner: _____

Unconditional Waiver and Release

This document waives and releases lien, stop payment notice, and payment bond rights the claimant has for all labor and service provided, and equipment and material delivered, to the customer on this job. Rights based upon labor or service provided, or equipment or material delivered, pursuant to a written change order that has been fully executed by the parties prior to the date that this document is signed by the claimant, are waived and released by this document, unless listed as an Exception below. The claimant has been paid in full.

Exceptions

This document does not affect any of the following: _____

Disputed claims for extras in the amount of: $_____

Claimant's Signature: _____

Claimant's Title: _____

Date of Signature: _____

DOCUMENT 01 31 19

PROJECT MEETINGS

PART 1 - – GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions; and
   2. Special Conditions.

1.2 PROGRESS MEETINGS:

A. Contractor shall schedule and hold regular weekly progress meetings after a minimum of one week's prior written notice of the meeting date and time to all Invitees as indicated below.

B. Location: Contractor's field office.

C. The Contractor shall notify and invite the following entities (“Invitees”):
   1. District Representative.
   2. Contractor.
   3. Contractor's Project Manager.
   4. Contractor's Superintendent.
   5. Subcontractors, as appropriate to the agenda of the meeting.
   6. Suppliers, as appropriate to the agenda of the meeting.
   7. Construction Manager, if any.
   8. Architect
   9. Engineer(s), if any and as appropriate to the agenda of the meeting.
   10. Others, as appropriate to the agenda of the meeting.

D. The District's and/or the Architect’s Consultants will attend at their discretion, in response to the agenda.

E. The District representative, the Construction Manager, and/or another District Agent shall take and distribute meeting notes to attendees and other concerned parties. If exceptions are taken to anything in the meeting notes, those exceptions shall be stated in writing to the District within five (5) working days following District's distribution of the meeting notes.

1.3 PRE-INSTALLATION/PERFORMANCE MEETING:

A. Contractor shall schedule a meeting prior to the start of each of the following portions of the Work: cutting and patching of plaster and roofing, and other weather-exposed and moisture-

resistant products. Contractor shall invite all Invitees to this meeting, and others whose work may affect or be affected by the quality of the cutting and patching work.

B. Contractor shall review in detail prior to this meeting, the manufacturer's requirements and specifications, applicable portions of the Contract Documents, Shop Drawings, and other submittals, and other related work. At this meeting, invitees shall review and resolve conflicts, incompatibilities, or inadequacies discovered or anticipated.

C. Contractor shall review in detail Project conditions, schedule, requirements for performance, application, installation, and quality of completed Work, and protection of adjacent Work and property.

D. Contractor shall review in detail means of protecting the completed Work during the remainder of the construction period.

PART 2 - - PRODUCTS

NOT USED.

PART 3 - - EXECUTION

NOT USED.

END OF DOCUMENT

DOCUMENT 01 32 13

SCHEDULING OF WORK

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions;
   3. Summary of Work; and
   4. Submittals.

1.2 SECTION INCLUDES

A. Scheduling of Work under this Contract shall be performed by Contractor in accordance with requirements of this Section.
   1. Development of schedule, cost and resource loading of the schedule, monthly payment requests, and project status reporting requirements of the Contract shall employ computerized Critical Path Method ("CPM") scheduling ("CPM Schedule").
   2. CPM Schedule shall be cost loaded based on Schedule of Values as approved by District.
   3. Submit schedules and reports as specified in the General Conditions.

B. Upon Award of Contract, Contractor shall immediately commence development of Initial and Original CPM Schedules to ensure compliance with CPM Schedule submittal requirements.

1.3 CONSTRUCTION SCHEDULE

A. Within ten (10) days of issuance of the Notice to Proceed and before request for first progress payment, the Contractor shall prepare and submit to the Project Manager a construction progress schedule conforming to the Milestone Schedule below.

B. The Construction Schedule shall be continuously updated, and an updated schedule shall be submitted with each application for progress payment. Each revised schedule shall indicate the work actually accomplished during the previous period and the schedule for completion of the remaining work.

C. Milestone Schedule:

RESERVED

1.4 QUALIFICATIONS

A. Contractor shall employ experienced scheduling personnel qualified to use the latest version of Primavera P6. Experience level required is set forth below. Contractor may employ such personnel directly or may employ a consultant for this purpose.
   1. The written statement shall identify the individual who will perform CPM scheduling.
   2. Capability and experience shall be verified by description of construction projects on which individual has successfully applied computerized CPM.
   3. Required level of experience shall include at least two (2) projects of similar nature and scope with value not less than three fourths (¾) of the Total Bid Price of this Project. The written statement shall provide contact persons for referenced projects with current telephone and address information.

B. District reserves the right to approve or reject Contractor's scheduler or consultant at any time. District reserves the right to refuse replacing of Contractor's scheduler or consultant, if District believes replacement will negatively affect the scheduling of Work under this Contract.

1.5 GENERAL

A. Progress Schedule shall be based on and incorporate milestone and completion dates specified in Contract Documents.

B. Overall time of completion and time of completion for each milestone shown on Progress Schedule shall adhere to times in the Contract, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by District. Any such agreement shall be formalized by a Change Order.
   1. District is not required to accept an early completion schedule, i.e., one that shows an earlier completion date than the Contract Time.
   2. Contractor shall not be entitled to extra compensation in event agreement is reached on an earlier completion schedule and Contractor completes its Work, for whatever reason, beyond completion date shown in its early completion schedule but within the Contract Time.
   3. A schedule showing the work completed in less than the Contract Time, and that has been accepted by District, shall be considered to have Project Float. The Project Float is the time between the scheduled completion of the work and the Completion Date. Project Float is a resource available to both District and the Contractor.

C. Ownership Project Float: Neither the District nor Contractor owns Project Float. The Project owns the Project Float. As such, liability for delay of the Completion Date rests with the party whose actions, last in time, actually cause delay to the Completion Date.
   1. For example, if Party A uses some, but not all of the Project Float and Party B later uses remainder of the Project Float as well as additional time beyond the Project Float, Party B shall be liable for the time that represents a delay to the Completion Date.
   2. Party A would not be responsible for the time since it did not consume the entire Project Float and additional Project Float remained; therefore, the Completion Date was unaffected by Party A.

D. Progress Schedule shall be the basis for evaluating job progress, payment requests, and time extension requests. Responsibility for developing Contract CPM Schedule and monitoring actual progress as compared to Progress Schedule rests with Contractor.

E. Failure of Progress Schedule to include any element of the Work, or any inaccuracy in Progress Schedule, will not relieve Contractor from responsibility for accomplishing the Work in accordance with the Contract. District's acceptance of schedule shall be for its use in monitoring and evaluating job progress, payment requests, and time extension requests and shall not, in any manner, impose a duty of care upon District, or act to relieve Contractor of its responsibility for means and methods of construction.

F. Software: Use District Project Planner for Windows, latest version. Such software shall be compatible with Windows operating system. Contractor shall transmit contract file to District on compact disk at times requested by District.

G. Transmit each item under the form approved by District.
   1. Identify Project with District Contract number and name of Contractor.
   2. Provide space for Contractor's approval stamp and District's review stamps.
   3. Submittals received from sources other than Contractor will be returned to the Contractor without District's review.

1.6 INITIAL CPM SCHEDULE

A. Initial CPM Schedule submitted for review at the pre-construction conference shall serve as Contractor's schedule for up to ninety (90) calendar days after the Notice to Proceed.

B. Indicate detailed plan for the Work to be completed in first ninety (90) days of the Contract; details of planned mobilization of plant and equipment; sequence of early operations; procurement of materials and equipment. Show Work beyond ninety (90) calendar days in summary form.

C. Initial CPM Schedule shall be time scaled.

D. Initial CPM Schedule shall be cost and resource loaded. Accepted cost and resource loaded schedule will be used as basis for monthly progress payments until acceptance of the Original CPM Schedule. Use of Initial CPM Schedule for progress payments shall not exceed ninety (90) calendar days.

E. District and Contractor shall meet to review and discuss the Initial CPM Schedule within seven (7) calendar days after it has been submitted to District.
   1. District's review and comment on the schedule shall be limited to Contract conformance (with sequencing, coordination, and milestone requirements).
   2. Contractor shall make corrections to schedule necessary to comply with Contract requirements and shall adjust schedule to incorporate any missing information requested by District. Contractor shall resubmit Initial CPM Schedule if requested by District.

F. If, during the first ninety (90) days after Notice to Proceed, the Contractor is of the opinion that any of the Work included on its Initial CPM Schedule has been impacted, the Contractor shall

submit to District a written Time Impact Evaluation ("TIE") in accordance with Article 1.12 of this Section. The TIE shall be based on the most current update of the Initial CPM Schedule.

1.7 ORIGINAL CPM SCHEDULE

A. Submit a detailed proposed Original CPM Schedule presenting an orderly and realistic plan for completion of the Work in conformance with requirements as specified herein.

B. Progress Schedule shall include or comply with following requirements:
   1. Time scaled, cost and resource (labor and major equipment) loaded CPM schedule.
   2. No activity on schedule shall have duration longer than fifteen (15) work days, with exception of submittal, approval, fabrication and procurement activities, unless otherwise approved by District.
      a. Activity durations shall be total number of actual work days required to perform that activity.
   3. The start and completion dates of all items of Work, their major components, and milestone completion dates, if any.
   4. District furnished materials and equipment, if any, identified as separate activities.
   5. Activities for maintaining Project Record Documents.
   6. Dependencies (or relationships) between activities.
   7. Processing/approval of submittals and shop drawings for all material and equipment required per the Contract. Activities that are dependent on submittal acceptance or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.
      a. Include time for submittals, re-submittals and reviews by District. Coordinate with accepted schedule for submission of Shop Drawings, samples, and other submittals.
      b. Contractor shall be responsible for all impacts resulting from re-submittal of Shop Drawings and submittals.
   8. Procurement of major equipment, through receipt and inspection at jobsite, identified as separate activity.
      a. Include time for fabrication and delivery of manufactured products for the Work.
      b. Show dependencies between procurement and construction.
   9. Activity description; what Work is to be accomplished and where.
   10. The total cost of performing each activity shall be total of labor, material, and equipment, excluding overhead and profit of Contractor. Overhead and profit of the General Contractor shall be shown as a separate activity in the schedule. Sum of cost for all activities shall equal total Contract value.
   11. Resources required (labor and major equipment) to perform each activity.
   12. Responsibility code for each activity corresponding to Contractor or Subcontractor responsible for performing the Work.
   13. Identify the activities which constitute the controlling operations or critical path. No more than twenty-five (25%) of the activities shall be critical or near critical. Near critical is defined as float in the range of one (1) to (10) days.
      a. Twenty (20) workdays for developing punch list(s), completion of punch-list items, and final clean up for the Work or any designated portion thereof. No other activities shall be scheduled during this period.
   14. Interface with the work of other contractors, District, and agencies such as, but not limited to, utility companies.

15. Show detailed Subcontractor Work activities. In addition, furnish copies of Subcontractor schedules upon which CPM was built.
    a) Also furnish for each Subcontractor, as determined by District, submitted on Subcontractor letterhead, a statement certifying that Subcontractor concurs with Contractor's Original CPM Schedule and that Subcontractor's related schedules have been incorporated, including activity duration, cost and resource loading.
    b. Subcontractor schedules shall be independently derived and not a copy of Contractor's schedule.
    c. In addition to Contractor's schedule and resource loading, obtain from electrical, mechanical, and plumbing Subcontractors, and other Subcontractors as required by District, productivity calculations common to their trades, such as units per person day, feet of pipe per day per person, feet of wiring per day per person, and similar information.
    d. Furnish schedule for Contractor/Subcontractor CPM schedule meetings which shall be held prior to submission of Original CPM schedule to District. District shall be permitted to attend scheduled meetings as an observer.
16. Activity durations shall be in Work days.
17. Submit with the schedule a list of anticipated non-Work days, such as weekends and holidays. The Progress Schedule shall exclude in its Work day calendar all non-Work days on which Contractor anticipates critical Work will not be performed.

C. Original CPM Schedule Review Meeting: Contractor shall, within sixty (60) days from the Notice to Proceed date, meet with District to review the Original CPM Schedule submittal.
1. Contractor shall have its Project Manager, Project Superintendent, Project Scheduler, and key Subcontractor representatives, as required by District, in attendance. The meeting will take place over a continuous one (1) day period.
2. District's review will be limited to submittal's conformance to Contract requirements including, but not limited to, coordination requirements. However, review may also include:
    a. Clarifications of Contract Requirements.
    b. Directions to include activities and information missing from submittal.
    c. Requests to Contractor to clarify its schedule.
3. Within five (5) days of the Schedule Review Meeting, Contractor shall respond in writing to all questions and comments expressed by District at the Meeting.

1.8 ADJUSTMENTS TO CPM SCHEDULE

A. Adjustments to Original CPM Schedule: Contractor shall have adjusted the Original CPM Schedule submittal to address all review comments from original CPM Schedule review meeting and resubmit network diagrams and reports for District's review.
1. District, within ten (10) days from date that Contractor submitted the revised schedule, will either:
    a. Accept schedule and cost and resource loaded activities as submitted, or
    b. Advise Contractor in writing to review any part or parts of schedule which either do not meet Contract requirements or are unsatisfactory for District to monitor Project's progress, resources, and status or evaluate monthly payment request by Contractor.
2. District may accept schedule with conditions that the first monthly CPM Schedule update be revised to correct deficiencies identified.

3. When schedule is accepted, it shall be considered the "Original CPM Schedule" which will then be immediately updated to reflect the current status of the work.
4. District reserves right to require Contractor to adjust, add to, or clarify any portion of schedule which may later be discovered to be insufficient for monitoring of Work or approval of partial payment requests. No additional compensation will be provided for such adjustments, additions, or clarifications.

B. Acceptance of Contractor's schedule by District will be based solely upon schedule's compliance with Contract requirements.
1. By way of Contractor assigning activity durations and proposing sequence of Work, Contractor agrees to utilize sufficient and necessary management and other resources to perform work in accordance with the schedule.
2. Upon submittal of schedule update, updated schedule shall be considered "current" CPM Schedule.
3. Submission of Contractor's schedule to District shall not relieve Contractor of total responsibility for scheduling, sequencing, and pursuing Work to comply with requirements of Contract Documents, including adverse effects such as delays resulting from ill-timed Work.

C. Submittal of Original CPM Schedule, and subsequent schedule updates, shall be understood to be Contractor's representation that the Schedule meets requirements of Contract Documents and that Work shall be executed in sequence indicated on the schedule.

D. Contractor shall distribute Original CPM Schedule to Subcontractors for review and written acceptance, which shall be noted on Subcontractors' letterheads to Contractor and transmitted to District for the record.

1.9 MONTHLY CPM SCHEDULE UPDATE SUBMITTALS

A. Following acceptance of Contractor's Original CPM Schedule, Contractor shall monitor progress of Work and adjust schedule each month to reflect actual progress and any anticipated changes to planned activities.
1. Each schedule update submitted shall be complete, including all information requested for the Original CPM Schedule submittal.
2. Each update shall continue to show all Work activities including those already completed. These completed activities shall accurately reflect "as built" information by indicating when activities were actually started and completed.

B. A meeting will be held on approximately the twenty-fifth (25th) of each month to review the schedule update submittal and progress payment application.
1. At this meeting, at a minimum, the following items will be reviewed: Percent (%) complete of each activity; Time Impact Evaluations for Change Orders and Time Extension Request; actual and anticipated activity sequence changes; actual and anticipated duration changes; and actual and anticipated Contractor delays.
2. These meetings are considered a critical component of overall monthly schedule update submittal and Contractor shall have appropriate personnel attend. At a minimum, these meetings shall be attended by Contractor's General Superintendent and Scheduler.
3. Contractor shall plan on the meeting taking no less than four (4) hours.

C. Within five (5) working days after monthly schedule update meeting, Contractor shall submit the updated CPM Schedule update.

D. Within five (5) work days of receipt of above noted revised submittals, District will either accept or reject monthly schedule update submittal.
   1. If accepted, percent (%) complete shown in monthly update will be basis for Application for Payment by the Contractor. The schedule update shall be submitted as part of the Contractor's Application for Payment.
   2. If rejected, update shall be corrected and resubmitted by Contractor before the Application for Payment is submitted.

E. Neither updating, changing or revising of any report, curve, schedule, or narrative submitted to District by Contractor under this Contract, nor District's review or acceptance of any such report, curve, schedule or narrative shall have the effect of amending or modifying in any way the Completion Date or milestone dates or of modifying or limiting in any way Contractor's obligations under this Contract.

1.10 SCHEDULE REVISIONS

A. Updating the Schedule to reflect actual progress shall not be considered revisions to the Schedule. Since scheduling is a dynamic process, revisions to activity durations and sequences are expected on a monthly basis.

B. To reflect revisions to the Schedule, the Contractor shall provide District with a written narrative with a full description and reasons for each Work activity revised. For revisions affecting the sequence of work, the Contractor shall provide a schedule diagram which compares the original sequence to the revised sequence of work. The Contractor shall provide the written narrative and schedule diagram for revisions two (2) working days in advance of the monthly schedule update meeting.

C. Schedule revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District. District may request further information and justification for schedule revisions and Contractor shall, within three (3) days, provide District with a complete written narrative response to District's request.

D. If the Contractor's revision is still not accepted by District, and the Contractor disagrees with District's position, the Contractor has seven (7) calendar days from receipt of District's letter rejecting the revision to provide a written narrative providing full justification and explanation for the revision. The Contractor's failure to respond in writing within seven (7) calendar days of District's written rejection of a schedule revision shall be contractually interpreted as acceptance of District's position, and the Contractor waives its rights to subsequently dispute or file a claim regarding District's position.

E. At District's discretion, the Contractor can be required to provide Subcontractor certifications of performance regarding proposed schedule revisions affecting said Subcontractors.

1.11 RECOVERY SCHEDULE

A. If the Schedule Update shows a completion date twenty-one (21) calendar days beyond the Contract Completion Date, or individual milestone completion dates, the Contractor shall submit to District the proposed revisions to recover the lost time within seven (7) calendar days. As part of this submittal, the Contractor shall provide a written narrative for each revision made to recapture the lost time. If the revisions include sequence changes, the Contractor shall provide a schedule diagram comparing the original sequence to the revised sequence of work.

B. The revisions shall not be incorporated into any schedule update until the revisions have been reviewed by District.

C. If the Contractor's revisions are not accepted by District, District and the Contractor shall follow the procedures in paragraph 1.09.C, 1.09.D and 1.09.E above.

D. At District's discretion, the Contractor can be required to provide Subcontractor certifications for revisions affecting said Subcontractors.

1.12 TIME IMPACT EVALUATION ("TIE") FOR CHANGE ORDERS, AND OTHER DELAYS

A. When Contractor is directed to proceed with changed Work, the Contractor shall prepare and submit within fourteen (14) calendar days from the Notice to Proceed a TIE which includes both a written narrative and a schedule diagram depicting how the changed Work affects other schedule activities. The schedule diagram shall show how the Contractor proposes to incorporate the changed Work in the schedule and how it impacts the current schedule-update critical path. The Contractor is also responsible for requesting time extensions based on the TIE's impact on the critical path. The diagram must be tied to the main sequence of schedule activities to enable District to evaluate the impact of changed Work to the scheduled critical path.

B. Contractor shall be required to comply with the requirements of Paragraph 1.09.A for all types of delays such as, but not limited to, Contractor/Subcontractor delays, adverse weather delays, strikes, procurement delays, fabrication delays, etc.

C. Contractor shall be responsible for all costs associated with the preparation of TIEs, and the process of incorporating them into the current schedule update. The Contractor shall provide District with four (4) copies of each TIE.

D. Once agreement has been reached on a TIE, the Contract Time will be adjusted accordingly. If agreement is not reached on a TIE, the Contract Time may be extended in an amount District allows, and the Contractor may submit a claim for additional time claimed by contractor.

1.13 TIME EXTENSIONS

A. The Contractor is responsible for requesting time extensions for time impacts that, in the opinion of the Contractor, impact the critical path of the current schedule update. Notice of time impacts shall be given in accord with the General Conditions.

B. Where an event for which District is responsible impacts the projected Completion Date, the Contractor shall provide a written mitigation plan, including a schedule diagram, which explains how (e.g., increase crew size, overtime, etc.) the impact can be mitigated. The Contractor shall also include a detailed cost breakdown of the labor, equipment, and material the Contractor would expend to mitigate District-caused time impact. The Contractor shall submit its mitigation plan to District within fourteen (14) calendar days from the date of discovery of the impact. The Contractor is responsible for the cost to prepare the mitigation plan.

C. Failure to request time, provide TIE, or provide the required mitigation plan will result in Contractor waiving its right to a time extension and cost to mitigate the delay.

D. No time will be granted under this Contract for cumulative effect of changes.

E. District will not be obligated to consider any time extension request unless the Contractor complies with the requirements of Contract Documents.

F. Failure of the Contractor to perform in accordance with the current schedule update shall not be excused by submittal of time extension requests.

G. If the Contractor does not submit a TIE within the required fourteen (14) calendar days for any issue, it is mutually agreed that the Contractor does not require a time extension for said issue.

1.14 SCHEDULE REPORTS

A. Submit four (4) copies of the following reports with the Initial CPM Schedule, the Original CPM Schedule, and each monthly update.

B. Required Reports:
1. Two activity listing reports: one sorted by activity number and one by total Project Float. These reports shall also include each activity's early/late and actual start and finish dates, original and remaining duration, Project Float, responsibility code, and the logic relationship of activities.
2. Cost report sorted by activity number including each activity's associated cost, percentage of Work accomplished, earned value- to date, previous payments, and amount earned for current update period.
3. Schedule plots presenting time-scaled network diagram showing activities and their relationships with the controlling operations or critical path clearly highlighted.
4. Cash flow report calculated by early start, late start, and indicating actual progress. Provide an exhibit depicting this information in graphic form.
5. Planned versus actual resource (i.e., labor) histogram calculated by early start and late start.

A. Other Reports:

In addition to above reports, District may request, from month to month, any two of the following reports. Submit four (4) copies of all reports.

6. Activities by early start.

7. Activities by late start.
8. Activities grouped by Subcontractors or selected trades.
9. Activities with scheduled early start dates in a given time frame, such as fifteen (15) or thirty (30) day outlook.

C. Furnish District with report files on compact disks containing all schedule files for each report generated.

1.15 PROJECT STATUS REPORTING

A. In addition to submittal requirements for CPM scheduling identified in this Section, Contractor shall provide a monthly project status report (i.e., written narrative report) to be submitted in conjunction with each CPM Schedule as specified herein. Status reporting shall be in form specified below.

B. Contractor shall prepare monthly written narrative reports of status of Project for submission to District. Written status reports shall include:
1. Status of major Project components (percent (%) complete, amount of time ahead or behind schedule) and an explanation of how Project will be brought back on schedule if delays have occurred.
2. Progress made on critical activities indicated on CPM Schedule.
3. Explanations for any lack of work on critical path activities planned to be performed during last month.
4. Explanations for any schedule changes, including changes to logic or to activity durations.
5. List of critical activities scheduled to be performed next month.
6. Status of major material and equipment procurement.
7. Any delays encountered during reporting period.
8. Contractor shall provide printed report indicating actual versus planned resource loading for each trade and each activity. This report shall be provided on weekly and monthly basis.
    a. Actual resource shall be accumulated in field by Contractor, and shall be as noted on Contractor's daily reports. These reports will be basis for information provided in computer-generated monthly and weekly printed reports.
    b. Contractor shall explain all variances and mitigation measures.
        1) Contractor may include any other information pertinent to status of Project. Contractor shall include additional status information requested by District at no additional cost.
9. Status reports, and the information contained therein, shall not be construed as claims, notice of claims, notice of delay, or requests for changes or compensation.

1.16 WEEKLY SCHEDULE REPORT

A. At the Weekly Progress Meeting, the Contractor shall provide and present a time-scaled three (3) week look-ahead schedule that is based and correlated by activity number to the current schedule (i.e., Initial, Original CPM, or Schedule Update).

1.17 DAILY CONSTRUCTION REPORTS

A. On a daily basis, Contractor shall submit a daily activity report to District for each workday, including weekends and holidays when worked. Contractor shall develop the daily construction reports on a computer-generated database capable of sorting daily Work, manpower, and man-hours by Contractor, Subcontractor, area, sub-area, and Change Order Work. Upon request of District, furnish computer disk of this data base. Obtain District's written approval of daily construction report data base format prior to implementation. Include in report:

B. Project name and Project number.

C. Contractor's name and address.

D. Weather, temperature, and any unusual site conditions.

E. Brief description and location of the day's scheduled activities and any special problems and accidents, including Work of Subcontractors. Descriptions shall be referenced to CPM scheduled activities.

F. Worker quantities for its own Work force and for Subcontractors of any tier.

G. Equipment, other than hand tools, utilized by Contractor and Subcontractors.

1.18 PERIODIC VERIFIED REPORTS

Contractor shall complete and verify construction reports on a form prescribed by the Division of the State Architect and file reports on the first day of February, May, August, and November during the preceding quarter year; at the completion of the Contract; at the completion of the Work; at the suspension of Work for a period of more than one (1) month; whenever the services of Contractor or any of Contractor's Subcontractors are terminated for any reason; and at any time a special verified report is required by the Division of the State Architect. Refer to section 4-336 and section 4-343 of Part 1, Title 24 of the California Code of Regulations.

PART 2 - – PRODUCTS NOT USED.

PART 3 - - EXECUTION NOT USED.

END OF SECTION

DOCUMENT 01 33 00

SUBMITTALS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;
   2. Special Conditions.

1.2 SECTION INCLUDES:

A. Definitions:
   1. Shop Drawings and Product Data are as indicated in the General Conditions and include, but are not limited to, fabrication, erection, layout and setting drawings, formwork and falsework drawings, manufacturers' standard drawings, descriptive literature, catalogues, brochures, performance and test data, wiring and control diagrams. In addition, there are other drawings and descriptive data pertaining to materials, equipment, piping, duct and conduit systems, and methods of construction as may be required to show that the materials, equipment or systems and all positions conform to the requirement of the Contract Documents, including, without limitation, the Drawings.
   2. "Manufactured" applies to standard units usually mass-produced; "fabricated" means specifically assembled or made out of selected materials to meet design requirements. Shop Drawings shall establish the actual detail of manufactured or fabricated items, indicated proper relation to adjoining work and amplify design details of mechanical and electrical equipment in proper relation to physical spaces in the structure.
   3. Manufacturer's Instructions: Where any item of Work is required by the Contract Documents to be furnished, installed, or performed, at a minimum, in accordance with a specified product manufacturer's instructions, the Contractor shall procure and distribute copies of these to the District, the Architect, and all other concerned parties and shall furnish, install, or perform the work, at a minimum, in accordance with those instructions.
   4. Samples, Shop Drawings, Product Data, and other items as specified, in accordance with the following requirements:
      a. Contractor shall submit all Shop Drawings, Product Data, and Samples to the District, the Architect, the Project Inspector, and the Construction Manager.
      b. Contractor shall comply with all time frames herein and in the General Conditions and, in any case, shall submit required information in sufficient time to permit proper consideration and action before ordering any materials or items represented by such Shop Drawings, Product Data, and/or Samples.
      c. Contractor shall allow sufficient time so that no delay occurs due to required lead time in ordering or delivery of any item to the Site. Contractor shall be responsible for any delay in progress of Work due to its failure to observe these requirements.

d. Time for completion of Work shall not be extended on account of Contractor's failure to promptly submit Shop Drawings, Product Data, and/or Samples.
e. Reference numbers on Shop Drawings shall have Architectural and/or Engineering Contract Drawings reference numbers for details, sections, and “cuts” shown on Shop Drawings. These reference numbers shall be in addition to any numbering system that Contractor chooses to use or has adopted as standard.
f. When the magnitude or complexity of submittal material prevents a complete review within the stated time frame, Contractor shall make this submittal in increments to avoid extended delays.
g. Contractor shall certify on submittals for review that submittals conform to Contract requirements. Also certify that Contractor-furnished equipment can be installed in allocated space. In event of any variance, Contractor shall specifically state in transmittal and on Shop Drawings, portions vary and require approval of a substitute. Submittals shall not be used as a means of requesting a substitution.
h. Unless specified otherwise, sampling, preparation of samples, and tests shall be in accordance with the latest standard of the American Society for Testing and Materials.
i. Upon demand by Architect or District, Contractor shall submit samples of materials and/or articles for tests or examinations and consideration before Contractor incorporates same in Work. Contractor shall be solely responsible for delays due to sample(s) not being submitted in time to allow for tests. Acceptance or rejection will be expressed in writing. Work shall be equal to approved samples in every respect. Samples that are of value after testing will remain the property of Contractor.

B. Submittal Schedule:
1. Contractor shall prepare its proposed submittal schedule that is coordinated with the proposed construction schedule and submit both to the District within ten (10) days after the date of the Notice to Proceed. Contractor's proposed schedules shall become the Project Construction Schedule and the Project Submittal Schedule after each is approved by the District.
2. Contractor is responsible for all lost time should the initial submittal be rejected, marked "revise and resubmit", etc.
3. All Submittals shall be forwarded to the District by the date indicated on the approved Submittal Schedule, unless an earlier date is necessary to maintain the Construction Schedule, in which case those Submittals shall be forwarded to the District so as not to delay the Construction Schedule.
4. Contractor may be assessed $100 a day for each day it is late in submitting a shop drawing or sample. No extensions of time will be granted to Trade Contractor or any Subcontractor because of its failure to have shop drawings and samples submitted in accordance with the Schedule.

1.3 SHOP DRAWINGS:

A. Contractor shall submit one reproducible transparency and six (6) opaque reproductions. The District will review and return the reproducible copy and one (1) opaque reproduction to Contractor.

B. Before commencing installation of any Work, the Contractor shall submit and receive approval of all drawings, descriptive data, and material list(s) as required to accomplish Work.

C. Review of Shop Drawings is regarded as a service to assist Contractor and in all cases original Contract Documents shall take precedence as outlined under General Conditions.

D. No claim for extra time or payment shall be based on work shown on Shop Drawings unless the claim is (1) noted on Contractor's transmittal letter accompanying Shop Drawings and (2) Contractor has complied with all applicable provisions of the General Conditions, including, without limitation, provisions regarding changes and payment, and all required written approvals.

E. District shall not review Shop Drawings for quantities of materials or number of items supplied.

F. District's and/or Architect's review of Shop Drawing will be general. District and/or Architect review does not relieve Contractor of responsibility for dimensions, accuracy, proper fitting, construction of Work, furnishing of materials, or Work required by Contract Documents and not indicated on Shop Drawings. The District's and/or Architect's review of Shop Drawings is not to be construed as approving departures from Contract Documents.

G. Review of Shop Drawings and Schedules does not relieve Contractor from responsibility for any aspect of those Drawings or Schedules that is a violation of local, County, State, or Federal laws, rules, ordinances, or rules and regulations of commissions, boards, or other authorities or utilities having jurisdiction.

H. Before submitting Shop Drawings for review, Contractor shall check Shop Drawings of its subcontractors for accuracy, and confirm that all Work contiguous with and having bearing on other work shown on Shop Drawings is accurately drawn and in conformance with Contract Documents.

I. Submitted drawings and details must bear stamp of approval of Contractor:
   1. Stamp and signature shall clearly certify that Contractor has checked Shop Drawings for compliance with Drawings.
   2. If Contractor submits a Shop Drawing without an executed stamp of approval, or whenever it is evident (despite stamp) that Drawings have not been checked, the District and/or Architect will not consider them and will return them to the Contractor for revision and resubmission. In that event, it will be deemed that Contractor has not complied with this provision and Contractor shall bear risk of all delays to same extent as if it had not submitted any Shop Drawings or details.

J. Submission of Shop Drawings (in either original submission or when resubmitted with correction) constitutes evidence that Contractor has checked all information thereon and that it accepts and is willing to perform Work as shown.

K. Contractor shall pay for cost of any changes in construction due to improper checking and coordination. Contractor shall be responsible for all additional costs, including coordination. Contractor shall be responsible for costs incurred by itself, the District, the Architect, the Project Inspector, the Construction Manager, any other Subcontractor or contractor, etc., due to improperly checked and/or coordination of submittals.

L. Shop Drawings must clearly delineate the following information:
   1. Project name and address.
   2. Specification number and description.
   3. Architect's name and project number.
   4. Shop Drawing title, number, date, and scale.
   5. Names of Contractor, Subcontractor(s) and fabricator.
   6. Working and erection dimensions.
   7. Arrangements and sectional views.
   8. Necessary details, including complete information for making connections with other Work.
   9. Kinds of materials and finishes.
   10. Descriptive names of materials and equipment, classified item numbers, and locations at which materials or equipment are to be installed in the Work. Contractor shall use same reference identification(s) as shown on Contract Drawings.

M. Contractor shall prepare composite drawings and installation layouts when required to solve tight field conditions.
   1. Shop Drawings shall consist of dimensioned plans and elevations and must give complete information, particularly as to size and location of sleeves, inserts, attachments, openings, conduits, ducts, boxes, structural interferences, etc.
   2. Contractor shall coordinate these composite Shop Drawings and installation layouts in the field between itself and its Subcontractor(s) for proper relationship to the Work, the work of other trades, and the field conditions. The Contractor shall check and approve all submittal(s) before submitting them for final review.

1.4 PRODUCT DATA OR NON-REPRODUCIBLE SUBMITTALS:

A. Contractor shall submit manufacturer's printed literature in original form. Any fading type of reproduction will not be accepted. Contract must submit a minimum of six (6) each, to the District. District shall return one (1) to the Contractor, who shall reproduce whatever additional copies it requires for distribution.

B. Contractor shall submit six (6) copies of a complete list of all major items of mechanical, plumbing, and electrical equipment and materials in accordance with the approved Submittal Schedule, except as required earlier to comply with the approved Construction Schedule. Other items specified are to be submitted prior to commencing Work. Contractor shall submit items of like kind at one time in a neat and orderly manner. Partial lists will not be acceptable.

C. Submittals shall include manufacturer's specifications, physical dimensions, and ratings of all equipment. Contractor shall furnish performance curves for all pumps and fans. Where printed literature describes items in addition to that item being submitted, submitted item shall be clearly marked on sheet and superfluous information shall be crossed out. If highlighting is used, Contractor shall mark all copies.

D. Equipment submittals shall be complete and include space requirements, weight, electrical and mechanical requirements, performance data, and supplemental information that may be requested.

E. Imported Materials Certification must be submitted at least ten (10) days before material is delivered.

1.5 SAMPLES:

A. Contractor shall submit for approval Samples as required and within the time frame in the Contract Documents. Materials such as concrete, mortar, etc., which require on-site testing will be obtained from Project Site.

B. Contractor shall submit four (4) samples except where greater or lesser number is specifically required by Contract Documents including, without limitation, the Specifications.
   1. Samples must be of sufficient size and quality to clearly illustrate functional characteristics, with integrally related parts and attachment devices.
   2. Samples must show full range of texture, color, and pattern.

C. Contractor shall make all Submittals, unless it has authorized Subcontractor(s) to submit and Contractor has notified the District in writing to this effect.

D. Samples to be shipped prepaid or hand-delivered to the District.

E. Contractor shall mark samples to show name of Project, name of Contractor submitting, Contract number and segment of Work where representative Sample will be used, all applicable Specifications Sections and documents, Contract Drawing Number and detail, and ASTM or FS reference, if applicable.

F. Contractor shall not deliver any material to Site prior to receipt of District's and/or Architect's completed written review and approval. Contractor shall furnish materials equal in every respect to approved Samples and execute Work in conformance therewith.

G. District's and/or Architect's review, acceptance, and/or approval of Sample(s) will not preclude rejections of any material upon discovery of defects in same prior to final acceptance of completed Work.

H. After a material has been approved, no change in brand or make will be permitted.

I. Contractor shall prepare its Submittal Schedule and submit Samples of materials requiring laboratory tests to specified laboratory for testing not less than ninety (90) days before such materials are required to be used in Work.

J. Samples which are rejected must be resubmitted promptly after notification of rejection and be marked "Resubmitted Sample" in addition to other information required.

K. Field Samples and Mock-Ups are to be removed by Contractor at District's direction:
   1. Size: As Specified.
   2. Furnish catalog numbers and similar data, as requested.

1.6 REVIEW AND RESUBMISSION REQUIREMENTS:

A. The District will arrange for review of Sample(s), Shop Drawing(s), Product Data, and other submittal(s) by appropriate reviewer and return to Contractor as provided below within twenty-one (21) days after receipt or within twenty-one (21) days after receipt of all related information necessary for such review, whichever is later.

B. One (1) copy of product or materials data will be returned to Contractor with the review status.

C. Samples to be incorporated into the Work will be returned to Contractor, together with a written notice designating the Sample with the appropriate review status and indicating errors discovered on review, if any. Other Samples will not be returned, but the same notice will be given with respect thereto, and that notice shall be considered a return of the Sample.

D. Contractor shall revise and resubmit any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) as required by the reviewer. Such resubmittals will be reviewed and returned in the same manner as original Sample(s), Shop Drawing(s), Product Data, and other submittal(s), within fourteen (14) days after receipt thereof or within fourteen (14) days after receipt of all related information necessary for such review. Such resubmittal shall not delay the Work.

E. Contractor may proceed with any of the Work covered by Sample(s), Shop Drawing(s), Product Data, and other submittal(s) upon its return if designated as no exception taken, or revise as noted, provided the Contractor proceeds in accordance with the District and/or the Architect's notes and comments.

F. Contractor shall not begin any of the work covered by a Sample(s), Shop Drawing(s), Product Data, and other submittal(s), designated as revise and resubmit or rejected, until a revision or correction thereof has been reviewed and returned to Contractor.

G. Sample(s), Shop Drawing(s), Product Data, and other submittal(s) designated as revise and resubmit or rejected and requiring resubmittal, shall be revised or corrected and resubmitted to the District no later than fourteen (14) days or a shorter period as required to comply with the approved Construction Schedule, after its return to Contractor.

H. Neither the review nor the lack of review of any Sample(s), Shop Drawing(s), Product Data, and other submittal(s) shall waive any of the requirements of the Contract Documents, or relieve Contractor of any obligation thereunder.

I. District's and/or Architect's review of Shop Drawings does not relieve the Contractor of responsibility for any errors that may exist. Contractor is responsible for the dimensions and design of adequate connections and details and for satisfactory construction of all the Work.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 35 13.23

SITE STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including without limitation, Site Access, Conditions, and Regulations;
   2. Special Conditions;
   3. Drug-Free Workplace Certification;
   4. Tobacco-Free Environment Certification;
   5. Criminal Background Investigation/Fingerprinting Certification;
   6. Temporary Facilities and Controls.

1.2 REQUIREMENTS OF THE DISTRICT:

A. Drug-Free Schools and Safety Requirements:
   1. All school sites and other District Facilities have been declared “Drug-Free Zones.” No drugs, alcohol and/or smoking are allowed at any time in any buildings and/or grounds on District property. No students, staff, visitors, or contractors are to use drugs on these sites.
   2. Smoking and the use of tobacco products by all persons is prohibited on or in District property. District property includes school buildings, school grounds, school-owned vehicles and vehicles owned by others while on District property. Contractor shall post: "Non-Smoking Area" in a highly visible location in each work area, staging area, and parking area. Contractor may designate a smoking area outside of District property within the public right-of-way, provided that this area remains quiet and unobtrusive to adjacent neighbors. This smoking area is to be kept clean at all times.
   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.

B. Language: Profanity or other unacceptable and/or loud language will not be tolerated, "Cat calls" or other derogatory language toward students, staff, volunteers, parents or public will not be allowed.

C. Disturbing the Peace (Noise and Lighting):
   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.
   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. District reserves the right to prohibit the use of radios at the Site, except for mobile phones or other handheld communication radios.
   3. If portable lights are used after dark, all light must be located so as not to direct light into neighboring property.

D. Traffic:
   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.
   2. All paths of travel for deliveries, including without limitation, material, equipment, and supply deliveries, shall be reviewed and approved by District in advance. Any damage will be repaired to the pre-damaged condition by the Contractor.
   3. District shall designate a construction entry to the Site. If Contractor requests, District determines it is required, and to the extent possible, District 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 District and at Contractor's expense.
   4. Parking areas shall be reviewed and approved by District in advance. No parking is to occur under the drip line of trees or in softscape areas that could otherwise be damaged.

E. 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 District. The same rules and regulations shall apply equally to delivery personnel, inspectors, consultants, and other visitors to the Site.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 41 00

REGULATORY REQUIREMENTS

PART 1 - - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Obtaining of Permits, Licenses and Registrations and Work to Comply with All Applicable Laws and Regulations;
   2. Special Conditions; and
   3. Quality Control.
      a.

1.2 DESCRIPTION:

A. 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.

1.3 REQUIREMENTS OF REGULATORY AGENCIES:

A. All statutes, ordinances, laws, rules, codes, regulations, standards, and the lawful orders of all public authorities having jurisdiction over 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 District and/or Architect may request, including, without limitation, applicable portions of the California Code of Regulations ("CCR").
   1. California Building Standards Administrative Code, Part 1, Title 24, CCR.
   2. California Building Code (CBC), Part 2, Title 24, CCR; (International Building Code volumes 1-2 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; (International Fire Code and California Amendments).
   7. California Green Building Standards Code (CALGreen), Part 11, Title 24, CCR.
   8. California Referenced Standards Code, Part 12, Title 24, CCR.

9. State Fire Marshal Regulations, Public Safety, Title 19, CCR.
10. Partial List of Applicable National Fire Protection Association (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.
11. California Division of the State Architect interpretation of Regulations ("DSA IR"), including, without limitation:
    a. DSA IR A-6 — Construction Change Document Submittal and Approval Processes.
    b. DSA IR A-7 — Project Inspector Certification and Approval.
    c. DSA IR A-8 — Project Inspector and Assistant Inspector Duties and Performance.
    d. DSA IR A-12 — Assistant Inspector Approval.
12. DSA Procedures ("DSA PR")
    a. DSA PR 13-01 – Construction Oversight Process
    b. DSA PR 13-02 – Project Certification Process

B. This Project shall be governed by applicable regulations, including, without limitation, the State of California's Administrative Regulations for the Division of the State Architect-Structural Safety (DSA/SS), Chapter 4, Part 1, Title 24, CCR, and the most current version on the date the bids are opened and as it pertains to school construction including, without limitation:
1. Test and testing laboratory per Section 4-335. District shall pay for the testing laboratory.
2. Special inspections per Section 4-333(c).
3. Deferred Approvals per section 4-317(g).
4. Verified reports per Sections 4-336 & 4-343(c).
5. Duties of the Architect & Engineers shall be per Sections 4-333(a) and 4-341.
6. Duties of the Contractor shall be per Section 4-343.
7. Duties of Project Inspector shall be per Section 4-334.
8. Addenda and Construction Change Documents per Section 4-338.

C. Contractor shall keep and make available all applicable parts of the most current version of Title 24 referred to in the plans and specifications at the Site during construction.

D. 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 Title 24 requirements to the DSA.
1. Contractor shall submit the following to Architect for review and endorsement:
    a. Product information on proposed material/system supplier.
    b. Drawings, specifications, and calculations prepared, signed, and stamped by an architect or engineer licensed in the State of California for that portion of the Work.
    c. All other requirements as may be required by DSA.
2. Cost of preparing and submitting documentation per DSA Deferred Approval requirements including required modifications to Drawings and Specifications, whether or not indicated in the Contract Documents, shall be borne by Contractor.
3. Contractor shall not begin fabrication and installation of deferred approval items without first obtaining DSA approval of Drawings and Specifications.
4. Schedule of Work Subject to DSA Deferred Approval: Window wall systems exceeding 10 feet in span.

PART 2 - – PRODUCTS

NOT USED.

PART 3 - – EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 42 13

ABBREVIATIONS AND ACRONYMS

PART 1 - – GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

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

B. General Conditions including without limitation, Definitions;

C. Special Conditions.

1.2 DOCUMENT INCLUDES:

A. Abbreviations used throughout the Contract Documents.

B. Reference to a technical society, organization, or body is by abbreviation, as follows:

1.	AA	The Aluminum Association
2.	AAMA	American Architectural Manufacturers Association
3.	AASHTO	American Association of State Highway and Transportation Officials
4.	ABPA	Acoustical and Board Products Association
5.	ACI	American Concrete Institute
6.	AGA	American Gas Association
7.	AGC	Associated General Contractors of America
8.	AHC	Architectural Hardware Consultant
9.	AHRI	Air Conditioning, Heating, Refrigeration Institute
10.	AI	Asphalt Institute
11.	AIA	American Institute of Architects
12.	AIEE	American Institute of Electrical Engineers
13.	AISC	American Institute of Steel Construction
14.	AISI	American Iron and Steel Institute
15.	AMCA	Air Moving and Conditioning Association
16.	ANSI	American National Standards Institute
17.	APA	American Plywood Association
18.	ASHRAE	American Society of Heating, Refrigeration and Air Conditioning Engineers
19.	ASCE	American Society of Civil Engineers
20.	ASME	American Society of Mechanical Engineers
21.	ASTM	American Society of Testing and Materials
22.	AWPA	American Wood Protection Association
23.	AWPI	American Wood preservers Institute

24.	AWS	American Welding Society
25.	AWSC	American Welding Society Code
26.	AWI	Architectural Woodwork Institute
27.	AWWA	American Water Works Association
28.	BIA	The Brick Industry Association
29.	CCR	California Code of Regulations
30.	CLFMI	Chain Link Fence Manufacturers Institute
31.	CRA	California Redwood Association
32.	CRSI	Concrete Reinforcing Steel Institute
33.	CS	Commercial Standards
34.	CSI	Construction Specifications Institute
35.	CTI	Cooling Tower Institute
36.	FGMA	Flat Glass Manufacturer's Association
37.	FIA	Factory Insurance Association
38.	FM	Factory Mutual Global
39.	FS/FED SPEC	Federal Specification
40.	FTI	Facing Title Institute
41.	GA	Gypsum Association
42.	IAPMO	International Association of Plumbing and Mechanical Officials
43.	ICC	International Code Council
44.	IEEE	Institute of Electrical and Electronic Engineers
45.	IES	Illumination Engineering Society
46.	LIA	Lead Industries Association
47.	MCAC	Mason Contractors Association of California
48.	MIMA	Mineral Wool Insulation Manufacturers Association
49.	MLMA	Metal Lath Manufacturers Association
50.	MS/MIL SPEC	Military Specifications
51.	NAAMM	National Association of Architectural Metal Manufacturers
52.	NBHA	National Builders Hardware Association
53.	NBFU	National Board of Fire Underwriters
54.	NBS	National Bureau of Standards
55.	NCMA	National Concrete Masonry Association
56.	NCSEA	National Council of Structural Engineers Associations
57.	NEC	National Electrical Code
58.	NEMA	National Electrical Manufacturers Association
59.	NSI	Natural Stone Institute
60.	NTMA	National Terrazzo and Mosaic Association
61.	NWMA	National Woodwork Manufacturer's Association
62.	ORS	Office of Regulatory Services (California)
63.	OSHA	Occupational Safety and Health Act
64.	PCI	Precast Concrete Institute
65.	PCA	Portland Cement Association
66.	PDCA	Painting and Decorating Contractors of America
67.	PDI	Plumbing Drainage Institute
68.	PEI	Porcelain Enamel Institute
69.	PG&E	Pacific Gas & Electric Company

70.	PS	Product Standards
71.	SDI	Steel Door Institute; Steel Deck Institute
72.	SJI	Steel Joist Institute
73.	SSPC	Steel Structures Painting Council
74.	TCNA	Tile Council of North America
75.	TPI	Truss Plate Institute
76.	UBC	Uniform Building Code
77.	UL	Underwriters Laboratories Code
78.	UMC	Uniform Mechanical Code
79.	USDA	United States Department of Agriculture
80.	VI	Vermiculite Institute
81.	WCLIB	West Coast Lumberman's Inspection Bureau
82.	WEUSER	Western Electric Utilities Service Engineering Requirements
83.	WIC	Woodwork Institute of California

PART 2 - - PRODUCTS

NOT USED.

PART 3 - - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 42 16

SITE STANDARDS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions including without limitation, Definitions;
   2. Special Conditions.

1.2 QUALITY ASSURANCE

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

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

C. Contractor shall obtain copies of standards unless specifically required not to by the Contract Documents.

D. Contractor shall maintain a copy of all standards at jobsite during submittals, planning, and progress of the specific Work, until final completion, unless specifically required not to by the Contract Documents.

E. Should specified reference standards conflict with Contract Documents, Contractor shall request clarification from the District and/or the Architect before proceeding.

F. The contractual relationship of the parties to the Contract shall not be altered from the contractual relationship as indicated in the Contract Documents by mention or inference otherwise in any referenced document.

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

END OF SECTION

DOCUMENT 01 42 19

REFERENCES

PART 1 - GENERAL

1.1 SCHEDULE OF REFERENCES:

The following information is intended only for the general assistance of the Contractor, and the District does not represent that all of the information is current. It is the Contractor's responsibility to verify the correct information for each of the entities listed.

AA	The Aluminum Association 1400 Crystal Drive, Suite 430 Arlington, VA 22202 www.aluminum.org	703/358-2960
AABC	Associated Air Balance Council 1518 K Street, NW, Suite 503 Washington, DC 20005 www.aabc.com	202/737-0202
AAMA	American Architectural Manufacturers Association 1827 Walden Office Sq., Suite 550 Schaumburg, IL 60173-4268 www.aamanet.org	847/303-5664
AASHTO	American Association of State Highway and Transportation Officials 444 N Capitol St. NW - Suite 249 Washington, DC 20001 www.transportation.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
ACA	American Coatings Association 1500 Rhode Island Ave., NW Washington DC, 20005 www.paint.org	202/462-6272

ACI	American Concrete Institute 38800 Country Club Dr. Farmington Hills, MI 48331-3439 www.concrete.org	248/848-3700
ACPA	American Concrete Pipe Association 8445 Freeport Parkway, Suite 350 Irving, TX 75063-2595 www.concrete-pipe.org	972/506-7216
ADC	Air Duct Council 1901 N. Roselle Road, Suite 800 Schaumburg, Illinois 60195 www.flexibleduct.org	847/706-6750
AF&PA	American Forest and Paper Association 1101 K Street, NW, Suite 700 Washington, DC 20005 www.afandpa.org	202/463-2700
AGA	American Gas Association 400 North Capitol Street, NW Washington, DC 20001 www.aga.org	202/824-7000
AGC	Associate General Contractors of America 2300 Wilson Blvd., Suite 300 Arlington, VA 22201 www.agc.org	703/548-3118
AHA	American Hardboard Association 1210 West Northwest Highway Palatine, IL 60067 domensino.com/AHA/default.htm	847/934-8800
AI	Asphalt Institute 2696 Research Park Drive Lexington, KY 40511-8480 www.asphaltinstitute.org	859/288-4960
AIA	The American Institute of Architects 1735 New York Ave., NW Washington, DC 20006-5292 www.aia.org	202/626-7300
AISC	American Institute of Steel Construction 130 East Randolph Street Suite 2000 Chicago, IL 60601 www.aisc.org	312.670.2400

AIA	American Insurance Association (formerly the National Board of Fire Underwriters) 555 12th St, NW, Suite 550 Washington DC 20004 www.aiadc.org	202/828-7100
AISI	American Iron and Steel Institute 25 Massachusetts Ave., NW, Suite 800 Washington, DC 20001 www.steel.org	202/452.7100
AITC	American Institute of Timber Construction 7012 S. Revere Parkway Suite 140 Centennial, CO 80112 www.aitc-glulam.org	503/639.0651
ALI	Associated Laboratories, Inc. P.O. Box 152837 Dallas, TX 75315 www.assoc-labs.com	214/565-0593
ALSC	American Lumber Standards Committee, Inc. 7470 New Technology Way, Suite F Frederick, MD 21703 www.alsc.org	301/972-1700
AMCA	Air Movement and Control Association International, Inc. 30 W. University Drive Arlington Heights, IL 60004 www.amca.org	847/394-0150
ANLA	American Nursery & Landscape Association (now AmericanHort) 525 9th St NW, Suite 80 Washington, DC 20004 www.americanhort.org	202/789-2900
ANSI	American National Standards Institute 1899 L Street, NW, 11th Floor Washington, DC, 20036 www.ansi.org	202/293.8020
APA	APA-The Engineered Wood Association 7011 S. 19th Street Tacoma, WA 98466-5333 www.apawood.org	253/565-6600

APA	Architectural Precast Association 325 John Know Rd, Ste L103 Tallahassee, FL 32303 www.archprecast.org	850/205.5637
ARI	Air Conditioning and Refrigeration Institute (now Air-Conditioning, Heating, & Refrigeration Institute) 2111 Wilson Blvd, Suite 500 Arlington, VA 22201 www.ahrinet.org	703/524-8800
ARMA	Asphalt Roofing Manufacturers Association Public Information Department 750 National Press Building 529 14th Street, NW Washington, DC 20045 www.asphaltroofing.org	202/591-2450
ASA	The Acoustical Society of America ASA Office Manager Suite 1NO1 2 Huntington Quadrangle Melville, NY 11747-4502 http://asa.aip.org	516/576-2360
ASCE	American Society of Civil Engineers 1801 Alexander Bell Drive Reston, VA 20191 www.asce.org	800/548-2723 703/295-6300
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 636 Eye Street, NW Washington, DC 20001-3736 www.asla.org	202/898-2444
ASME	American Society of Mechanical Engineers Three Park Avenue New York, NY 10016-5990 www.asme.org	800/434-2763

ASPE	American Society of Plumbing Engineers 2980 S River Rd. Des Plaines, IL 60018 http://aspe.org	847/296-0002
ASQ	American Society for Quality P.O. Box 3005 Milwaukee, WI 53201-3005 or 600 North Plankinton Avenue Milwaukee, WI 53203 http://asq.org	800/248-1946 414/272-8575
ASSE	American Society of Sanitary Engineering 901 Canterbury, Suite A Westlake, Ohio 44145 www.asse-plumbing.org	440/835-3040
ASTM	ASTM International 100 Barr Harbor Drive PO Box C700 West Conshohocken, PA, 19428-2959 www.astm.org	610/832-9500
AWCI	Association of the Wall and Ceiling Industry 513 West Broad Street, Suite 210 Falls Church, VA 22046 www.awci.org	703/538-1600
AWPA	American Wood Protection Association P.O. Box 361784 Birmingham, AL 35236-1784 www.awpa.com	205/733-4077
AWPI	American Wood Preservers Institute 2750 Prosperity Ave. Suite 550 Fairfax, VA 22031-4312 www.arcat.com	800/356-AWPI 703/204-0500
AWS	American Welding Society 8669 Doral Boulevard, Suite 130 Doral, Florida 33166 www.aws.org	800/443-9353 305/443-9353
AWI	Architectural Woodwork Institute 46179 Westlake Drive, Suite 120 Potomac Falls, VA 20165-5874 www.awinet.org	571/323-3636

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, 15th floor New York, NY 10017 www.buildershardware.com	212/297-2122
BIA	The Brick Industry Association 1850 Centennial Park Drive, Suite 301 Reston, VA 20191 www.gobrick.com	703/620-0010
CGA	Compressed Gas Association 14501 George Carter Way, Suite 103 Chantilly VA 20151-2923 www.cganet.com	703/788-2700
CISCA	Ceilings & Interior Systems Construction Association 1010 Jorie Blvd, Suite 30 Oak Brook, IL 60523 www.cisca.org	630/584-1919
CISPI	Cast Iron Soil Pipe Institute 1064 Delaware Avenue SE Atlanta, GA 30316 www.cispi.org	404/622-0073
CLFMI	Chain Link Fence Manufacturers Institute 10015 Old Columbia Road, Suite B-215 Columbia, MD 21046 www.associationsites.com/main-pub.cfm?usr=clfma	410/290-6267
CPA	Composite Panel Association 19465 Deerfield Avenue, Suite 306 Leesburg, VA 20176 www.compositepanel.org	703/724-1128
CPSC	Consumer Product Safety Commission 4330 East West Highway Bethesda, MD 20814 www.cpsc.gov	301/504-7923 800/638-2772
CRA	California Redwood Association 405 Enfrente Drive, Suite 200 Novato, CA 94949 www.calredwood.org	415/382-0662

CRI	Carpet and Rug Institute P.O. Box 2048 Dalton, Georgia 30722-2048 www.carpet-rug.org	706/278-3176
CRSI	Concrete Reinforcing Steel Institute 933 N. Plum Grove Road Schaumburg, IL 60173 4758 www.crsi.org	847/517-1200
CSI	The Construction Specifications Institute 110 South Union Street, Suite 100 Alexandria VA 22314 www.csinet.org	800/689-2900
CTIOA	Ceramic Tile Institute of America 12061 Jefferson Blvd. Culver City, CA 90230-6219 www.ctioa.org	310/574-7800
DHI	Door and Hardware Institute (formerly National Builders Hardware Association) 14150 Newbrook Dr. Chantilly, VA 20151 www.dhi.org	703/222-2010
DIPRA	Ductile Iron Pipe Research Association 2000 2nd Avenue, South Suite 429 Birmingham, AL 35233 www.dipra.org	205/402-8700
DOC	U.S. Department of Commerce 1401 Constitution Ave., NW Washington, D.C. 20230 www.commerce.gov	202/482-2000
DOT	U.S. Department of Transportation 1200 New Jersey Avenue, SE Washington, DC 20590 www.dot.gov	855/368-4200
EJMA	Expansion Joint Manufacturers Association, Inc. 25 North Broadway Tarrytown, NY 10591 www.ejma.org	914/332-0040

EPA	Environmental Protection Agency Ariel Rios Building 1200 Pennsylvania Avenue, N.W. Washington, DC 20460 www.epa.gov	202/272-0167
FCICA	Floor Covering Installation Contractors Association 7439 Millwood Drive West Bloomfield, MI 48322 www.fcica.com	248/661-5015 877/TO-FCICA
FM Global	Factory Mutual Insurance Company Amy Daley Global Practice Leader – Education, Public Entities, Health Care FM Global 270 Central Avenue Johnston, RI 02919-4949 www.fmglobal.com	401/275-3000 401/275-3029
FS	General Services Administration (GSA) Index of Federal Specifications, Standards and Commercial Item Descriptions 470 East L'Enfant Plaza, SW, Suite 8100 Washington, DC 20407 www.gsa.gov	202/619-8925
GA	The Gypsum Association 6525 Belcrest Road, Suite 480 Hyattsville, MD 20782 www.gypsum.org	301/277-8686
GANA	Glass Association of North America 800 SW Jackson St., Suite 1500 Topeka, KS 66612-1200 www.glasswebsite.com	785/271-0208
HMA	Hardwood Manufacturers Association 665 Rodi Road, Suite 305 Pittsburgh, PA 15235 http://hmamembers.org	412/244-0440
HPVA	Hardwood Plywood & Veneer Association 1825 Michael Faraday Drive Reston, Virginia 20190 www.hpva.org	703/435-2900

IAPMO	International Association of Plumbing and Mechanical Officials (formerly the Western Plumbing Officials Association) 4755 E. Philadelphia St. Ontario, CA 91761 www.iapmo.org	909/472-4100
ICC	International Code Council 500 New Jersey Avenue, NW, 6th Floor Washington, DC 20001 www.iccsafe.org	888/422-7233
IEEE	Institute of Electrical and Electronics Engineers 3 Park Avenue, 17th Floor New York, NY 10016-5997 www.ieee.org	212/419-7900
IES	Illuminating Engineering Society 120 Wall Street, Floor 17 New York, NY 10005-4001 www.ies.org	212/248-5000
ITRK	Intertek Testing Services 3933 US Route 11 Cortland, NY 13045 www.intertek.com	607/753-6711
MCAA	Mechanical Contractors Association of America 1385 Piccard Drive Rockville, MD 20850 www.mcaa.org	301/869-5800
MIA	Marble Institute of America 28901 Clemens Rd, Ste 100 Cleveland, OH 44145 www.marble-institute.com	440/250-9222
MMPA (formerly WMMPA)	Moulding & Millwork Producers Association (formerly Wood Moulding & Millwork Producers Association) 507 First Street Woodland, CA 95695 www.wmmpa.com	530/661-9591 800/550-7889

MSS	Manufacturers Standardization Society (MSS) of the Valve and Fittings Industry 127 Park Street, NE Vienna, VA 22180-4602 http://mss-hq.org	703/281-6613
NAAMM	National Association of Architectural Metal Manufacturers 800 Roosevelt Rd. Bldg. C, Suite 312 Glen Ellyn, IL 60137 www.naamm.org	630/942-6591
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 5100 Forbes Blvd. Lanham, MD USA 20706-4407 www.asphaltpavement.org	888/468-6499 301/731-4748
NCSPA	National Corrugated Steel Pipe Association 14070 Proton Road, Suite 100 LB9 Dallas, TX 75244 www.ncspa.org	972/850-1907
NCMA	National Concrete Masonry Association 13750 Sunrise Valley Drive Herndon, VA 20171-4662 www.ncma.org	703/713-1900
NEBB	National Environmental Balancing Bureau 8575 Grovemont Circle Gaithersburg, MD 20877 www.nebb.org	301/977-3698
NECA	National Electrical Contractors Association 3 Bethesda Metro Center, Suite 1100 Bethesda, MD 20814 www.necanet.org	301/657-3110
NEMA	National Electrical Manufacturers Association 1300 North 17th Street, Suite 1752 Rosslyn, Virginia 22209 www.nema.org	703/841-3200

NEII	National Elevator Industry, Inc. 1677 County Route 64 P.O. Box 838 Salem, New York 12865-0838 www.neii.org	518/854-3100
NFPA	National Fire Protection Association 1 Batterymarch Park Quincy, Massachusetts USA 02169-7471 www.nfpa.org	617/770-3000
NHLA	National Hardwood Lumber Association PO Box 34518 Memphis, TN 38184 www.nhla.com	901/377-1818
NIA	National Insulation Association 12100 Sunset Hills Road, Suite 330 Reston, VA 20190 www.insulation.org	703/464-6422
NRCA	National Roofing Contractors Association 10255 W. Higgins Road, Suite 600 Rosemont, IL 60018-5607 www.nrca.net	847/299-9070
NSF	NSF International P.O. Box 130140 789 N. Dixboro Road Ann Arbor, MI 48113-0140, USA www.nsf.org	800/673-6275 734/769-8010
NTMA	National Terrazzo and Mosaic Association PO Box 2605 Fredericksburg, TX 78624 www.ntma.com	800/323-9736
OSHA	Occupational Safety and Health Act U.S. Department of Labor Occupational Safety & Health Administration 200 Constitution Ave., NW Washington, D.C. 20210 www.osha.gov	800/321-OSHA (6742)

PCA	Portland Cement Association 5420 Old Orchard Road Skokie, IL 60077 or 500 New Jersey Ave., N.W. 7th Floor Washington, D.C. 20001 www.cement.org	847/966-6200 202/408-9494
PCI	Precast/Prestressed Concrete Institute 200 W. Adams St. #2100 Chicago, IL 60606 www.pci.org	312/786-0300
PDCA	Painting and Decorating Contractors of America 2316 Millpark Drive, Ste 220 Maryland Heights, MO 63043 www.pdca.com	800/332-PDCA (7322) 314/514-7322
PDI	Plumbing & Drainage Institute 800 Turnpike Street, Suite 300 North Andover, MA 01845 http://pdionline.org	978/557-0720 800/589-8956
PEI	Porcelain Enamel Institute, Inc. P.O. Box 920220 Norcross, GA 30010 www.porcelainenamel.com	770/676-9366
PG&E	Pacific Gas & Electric Company www.pge.com	800/743-5000
PLANET	Professional Landcare Network 950 Herndon Parkway, Suite 450 Herndon, Virginia 20170 www.landcarenetwork.org	703/736-9666 800/395-2522 703/736-9668
RFCI	Resilient Floor Covering Institute 115 Broad Street, Suite 201 La Grange GA 30240 www.rfci.com	706/882-3833
RIS	Redwood Inspection Service 818 Grayson Road, Suite 201 Pleasant Hill, CA 94523 www.redwoodinspection.com	925/935-1499
SDI	Steel Deck Institute P.O. Box 25 Fox River Grove, IL 60021 www.sdi.org	847/458-4647

SDI	Steel Door Institute 30200 Detroit Road Westlake, Ohio 44145 www.steeldoor.org	440/899-0010
SJI	Steel Joist Institute 234 W. Cheves Street Florence, SC 29501 http://steeljoist.org	843/407-4091
SMA	Stucco Manufacturers Association 500 East Yale Loop Irvine, CA 92614 www.stuccomfgassoc.com	949/387.7611
SMACNA	Sheet Metal and Air Conditioning Contractors' National Association 4201 Lafayette Center Drive Chantilly, Virginia 20151-1219 www.smacna.org	703/803-2980
SPI	SPI: The Plastics Industry Trade Association, Inc. 1667 K St., NW, Suite 1000 Washington, DC 20006 www.plasticsindustry.org	202/974-5200
SSPC	Society for Protective Coatings (formerly the Steel Structures Painting Council) 40 24th St 6th Fl Pittsburgh, PA 15222 www.sspc.org	412/281-2331 877/281-7772
TCA	The Tile Council of North America 100 Clemson Research Blvd. Anderson, SC 29625 www.tcnatile.com	864/646-8453
TPI	Truss Plate Institute 218 North Lee Street, Suite 312 Alexandria, VA 22314 www.tpinst.org	703/683-1010
TPI	Turfgrass Producers International 2 East Main Street East Dundee, IL 60118 www.turfgrasssod.org	800/405-8873 847/649-5555

TCIA	Tree Care Industry Association (formerly the National Arborist Association) 136 Harvey Road, Suite 101 Londonderry, NH 03053 www.tcia.org	800/733-2622
TVI	The Vermiculite Institute c/o The Schundler Company 150 Whitman Avenue Edison, NJ. 08817 www.vermiculiteinstitute.org	732/287-2244
UL	Underwriters Laboratories Inc. 333 Pfingsten Road Northbrook, IL 60062-2096 www.ul.com	847/272-8800 877/854-3577
UNI	Uni-Bell PVC Pipe Association 2711 LBJ Freeway, Suite 1000 Dallas, TX 75234 www.uni-bell.org	972/243-3902
USDA	U.S. Department of Agriculture 1400 Independence Ave., S.W. Washington, DC 20250 www.usda.gov	202/720-2791
WA	Wallcoverings Association 401 North Michigan Avenue Suite 2200 Chicago, IL 60611 www.wallcoverings.org	312/321-5166

WCLIB	West Coast Lumber Inspection Bureau P.O. Box 23145 Portland, OR 97281 or 6980 S.W. Varns Tigard, OR 97223 www.wclib.org	503/639-0651
WCMA	Window Covering Manufacturers Association 355 Lexington Avenue 15th Floor New York, New York 10017 www.wcmanet.org	212/297-2122
WDMA	Window & Door Manufacturers Association 401 N. Michigan Avenue, Suite 2200 Chicago, IL 60611 or 2025 M Street, NW, Ste. 800 Washington, D.C. 20036-3309 www.wdma.com	312/321-6802 202/367-1157
WI	Woodwork Institute P.O. Box 980247 West Sacramento, CA 95798 www.wicnet.org	916/372-9943
WRI	Wire Reinforcement Institute 942 Main Street Hartford, CT 06103 www.wirereinforcementinstitute.org	860/240-9545
WWCA	Western Wall & Ceiling Contractors Association 1910 N. Lime St. Orange, California 92865 www.wwcca.org	714/221-5520
WWPA	Western Wood Products Association 522 SW Fifth Ave., Suite 500 Portland, OR 97204-2122 www2.wwpa.org	503/224-3930

PART 2 - - PRODUCTS

NOT USED.

PART 3 - - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 43 00

MATERIALS AND EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Purchase of Materials and Equipment;
   2. Special Conditions;
   3. Imported Materials Certification.

1.2 MATERIAL AND EQUIPMENT

A. Only items approved by the District and/or Design Professional shall be used.

B. 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 MATERIAL AND EQUIPMENT COLORS

A. The District and/or Architect will provide a schedule of colors.

B. 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.

C. Contractor shall request priority in writing for any item requiring advance ordering to maintain the approved Construction Schedule.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Contractor shall deliver manufactured materials in original packages, containers, or bundles (with seals unbroken), bearing name or identification mark of manufacturer.

B. 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. 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.
   2. Materials are not acceptable 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.

3. Contractor shall store material so as to cause no obstructions of sidewalks, roadways, access to the Site or buildings, and underground services. Contractor shall protect material and equipment furnished under Contract.
4. Contractor may store materials on Site with prior written approval by the District, all material 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 a bonded warehouse and with appropriate insurance coverage at no cost to District.
5. When any room in Project is used as a shop or storeroom, the 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 District.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers listed in various sections of Contract Documents are names of those manufacturers that are believed to be capable of supplying one or more of items specified therein.

B. The listing of a manufacturer does not imply that every product of that manufacturer is acceptable as meeting the requirements of the Contract Documents.

2.2 FACILITIES AND EQUIPMENT

A. Contractor shall provide, install, maintain, and operate a complete and adequate facility for handling, the execution, disposal, and distribution of material and equipment as required for proper and timely performance of Work connected with Contract.

2.3 MATERIAL REFERENCE STANDARDS

A. Where material is specified solely by reference to “standard specifications” and if requested by District, Contractor shall submit for review data on actual material proposed to be incorporated into Work of Contract listing name and address of vendor, manufacturer, or producer, and trade or brand names of those materials, and data substantiating compliance with standard specifications.

PART 3 - EXECUTION

3.1 WORKMANSHIP

A. 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).

B. Work shall be executed by tradespersons skilled in their respective lines of Work. When completed, parts shall have been durably and substantially built and present a neat appearance.

3.2 COORDINATION

A. Contractor shall coordinate installation of Work so as to not interfere with installation of others. Adjustment or rework because of Contractor's failure to coordinate will be at no additional cost to District.

B. Contractor shall examine in-place work for readiness, completeness, fitness to be concealed or to receive other work, and in compliance with Contract Documents. Concealing or covering Work constitutes acceptance of additional cost which will result should in-place Work be found unsuitable for receiving other Work or otherwise deviating from the requirements of the Contract Documents.

3.3 COMPLETENESS

A. 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 manner to assure well-balanced performance, in accordance with manufacturer's recommendations and by Contract Documents. For example, electric water coolers require water, electricity, and drain services; roof drains require drain system; 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," "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

A. Installation by a manufacturer's approved installer or applicator is an understood part of Specifications and only approved installer or applicator is to provide on-site Work where specified manufacturer has on-going program of approving (i.e. certifying, bonding, re-warranting) installers or applicators. Newly established relationships between a manufacturer and an installer or applicator who does not have other approved applicator work in progress or completed is not approved for this Project.

3.5 MANUFACTURER'S RECOMMENDATIONS

A. All installations shall be in accordance with manufacturer's published recommendations and specific written directions of manufacturer's representative. Should Contract Documents differ from recommendations of manufacturer or directions of his representative, Contractor shall analyze differences, make recommendations to the District and the Architect in writing, and shall not proceed until interpretation or clarification has been issued by the District and/or the Architect.

END OF SECTION

DOCUMENT 01 45 00

QUALITY CONTROL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Inspector, Inspections and Tests, Uncovering of Work and Non-conforming of Work and Correction of Work;
   2. Special Conditions.

1.2 RELATED CODES:

A. The Work is governed by requirements of Title 24, California Code of Regulations ("CCR"), and the Contractor shall keep a copy of these available at the job Site for ready reference during construction.

B. The Division of the State Architect ("DSA") shall be notified at or before the start of construction.

1.3 OBSERVATION AND SUPERVISION:

A. The District 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, CCR, Part 1, Title 24, Section 4-341.

B. One or more Project Inspector(s) approved by DSA and employed by or in contract with the District, referred to hereinafter as the "Project Inspector", will observe the work in accordance with CCR, Part 1, Title 24, Sections 4-333(b) and 4-342:
   1. The Project Inspector and Special Inspector(s) shall have access to the Work wherever it is in preparation or progress for ascertaining that the Work is in accordance with the Contract Documents and all applicable code sections. The Contractor shall provide facilities and operation of equipment as needed, and access as required and shall provide assistance for sampling or measuring materials.
   2. The Project Inspector will notify the District and Architect and call the attention of the Contractor to any observed failure of Work or material to conform to Contract Documents.
   3. The Project Inspector shall observe and monitor all testing and inspection activities required.

C. The Contractor shall conform with all applicable laws as indicated in the Contract Documents, including, without limitation, to CCR, Part 1, Title 24, Section 4-343. The Contractor shall supervise and direct the Work and maintain a competent superintendent on the job who is authorized to act in all matters pertaining to the Work. The Contractor's superintendent shall also 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 Part 1, Title 24, Section 4-336.

1.4 TESTING AGENCIES:

A. Testing agencies and tests shall be in conformance with the General Documents and the requirements of Part 1, Title 24, Section 4- 335.

B. Testing and inspection in connection with earthwork shall be under the direction of the District's consulting soils engineer, if any, referred to hereinafter as the "Soils Engineer."

C. Testing and inspection of construction materials and workmanship shall be performed by a qualified laboratory, referred to hereinafter as the "Testing 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 District.

1.5 TESTS AND INSPECTIONS:

A. The Contractor shall be responsible for notifying the District and Project Inspector of all required tests and inspections. Contractor shall notify the District and Project Inspector at least seventy-two hours (72) hours in advance of performing any Work requiring testing or inspection.

B. The Contractor shall provide access to Work to be tested and furnish incidental labor, equipment, and facilities to facilitate all inspections and tests.

C. The District will pay for first inspections and tests required by the “CCR”, and other inspections or tests that the District and/or the Architect may direct to have made, including the following principal items:
   1. Tests and observations for earthwork and paving.
   2. Tests for concrete mix designs, including tests of trial batches.
   3. Tests and inspections for structural steel work.
   4. Field tests for framing lumber moisture content.
   5. Additional tests directed by the District that establish that materials and installation comply with the Contract Documents.
   6. Tests and observations of welding and expansion anchors.

D. The District may at its discretion, pay and then back charge the Contractor for:
   1. Retests or reinspections, if required, and tests or inspections required due to Contractor error or lack of required identifications of material.
   2. Uncovering of work in accordance with Contract Documents.
   3. Testing done on weekends, holidays, and overtime will be chargeable to the Contractor for the overtime portion.
   4. Testing done off Site.

E. Testing and inspection reports and certifications:
   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.
      a. The District;
      b. The Construction Manager, if any;
      c. The Architect;
      d. The Consulting Engineer, if any;
      e. Other engineers on the Project, as appropriate;
      f. The Project Inspector; and
      g. The Contractor.
   2. When the test or inspection is one required by the CCR, a copy of the report shall also be provided to the DSA.

PART 2 - PRODUCTS

2.1 TYPE OF TESTS AND INSPECTIONS

A. Testing and inspection shall be in accordance with DSA Form 103 (or current version)

B. Post-Installed Concrete Anchors
   1. Special inspector shall inspect installation of post-installed anchors per the following standards:
      a. CBC 1617A.1.19, Table 1705A.3 Item 4a (Continuous) & 4b (Periodic)
      b. ACI 318-14 Sections 17.8 &26.13
   2. Perform laboratory testing of post-installed anchors per CBC 1910A.5.

C. Structural Steel
   1. Verify identification of all material per the following standards:
      a. CBC Table 1705A.2.1 Item 3a-3c. 2202A.1
      b. AISI S100-16 Section A3.1 & A3.2
      c. AISI S240-15 Section A3 & A5
      d. AISI S220-15 Sections A4 & A6
   2. Perform laboratory testing of unidentified materials per CBC 2202A.1.
   3. Verify and document steel fabrication per DSA-approved construction documents.

D. Welding
   1. Special inspector shall verify the following per DSA IR 1703:
      a. Weld filler material identification markings per AWS designation listed on the DSA-approved documents and the WPS.
      b. Weld filler material manufacturer's certificate of compliance
      c. WPS, welder qualifications and equipment
   2. Special inspector shall perform the following inspections:
      a. Inspect single-pass fillet welds ≤ 5/16", floor and roof deck welds per CBC 1705A.2.2, Table 1705A.2.1 Items 5a.5 & 5a.6; AISC 360-16; DSA IR 17-3.
      b. Inspect welding of stairs and railing systems per CBC 1705A.2.1; AISC 360-16; AWS D1.1 & D1.3; DSA IR 17-3.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions;
   3. Site Standards; and
   4. Construction Waste Management and Disposal.

1.2 TEMPORARY UTILITIES

A. Electric Power and Lighting:
   1. Contractor will pay for power during the course of the Work. To the extent power is available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver that power service from its existing location in the building(s) or on the Site to point of intended use.
   2. Contractor shall verify characteristics of power available in building(s) or on the Site. Contractor shall take all actions required to make modifications where power of higher voltage or different phases of current are required. Contractor shall be fully responsible for providing that service and shall pay all costs required therefor.
   3. 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.
   4. Contractor shall be responsible for maintaining existing lighting levels in the project vicinity should temporary outages or service interruptions occur.

B. Heat and Ventilation:
   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.

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.
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.

C. Water:
1. Contractor shall pay for water used during the course of the Work. Contractor shall coordinate and pay for installation or use of water meter in compliance with local water agency requirements. To the extent water is then available in the building(s) or on the Site, Contractor may use the District's existing utilities by making prearranged payments to the District for the utilities used by Contractor and all Subcontractors. Contractor shall be responsible for providing temporary facilities required to deliver such utility service from its existing location in the building(s), on the Site, or other location approved by the local water agency, to point of intended use.
2. Contractor shall use backflow preventers on water lines at point of connection to District's water supply. Backflow preventers shall comply with requirements of Uniform Plumbing Code.
3. Contractor shall make potable water available for human consumption.

D. Sanitary Facilities:
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 Inspector or Contractor completes all other work at the Site.
2. Use of toilet facilities in the Work under construction shall not be permitted except by consent of the Inspector and the District.

E. Telephone Service:
1. Contractor shall arrange with local telephone service company for telephone service as required 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.
2. Contractor shall pay the costs for telephone and fax lines installation, maintenance, service, and removal.

F. Fire Protection:
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.
2. Where on-site welding and burning of steel is unavoidable, Contractor shall provide protection for adjacent surfaces.

G. Trash Removal:
1. Contractor shall provide trash removal on a timely basis. Under no circumstance shall Contractor use District trash service.

H. Field Office:
   1. If Contractor chooses to provide a field office, it shall be an acceptable construction trailer that is well-lit and ventilated. The construction trailer shall be equipped with shelves, desks, filing cabinet, chairs, and such other items of equipment needed. Trailer and equipment are the property of the Contractor and must be removed from the Site upon completion of the Work. Contractor may use a location approved in writing by District.
   2. Contractor shall provide any additional electric lighting and power required for the trailer. Contractor shall make adequate provisions for heating and cooling as required.

I. Temporary Facilities:
   1. Fencing with privacy fabric
   2. Portable Toilets
   3. Handwash Stations
   4. Any and all personal protective equipment per County and State health orders

1.3 CONSTRUCTION AIDS

A. Plant and Equipment:
   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 workers. Include elevators, hoists, debris chutes, and other equipment, tools, and appliances necessary for performance of the Work.
   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 District.

B. None of the District’s tools and equipment shall be used by Contractor for the performance of the Work.

1.4 BARRIERS AND ENCLOSURES

A. Contractor shall obtain the District's written permission for locations and types of temporary barriers and enclosures, including fire-rated materials proposed for use, prior to their installation.

B. 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, the public, and workers. Contractor shall also protect the Work and existing facilities from the elements, and adjacent construction and improvements, persons, and trees and plants from damage and injury from demolition and construction operations.

C. Contractor shall provide site access to existing facilities for persons using other buildings and portions of the Site, the public, and for deliveries and other services and activities.

D. Tree and Plant Protection:
   1. Contractor shall preserve and protect existing trees and plants on the Premises that are not designated or required to be removed, and those adjacent to the Premises.

2. Contractor shall provide barriers to a minimum height of 4'-0" around drip line of each tree and plant, around each group of trees and plants, as applicable, in the proximity of demolition and construction operations, or as denoted on the Plans.
3. Contractor shall not park trucks, store materials, perform Work or cross over landscaped areas. Contractor shall not dispose of paint thinners, water from cleaning, plastering or concrete operations, or other deleterious materials in landscaped areas, storm drain systems, or sewers. Plant materials damaged as a result of the performance of the Work shall, at the option of the District and at Contractor's expense, either be replaced with new plant materials equal in size to those damaged or by payment of an amount representing the value of the damaged materials as determined by the District.
4. Contractor shall remove soil that has been contaminated during the performance of the Work by oil, solvents, and other materials which could be harmful to trees and plants, and replace with good soil, at Contractor's expense.
5. Excavation around Trees:
    a. Excavation within drip lines of trees shall be done only where absolutely necessary and with written permission from the District.
    b. Where trenching for utilities is required within drip lines, tunneling under and around roots shall be by hand digging and shall be approved by the District. Main lateral roots and taproots shall not be cut. All roots 2 inches in diameter and larger shall be tunneled under and heavily wrapped with wet burlap so as to prevent scarring or excessive drying. Smaller roots that interfere with installation of new work may be cut with prior approval by the District. Roots must first be cut with a Vermeer, or equivalent, root cutter prior to any trenching.
    c. Where excavation for new construction is required within drip line of trees, hand excavation shall be employed to minimize damage to root system. Roots shall be relocated in backfill areas wherever possible. If encountered immediately adjacent to location of new construction, roots shall be cut approximately 6 inches back from new construction.
    d. Approved excavations shall be carefully backfilled with the excavated materials approved for backfilling. Backfill shall conform to adjacent grades without dips, sunken areas, humps, or other surface irregularities. Do not use mechanical equipment to compact backfill. Tamp carefully using hand tools, refilling and tamping until Final Acceptance as necessary to offset settlement.
    e. Exposed roots shall not be allowed to dry out before permanent backfill is placed. Temporary earth cover shall be provided, or roots shall be wrapped with four layers of wet, untreated burlap and temporarily supported and protected from damage until permanently relocated and covered with backfill.
    f. Accidentally broken roots should be sawed cleanly 3 inches behind ragged end.

1.5 SECURITY

A. The Contractor shall be responsible for project security for materials, tools, equipment, supplies, and completed and partially completed Work.

1.6 TEMPORARY CONTROLS

A. Noise Control:
   1. Contractor acknowledges that adjacent facilities may remain in operation during all or a portion of the Work period, and it shall take all reasonable precautions to minimize noise as required by applicable laws and the Contract Documents.
   2. Notice of proposed noisy operations, including without limitation, operation of pneumatic demolition tools, concrete saws, and other equipment, shall be submitted to the District a minimum of forty-eight (48) hours in advance of their performance.

B. Noise and Vibration:
   1. Equipment and impact tools shall have intake and exhaust mufflers.
   2. Contractor shall cooperate with District to minimize and/or cease the use of noisy and vibratory equipment if that equipment becomes objectionable by its longevity.

C. Dust and Dirt:
   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.
   2. Contractor shall periodically water exterior demolition and construction areas to minimize the generation of dust and dirt.
   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.
   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.

D. Water:
   1. 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.

E. Pollution:
   1. No burning of refuse, debris, or other materials shall be permitted on or in the vicinity of the Premises.
   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.

F. Lighting:
   1. 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)

A. General:
   1. Contractor shall provide and maintain a Project identification sign with the design, text, and colors designated by the District and/or the Design Professional; locate sign as approved by the District.
   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 District.

B. Materials:
   1. Structure and Framing: Structurally sound, new or used wood or metal; wood shall be nominal 3/4-inch exterior grade plywood.
   2. Sign Surface: Minimum 3/4-inch exterior grade plywood.
   3. Rough Hardware: Galvanized.
   4. Paint: Exterior quality, of type and colors selected by the District and/or the Design Professional.

C. Fabrication:
   1. Contractor shall fabricate to provide smooth, even surface for painting.
   2. Size: 4'-0" x 8'-0", unless otherwise indicated.
   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.
   4. Text and Graphics: As indicated.

1.8 PUBLICITY RELEASES

A. Contractor shall not release any information, story, photograph, plan, or drawing relating information about the Project to anyone, including press and other public communications medium, including, without limitation, on website(s) without the written permission of the District.

PART 2 - PRODUCTS NOT USED.

PART 3 - EXECUTION NOT USED.

END OF SECTION

DOCUMENT 01 50 13

CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions; and
   3. Temporary Facilities and Controls.

1.2 SECTION INCLUDES

A. Administrative and procedural requirements for the following:
   1. Salvaging non-hazardous construction waste.
   2. Recycling non-hazardous construction waste.
   3. Disposing of non-hazardous construction waste.

1.3 DEFINITIONS

A. Construction Waste: Building and site improvement materials and other solid waste resulting from construction, remodeling, renovation, or repair operations. Construction waste includes packaging.

B. Demolition Waste: Building and site improvement materials resulting from demolition or selective demolition operations.

C. Disposal: Removal off-site of demolition and construction waste and subsequent sale, recycling, reuse, or deposit in landfill or incinerator acceptable to authorities having jurisdiction.

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.

1.4 PERFORMANCE REQUIREMENTS

A. General: Develop waste management plan that results in end-of Project rates for salvage/recycling of sixty-five percent (65%) by weight (or by volume, but not a combination) of total waste generated by the Work.

1.5 SUBMITTALS

A. Waste Management Plan: Submit waste management plan within 30 days of date established for commencement of the Work.

B. Waste Reduction Progress Reports: Concurrent with each Application for Payment, submit copies of report. Include the following information:
1. Material category.
2. Generation point of waste.
3. Total quantity of waste in tons or 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.

C. Waste Reduction Calculations: Before request for final payment, submit copies of calculated end-of-Project rates for salvage, recycling, and disposal as a percentage of total waste generated by the Work.

D. Records of Donations: Indicate receipt and acceptance of salvageable waste donated to individuals and organizations. Indicate whether organization is tax exempt.

E. Records of Sales: Indicate receipt and acceptance of salvageable waste sold to individuals and organizations. Indicate whether organization is tax exempt.

F. 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.

G. 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.

H. Qualification Data: For Waste Management Coordinator.

I. 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.

J. Submittal procedures and quantities are specified in Document 01 33 00.

1.6 QUALITY ASSURANCE:

A. Waste Management Coordinator Qualifications: LEED Accredited Professional by U.S. Green Building Council.

B. Regulatory Requirements: Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Waste Management Conference: Conduct conference at Project site to comply with requirements. Review methods and procedures related to waste management including, but not limited to, the following:
   1. Review and discuss waste management plan including responsibilities of Waste Management Coordinator.
   2. Review requirements for documenting quantities of each type of waste and its disposition.
   3. Review and finalize procedures for materials separation and verify availability of containers and bins needed to avoid delays.
   4. Review procedures for periodic waste collection and transportation to recycling and disposal facilities.
   5. Review waste management requirements for each trade.

1.7 WASTE MANAGEMENT PLAN

A. General: Develop plan consisting of waste identification, waste reduction work plan, and cost/revenue analysis. Indicate quantities by weight or volume, but use same units of measurement 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 on Project site where materials separation will be located.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 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 Document 01 50 00 for operation, termination, and removal requirements.

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 occurring at Project site.
   1. Distribute waste management plan to everyone concerned within 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 of Project site necessary for separating materials that are to be salvaged, recycled, reused, donated, and sold.
   2. Comply with Document 01 50 00 for controlling dust and dirt, environmental protection, and noise control.

3.2 RECYCLING CONSTRUCTION WASTE

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 the Contractor.

C. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.
   1. Provide appropriately marked containers or bins for controlling recyclable waste until they are 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.
   a. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
   b. Store components off the ground and protect from the weather.
   c. Remove recyclable waste off District property and transport to recycling receiver or processor.

D. Packaging:
1. Cardboard and Boxes: Break down packaging into flat sheets. Bundle and store in a dry location.
2. Polystyrene Packaging: Separate and bag material.
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.

E. Site-Clearing Wastes: Chip brush, branches, and trees on site.

F. 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.

G. Gypsum Board: Stack large clean pieces on wood pallets 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.

3.3 DISPOSAL OF WASTE

A. General: Except for items or materials to be salvaged, recycled, or otherwise reused, remove waste materials from Project Site and legally dispose of them in a landfill or incinerator acceptable to authorities having jurisdiction.
1. Except as otherwise specified, do not allow waste materials that are to be disposed of accumulate on site.
2. Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off District property and legally dispose of them.

END OF SECTION

DOCUMENT 01 52 13

FIELD OFFICES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions; and
   3. Temporary Facilities and Controls.

1.2 SECTION INCLUDES

A. Requirements for Field Offices and Field Office Trailers.

1.3 SUMMARY

A. General: Contractor shall provide District's Field Office Trailer and contents, for District's use exclusively, during the term of the Contract.

B. Property: Trailer, furniture, furnishings, equipment, and the like, supplied by the Contractor with the Office Trailer shall remain the property of the Contractor; District property items installed, delivered, and the like by District within the Office Trailer will remain District's property.

C. Modifications: District reserves the right to modify the trailer or contents, or both, as may be deemed proper by District.

D. Condition: Trailer and contents shall be clean, neat, substantially finished, in good, proper, and safe condition for use, operation, and the like; the trailer and contents shall not be required to be new.

E. Installation Timing: Provide safe, fully furnished, functional, proper, complete, and finished trailer properly ready for entire use, within fourteen (14) calendar days of District's notification of the issuance of Notice to Proceed.

1.4 SUBMITTALS

A. General: Submit submittals to District in quantity, format, type, and the like, as specified herein.

B. Office Trailer Data: One (1) copy of manufacturer's descriptive data, technical descriptions, regulatory compliance, industry standards, installation, removal, and maintenance instructions.

C. Equipment Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

D. Furniture and Furnishings Data: Two (2) copies of manufacturer data for each type of equipment, if directed by District.

E. Plans: One (1) reproducible copy of appropriately scaled plans of trailer layout. Plans shall include, but not be limited to: lighting; furniture; equipment; telephone and electrical outlets; and the like.

F. Product Samples: One (1) complete and entire unit of each type, if directed by District.

1.5 QUALITY ASSURANCE

A. Standards: In the event that provisions of codes, regulations, safety orders, Contract Documents, referenced manufacturer's specifications, manufacturer's instructions, industry standards, and the like, are in conflict, the more restrictive and higher quality shall govern.

B. Installer: Installer or Installers engaged by Contractor must have a minimum of five (5) years of documented and properly authenticated successful experience of specialization in the installation of the items or systems, or both, specified herein.

C. Manufacturer: Contractor shall obtain products from nationally and industry recognized Manufacturer with five (5) years minimum, of immediately recent, continuous, documented and properly authenticated successful experience of specialization in the manufacture of the product specified herein.

D. State Personnel Training: Provide proper training for maintenance and operations, including emergency procedures, and the like, as directed by District.

E. Units: Shall be sound and free of defects, and shall not include any damage or defect that will impair the safety, installation, performance, or the durability of the entire Office Trailer and appurtenant systems.

1.6 REGULATORY REQUIREMENTS

A. General: Work shall be executed in accordance with applicable Codes, Regulations, Statutes, Enactments, Rulings, Laws, each authority having jurisdiction, and including, but not limited to, Regulatory Requirements specified herein.

B. California Building Standards Code ("CBSC").

C. California Code of Regulations, Title 25, Chapter 3, Sub Chapter 2, Article 3 ("CCR").

D. Coach Insignia: Trailer shall display California Commercial Coach Insignia; such insignia shall be deemed to show that the trailer is in accordance with the Construction and Fire Safety requirements of CCR.

PART 2 - PRODUCTS

2.1 FIELD OFFICE TRAILER

A. General: Provide entire Field Office Trailer of type, function, operation, capacity, size, complete with controls, safety devices, accessories, and the like, for proper and durable installation. Partitions, walls, ceiling, and other interior and exterior surfaces shall be appropriately finished, including, but not limited to, trim, painting, wall base, floor covering, suspended or similar ceiling, and the like; provide systems, components, units, nuts, bolts, screws, anchoring devices, fastening devices, washers, accessories, adhesives, sealants, and other items of type, grade, and class required for the particular use, not identified but required for a complete, weather-tight, appropriately operating, and finished installation.

B. Manufacturers: General Electric Capital Modular Space; The Space Place, Inc.; or equal.

C. Program: Provide a wheel-mounted trailer with stairs, landings, platforms, ramps, and the like, in good, proper, safe, clean, and properly finished condition; with proper heavy duty locks, and other proper and effective security at all doors, windows, and the like. Trailer shall be maintained in good, proper, safe, clean, and properly finished condition during the Contract.
   1. Nominal Trailer Size: Four hundred eighty (480) square feet, minimum.
   2. Stairs, Platform: Properly finished stairs, platforms, and ramps.
   3. Doors: Two (2), three (3) foot wide exterior doors with locksets; finished ramp, steps, and entry platform at each exterior door.
   4. Keys: Submit five (5) keys for each door, window, furniture unit, and the like. There shall be no other key copies or originals available; each key shall be identified for District; and shall be labeled, or tagged or both, as directed by District.
   5. Lighting: Sixty-five (65) foot-candles illumination minimum at any point, at thirty (30) inches above finished floor throughout from fluorescent light source, exclusively, or as directed by District.
   6. Electrical Outlets: One (1) duplex outlet evenly spaced every twelve (12) linear horizontal feet of wall face, and electrical service ready for use.
   7. Telephones and Telephone Outlets: Two (2) telephone lines wired, connected to telephone utility service, and ready for use, and two (2) telephone instruments, each with two (2)-line capability, speed dial and hands-free feature. Locate each outlet as directed by District.
   8. Voicemail Messaging System or Answering Machine: One (1) unit, two (2)-line; digital.

2.2 FIELD OFFICE TRAILER ITEMS

A. General: Provide the Field Office Trailer with the following arranged into two (2) workstations:
   1. Desks: Two (2) desks: thirty-six (36) inches by sixty (60) inches; steel, laminated plastic top; locking, one (1) or two (2) file drawers single pedestal; steel; provide five (5) keys to District.
   2. Tables: Two (2) tables; thirty-six (36) inches by sixty (60) inches; twenty-nine (29) inches high; steel, laminated plastic top tables; one (1) at each desk.
   3. Chairs: Two (2) chairs: swivel; steel; with seat cushion and arms; one (1) at each desk.
   4. Waste Baskets: Two (2) waste baskets, one at each desk.

B. Furniture and Equipment: Provide in the space located to effect efficient and logical use.
   1. File cabinet: One (1); four (4) drawer; lateral; steel locking.
   2. Plan Table: One (1) plan table: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawers.
   3. Drafting Stool: One (1) drafting stool; swiveling; steel; padded; adjustable; with footrest and casters.
   4. Bookshelf: One (1) bookshelf: thirty-six (36) inches deep by seventy-two (72) inches wide by forty-two (42) inches high; adjustable; wood or steel; with lockable plan and pencil drawer.
   5. Plan Rack: One (1) wheel mounted plan rack.
   6. Waste Baskets: One (1) large waste basket.
   7. Coat/Hat Hanger: Wall mounted with minimum capacity for four (4) garments and ten (10) hats.
   8. Document Management System: Shall include an integrated high-volume printer, copier, and facsimile machine, including stand, base, and storage cabinet; and shall include the following features:
      a. Type: Laser, dry electrostatic transfer, plain paper, digital, multi-function imaging system.
      b. Network: Ethernet or Token Ring network ready, Plug-and-Play.
      c. Print, send/receive facsimile from any connected workstation.
      d. Resolution: Six hundred (600) dots per inch by six hundred (600) dots per inch, minimum.
      e. Print Speed: Twenty (20) pages per minute, minimum.
      f. Copies: Twenty (20) copies per minute, minimum.
      g. Document Handler: Forty (40) sheet, minimum
      h. Collator: Forty (40) bin, minimum, with stapling.
      i. Duplexing: Capable.
      j. Paper Size: Capable of handling paper sizes to eleven (11) inches by seventeen (17) inches.
      k. Paper Cassettes: One (1) each for eight and one half (8.5) inches by eleven (11) inches, eight and one half (8.5) inches by fourteen (14) inches, and eleven (11) inches by seventeen (17) inches paper sizes; minimum two hundred fifty (250) sheets per cassette.
      l. Reduction/Enlargement: Capable of reduction to twenty-five percent (25%) and enlargement to two hundred percent (200%).
      m. Facsimile Electronic Storage: Capable of storing minimum of fifty (50) speed dial numbers, group faxing and broadcast faxing.
      n. Facsimile Scanning: Capable of scanning into memory a minimum of one hundred (100) pages with maximum scan time of three (3) seconds per page.
      o. Halftone: Sixty-four (64) levels.
      p. Redial: Automatic and Manual.

9. Maintenance: Contractor shall purchase service agreements for each unit of equipment for the duration of the project plus two (2) months, and shall maintain all equipment in proper working condition. Service agreements shall include provision for replacement of toner cartridges and other items required to effect proper unit use. Service agreements shall also provide for:
    a. Unlimited Service Calls.
    b. Same Day Response.
    c. All parts, labor, preventative maintenance and mileage.
    d. All chemicals, such as toner, fixing agent, and the like.
    e. System training and setup.
10. Portable Toilets: Two (2); each shall include a urinal; each unit shall be a properly enclosed chemical unit conforming to ANSI Z4.3.
    a. Location: As directed by District.
    b. Maintenance: Maintain each unit and surrounding areas in a clean, hygienic and orderly manner, at all time. Empty, clean, and sanitize each unit each day at a location and time as directed by District.
    c. Removal: Relocate, or remove from the site, each Portable Toilet. Upon such directive by District, the Contractor shall forthwith relocate or remove each Portable Toilet and submit the affected areas to a condition which existed prior to the installation of each Portable Toilet, within three (3) calendar days, or as directed by District in writing, at no cost to District.

2.3 UTILITY AND SERVICES

A. Telephone Service: Contractor shall provide and interface the entire telephone service, and shall properly and timely pay for telephone service for District's non-long-distance use.

B. Electrical Service: Provide all proper connections and continuously pay for service for the duration of the Work.

2.4 FINISHES

A. General: Manufacturer standard finish system over surfaces properly cleaned, pretreated, and prepared to obtain proper bond; all visible surfaces shall be coated.

B. Finish: Color as selected by District from manufacturer standard palette.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General: Properly prepare area and affected items to receive the Work. Set Work accurately in location, alignment, and elevation; rigidly, securely, and firmly anchor to appropriate structure; install plumb, straight, square, level, true, without racking, rigidly anchored to proper solid blocking, substrate, and the like; provide appropriate type and quantity of reinforcements, fasteners, adhesives, self-adhesive and other tapes; lubricants, coatings, accessories, and the like, as required for a complete, structurally rigid, stable, sound, and appropriately finished installation, in accordance with manufacturer's published instructions, and as indicated. The more restrictive and higher quality requirement shall govern. Moving parts shall be properly secured, without binding, looseness, noise, and the like.

B. Installation: Install in accordance with 25 CCR 3.2.3 and as directed by District; jack up trailer and level both ways; mount on proper concrete piers with all load off wheels; provide required tie down and accessories per Section 4368 of referenced CCR, and as directed by District.

C. Rejected Work: Work, materials, unit, items, systems, and the like, not accepted by District shall be deemed rejected, and shall forthwith be removed and replaced with proper and new Work, materials, unit, items, systems, and the like at no cost to District.

D. Standard: Comply with manufacturer's published instructions, or with instructions as shown or indicated; the more restrictive and higher quality requirement shall govern.

E. Location: As directed by District.

F. Fire Resistance: Construct and install in accordance with UL requirements.

G. Maintenance: Contractor shall maintain trailer and adjacent areas in a safe, clean and hygienic condition throughout the duration of the Work, and as directed by District. Properly repair or replace furniture or other items, as directed by District. Properly remove unsafe, damaged, or broken furniture, or similar items, and replace with safe and proper items. Contractor shall pay cost of all services, repair, and maintenance, or replacement of each item.

H. Janitorial Service: Provide professional janitorial services, including, but not limited to, trash, waste paper baskets, fill paper dispensers; clean and dust all furniture, files, and the like; sweep and mop resilient and similar flooring; and vacuum carpeting and similar flooring.

I. Frequency: Two (2) times per week, minimum.

J. Removal: Properly remove the Office Trailer and contents from the Site upon completion of the Contract, or as directed by District in writing. Forthwith properly patch and repair affected areas; replace damaged items with new items. Carefully and properly inventory, clean, pack, store, and protect District property; submit District property to District at a date, time and location as directed by District.

END OF SECTION

DOCUMENT 01 64 00

OWNER-FURNISHED PRODUCTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions;
   2. Special Conditions; and
   3. Materials and Equipment.

1.2 SECTION INCLUDES

A. Requirements for the following:
   1. Installing Owner-furnished materials and equipment.
   2. Providing necessary utilities, connections and rough-ins.

1.3 DEFINITIONS

A. Owner: District, who is providing/furnishing materials and equipment.

B. Installing Contactor: Contractor, who is installing the materials and equipment furnished by the Owner.

1.4 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Receive, store and handle products in accordance with the manufacturer's instructions.

B. Protect equipment items as required to prevent damage during storage and construction.

PART 2 - PRODUCTS

2.1 GENERAL PRODUCT REQUIREMENTS

A. Installing Contractor's Responsibilities:
   1. Verify mounting and utility requirements for Owner-furnished materials and equipment items.
   2. Provide mounting and utility rough in for all items where required.
      a. Rough in locations, sizes, capacities, and similar type items shall be as indicated and required by product manufacturer.

B. Owner and Installing Contractor(s) Responsibilities:
   1. Owner-Furnished/Contractor Installed ("OFCI"): Furnished by the Owner; installed by the Installing Contractor.
      a. General: Owner and Installing Contractor(s) will coordinate deliveries of materials and equipment to coincide with the construction schedule.
      b. Owner will furnish specified materials and equipment delivered to the site. Owner/vendor's representative shall be present on Site at the time of delivery to comply with the contract requirements and Specifications Section 01 43 00, Materials and Equipment, Article 1.04.
      c. The Owner furnishing specified materials and equipment is responsible to provide manufacturer guarantees as required by the Contract to the Installing Contractor.
      d. The Installing Contractor shall:
         1) Review, verify and accept the approved manufacturer's submittal/Shop Drawings for all materials and equipment required to be installed by the Installer Contractor and furnished by the Owner. Any discrepancies, including but not limited to possible space conflicts, should be brought to the attention of the Project Manager and/or Program Manager, if applicable.
         2) Coordinate timely delivery. Installing Contractor shall receive materials and equipment at Site when delivered and give written receipt at time of delivery, noting visible defects or omissions; if such declaration is not given, the Installing Contractor shall assume responsibility for such defects and omissions.
         3) Store materials and equipment until ready for installation and protect from loss and damage. Installing Contractor is responsible for providing adequate storage space.
         4) Coordinate with other bid package contractors and field measurement to ensure complete installation.
         5) Uncrate, assemble, and set in place.
         6) Provide adequate supports.
         7) Install materials and equipment in accordance with manufacturer's recommendations, instructions, and Shop Drawings, supply labor and material required, and make mechanical, plumbing, and electrical connections required to operate equipment.
         8) Be certified by equipment manufacturer for installation of the specific equipment supplied by the Owner.
         9) Provide anchorage and/or bracing as required for seismic restraint per Title 24, UBC Standard 27-11 and all other applicable codes.
         10) Provide the contract-required warranty and guarantee for all work, materials and equipment, and installation upon its completion and acceptance by the District. Guarantee includes all costs associated with the removal, shipping to and from the Site, and re-installation of any equipment found to be defective.

C. Compatibility with Space and Service Requirements:
   1. Equipment items shall be compatible with space limitations indicated and as shown on the Contract Documents and specified in other sections of the Specifications.
   2. Modifications to equipment items required to conform to space limitations specified for rough in shall not cause additional cost to the District.

D. Manufacturer's printed descriptions, specifications, and instructions shall govern the Work unless specifically indicated or specified otherwise.

2.2 FURNISHED MATERIALS AND EQUIPMENT

A. All furnished materials and equipment are indicated or scheduled on the Contract Documents.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install equipment items in accordance with the manufacturer's instructions.

B. Set equipment items securely in place, rigidly or flexibly mounted in accordance with manufacturers' directions.

C. Make electrical and mechanical connections as indicated and required.

D. Touch-up and restore damaged or defaced finishes to the Owner's satisfaction.

3.2 CLEANING AND PROTECTION

A. Repair or replace items not acceptable to the Architect or Owner.

B. Upon completion of installation, clean equipment items in accordance with manufacturer's recommendations, and protect from damage until final acceptance of the Work by the Owner.

END OF SECTION

DOCUMENT 01 66 00

PRODUCT DELIVERY STORAGE AND HANDLING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Site Access, Conditions and Requirements;
   2. Special Conditions.

1.2 PRODUCTS

A. Products are as defined in the General Conditions.

B. Contractor shall not use and/or reuse materials and/or equipment removed from existing Premises, except as specifically permitted by the Contract Documents.

C. Contractor shall provide interchangeable components of the same manufacturer, for similar components.

1.3 TRANSPORTATION AND HANDLING

A. Contractor shall transport and handle Products in accordance with manufacturer's instructions.

B. Contractor shall promptly inspect shipments to confirm that Products comply with requirements, quantities are correct, and products are undamaged.

C. Contractor shall provide equipment and personnel to handle Products by methods to prevent soiling, disfigurement, or damage.

1.4 STORAGE AND PROTECTION

A. 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.

B. For exterior storage of fabricated Products, Contractor shall place on sloped supports, above ground.

C. Contractor shall provide off-site storage and protection when Site does not permit on-site storage or protection.

D. Contractor shall cover products subject to deterioration with impervious sheet covering and provide ventilation to avoid condensation.

E. Contractor shall store loose granular materials on solid flat surfaces in a well-drained area and prevent mixing with foreign matter.

F. Contractor shall provide equipment and personnel to store Products by methods to prevent soiling, disfigurement, or damage.

G. 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.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 71 23

FIELD ENGINEERING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Site Investigation, and Soils Investigation Report;
   2. Special Conditions;
   3. Site-Visit Certification.

1.2 REQUIREMENTS INCLUDED

A. Contractor shall provide and pay for field engineering services by a California-registered engineer, required for the project, including, without limitations:
   1. Survey work required in execution of the Project.
   2. Civil or other professional engineering services specified, or required to execute Contractor's construction methods.

1.3 QUALIFICATIONS OF SURVEYOR OR ENGINEERS

A. Contractor shall only use a qualified licensed engineer or registered land surveyor, to whom District makes no objection.

1.4 SURVEY REFERENCE POINTS

A. Existing basic horizontal and vertical control points for the Project are those designated on the Drawings.

B. Contractor shall locate and protect control points prior to starting Site Work and preserve all permanent reference points during construction. In addition Contractor shall:
   1. Make no changes or relocation without prior written notice to District and Architect.
   2. Report to District and Architect when any reference point is lost or destroyed, or requires relocation because of necessary changes in grades or locations.
   3. Require surveyor to replace Project control points based on original survey control that may be lost or destroyed.

1.5 RECORDS

A. Contractor shall maintain a complete, accurate log of all control and survey work as it progresses.

1.6 SUBMITTALS

A. Contractor shall submit name and address of Surveyor and Professional Engineer to District and Architect prior to its/their work on the Project.

B. On request of District and Architect, Contractor shall submit documentation to verify accuracy of field engineering work, at no additional cost to the District.

C. Contractor shall submit a certificate signed by registered engineer or surveyor certifying that elevations and locations of improvements are in conformance or nonconformance with Contract Documents.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

3.1 COMPLIANCE WITH LAWS

A. Contractor is responsible for meeting all applicable codes, OSHA, safety and shoring requirements.

B. Contractor is responsible for any re-surveying required by correction of nonconforming work.

END OF SECTION

DOCUMENT 01 73 29

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Inspector, Inspections, and Tests, Integration of Work, Nonconforming Work, and Correction of Work, and Uncovering Work;
   2. Special Conditions;
   3. Hazardous Materials Procedures and Requirements;
   4. Hazardous Materials Certification;
   5. Lead-Based Paint Certification;
   6. Imported Materials Certification.

1.2 CUTTING AND PATCHING

A. Contractor shall be responsible for all cutting, fitting, and patching, including associated excavation and backfill, required to complete the Work or to:
   1. Make several parts fit together properly.
   2. Uncover portions of Work to provide for installation of ill-timed Work.
   3. Remove and replace defective Work.
   4. Remove and replace Work not conforming to requirements of Contract Documents.
   5. Remove Samples of installed Work as specified for testing.
   6. Provide routine penetrations of non-structural surfaces for installation of piping and electrical conduit.
   7. Attaching new materials to existing remodeling areas – including painting (or other finishes) to match existing conditions.

B. In addition to Contract requirements, upon written instructions from the District, 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 District; and remove Work to provide for alteration of existing Work.

C. 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.

1.3 SUBMITTALS

A. Prior to any cutting or alterations that may affect the structural safety of Project, or work of others, and well in advance of executing such cutting or alterations, Contractor shall submit written notice to District pursuant to the applicable notice provisions of the Contract Documents, requesting consent to proceed with the cutting or alteration, including the following:
   1. The work of the District or other trades.
   2. Structural value or integrity of any element of Project.
   3. Integrity or effectiveness of weather-exposed or weather-resistant elements or systems.
   4. Efficiency, operational life, maintenance or safety of operational elements.
   5. Visual qualities of sight-exposed elements.

B. Contractor's Request shall also include:
   1. Identification of Project.
   2. Description of affected Work.
   3. Necessity for cutting, alteration, or excavations.
   4. Effects of Work on District, other trades, or structural or weatherproof integrity of Project.
   5. Description of proposed Work:
      a. Scope of cutting, patching, alteration, or excavation.
      b. Trades that will execute Work.
      c. Products proposed to be used.
      d. Extent of refinishing to be done.
   6. Alternates to cutting and patching.
   7. Cost proposal, when applicable.
   8. The scheduled date the Contractor intends to perform the Work and the duration of time to complete the Work.
   9. Written permission of District or other District contractor(s) whose work will be affected.

1.4 QUALITY ASSURANCE

A. 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.

B. Contractor shall ensure that cutting, fitting, and patching shall successfully duplicate undisturbed adjacent profiles, materials, textures, finishes, 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 District's decision shall be final.

1.5 PAYMENT FOR COSTS

A. Cost caused by ill-timed or defective Work or Work not conforming to Contract Documents, including costs for additional services of the District, its consultants, including but not limited to the Construction Manager, the Architect, the Project Inspector(s), Engineers, and Agents, will be paid by Contractor and/or deducted from the Contract by the District.

B. District shall only pay for cost of Work if it is part of the original 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 District, other than defective or nonconforming Work, will be paid by District on approval of written Change Order. Contractor shall provide written cost proposals prior to proceeding with cutting and patching.

PART 2 - PRODUCTS

2.1 MATERIALS:

A. 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 first recommend a product of a manufacturer or appropriate trade association for approval by the District.

B. Materials to be cut and patched include those damaged by the performance of the Work.

PART 3 - EXECUTION

3.1 INSPECTION:

A. 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.

B. Contractor shall report unsatisfactory or questionable conditions in writing to District as indicated in the General Conditions and shall proceed with Work as indicated in the General Conditions by District.

3.2 PREPARATION:

A. 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.

B. Contractor shall provide devices and methods to protect other portions of Project from damage.

C. 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

A. With respect to performance, Contractor shall:
   1. Execute fitting and adjustment of products to provide finished installation to comply with and match specified tolerances and finishes.
   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. Execute cutting, demolition excavating, and backfilling by methods that will prevent damage to other Work and damage from settlement.

B. Contractor shall employ original installer or fabricator to perform cutting and patching for:
   1. Weather-exposed surfaces and moisture-resistant elements such as roofing, sheet metal, sealants, waterproofing, and other trades.
   2. Sight-exposed finished surfaces.

C. Contractor shall 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.

D. Contractor 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.

E. Contractor shall restore Work which has been cut or removed. Contractor shall install new products to provide completed Work in accordance with requirements of the Contract Documents and as required to match surrounding areas and surfaces.

F. Contractor shall refinish all continuous surfaces to nearest intersection as necessary to match the existing finish to any new finish.

END OF SECTION

DOCUMENT 01 76 00

ALTERATION PROJECT PROCEDURES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Integration of Work, Purchase of Materials and Equipment, Uncovering of Work and Non-conforming Work and Correction of Work and Trenches;
   2. Special Conditions.

PART 2 - PRODUCTS

2.1 PRODUCTS FOR PATCHING AND EXTENDING WORK

A. New Materials: As specified in the Contract Documents including, without limitation, in the Specifications, Contractor shall match existing products, conditions, and work for patching and extending work.

B. Type and Quality of Existing Products: Contractor shall determine by inspection, by testing products where necessary, by referring to existing conditions and to the Work as a standard.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Contractor shall verify that demolition is complete and that areas are ready for installation of new Work.

B. By beginning restoration Work, Contractor acknowledges and accepts the existing conditions.

3.2 PREPARATION

A. Contractor shall cut, move, or remove items as necessary for access to alterations and renovation Work. Contractor shall replace and restore these at completion.

B. Contractor shall remove unsuitable material not as salvage unless otherwise indicated in the Contract Documents. Unsuitable material may include, without limitation, rotted wood, corroded metals, and deteriorated masonry and concrete. Contractor shall replace materials as specified for finished Work.

C. Contractor shall remove debris and abandoned items from all areas of the Site and from concealed spaces.

D. Contractor shall prepare surface and remove surface finishes to provide for proper installation of new Work and finishes.

E. Contractor shall close openings in exterior surfaces to protect existing work from weather and extremes of temperature and humidity. Contractor shall insulate ductwork and piping to prevent condensation in exposed areas. Contractor shall insulate building cavities for thermal and/or acoustical protection, as detailed.

3.3 INSTALLATION

A. Contractor shall coordinate Work of all alternations and renovations to expedite completion and to accommodate District occupancy.

B. Designated Areas and Finishes: Contractor shall complete all installations in all respects, including operational, mechanical work and electrical work.

C. Contractor shall remove, cut, and patch Work in a manner to minimize damage and to provide a means of restoring Products and finishes to original or specified condition.

D. Contractor shall refinish visible existing surfaces to remain in renovated rooms and spaces, to specified condition for each material, with a neat and square or straight transition to adjacent finishes.

E. Contractor shall install products as specified in the Contract Documents, including without limitation, the Specifications.

3.4 TRANSITIONS

A. Where new Work abuts or aligns with existing, Contractor shall perform a smooth and even transition. Patched Work must match existing adjacent work in texture and appearance.

B. When finished surfaces are cut so that a smooth transition with new Work is not possible, Contractor shall terminate existing surface along a straight line at a natural line of division and make a recommendation for resolution to the District and the Architect for review and approval.

3.5 ADJUSTMENTS

A. Where removal of partitions or walls results in adjacent spaces becoming one, Contractor shall rework floors, walls, and ceilings to a smooth plane without breaks, steps, or bulkheads.

B. Where a change of plane of 1/4 inch or more occurs, Contractor shall submit a recommendation for providing a smooth transition to the District and the Architect for review and approval.

C. Contractor shall trim and seal existing wood doors and shall trim and paint metal doors as necessary to clear new floor finish and refinish trim as required.

D. Contractor shall fit Work at penetrations of surfaces.

3.6 REPAIR OF DAMAGED SURFACES

A. Contractor shall patch or replace portions of existing surfaces, which are damaged, lifted, discolored, or showing other imperfections, in the area where the Work is performed.

B. Contractor shall repair substrate prior to patching finish.

3.7 CULTIVATED AREAS AND OTHER SURFACE IMPROVEMENTS

A. Cultivated or planted areas and other surface improvements which are damaged by actions of the Contractor shall be restored by Contractor to their original condition or better, where indicated.

B. Contractor shall protect and replace, if damaged, all existing guard posts, barricades, and fences.

C. Contractor shall give special attention to avoid damaging or killing trees, bushes and/or shrubs on the Premises and/or identified in the Contract Documents, including without limitation, the Drawings.

3.8 FINISHES

A. Contractor shall finish surfaces as specified in the Contract Documents, including without limitations, the provisions of all Divisions of the Specifications.

B. Contractor shall finish patches to produce uniform finish and texture over entire area. When finish cannot be matched, Contractor shall refinish entire surface to nearest intersections.

3.9 CLEANING

A. Contractor shall continually clean the Site and the Premises as indicated in the Contract Documents, including without limitation, the provisions in the General Conditions and the Specifications regarding cleaning.

END OF SECTION

DOCUMENT 01 77 00

CONTRACT CLOSEOUT AND FINAL CLEANING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Completion of Work;
   2. Special Conditions;
   3. Temporary Facilities and Controls.

1.2 CLOSEOUT PROCEDURES

A. Contractor shall comply with all closeout provisions as indicated in the General Conditions.

1.3 FINAL CLEANING

A. Contractor shall execute final cleaning prior to final inspection.

B. Contractor shall clean interior and exterior glass and all surfaces exposed to view; remove temporary labels, tape, stains, and foreign substances, polish transparent and glossy surfaces, wax and polish new vinyl floor surfaces, vacuum carpeted and soft surfaces.

C. Contractor shall clean equipment and fixtures to a sanitary condition.

D. Contractor shall replace filters of operating equipment.

E. Contractor shall clean debris from roofs, gutters, down spouts, and drainage systems.

F. Contractor shall clean Site, sweep paved areas, and rake clean landscaped surfaces.

G. Contractor shall remove waste and surplus materials, rubbish, and construction facilities from the Site and surrounding areas.

1.4 ADJUSTING

A. Contractor shall adjust operating products and equipment to ensure smooth and unhindered operation.

1.5 RECORD DOCUMENTS AND SHOP DRAWINGS

A. Contractor shall legibly mark each item to record actual construction, including:
   1. Measured depths of foundation in relation to finish floor datum.
   2. Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permit surface improvements.
   3. Measured locations of internal utilities and appurtenances concealed in construction, referenced to visible and accessible features of the Work.
   4. Field changes of dimension and detail.
   5. Details not on original Contract Drawings
   6. Changes made by modification(s).
   7. References to related Shop Drawings and modifications.

B. Contractor will provide one set of Record Drawings to District.

C. Contractor shall submit all required documents to District and/or Architect prior to or with its final Application for Payment.

1.6 INSTRUCTION OF DISTRICT PERSONNEL

A. Before final inspection, at agreed upon times, Contractor shall instruct District's designated personnel in operation, adjustment, and maintenance of products, equipment, and systems.

B. For equipment requiring seasonal operation, Contractor shall perform instructions for other seasons within six months or by the change of season.

C. 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.

D. Contractor shall prepare and insert additional data in Operation and Maintenance Manual when the need for such data becomes apparent during instruction.

E. Contractor shall review contents of manual with personnel in detail to explain all aspects of operation and maintenance.

1.7 SPARE PARTS AND MAINTENANCE MATERIALS

A. Contractor shall provide products, spare parts, maintenance, and extra materials in quantities specified in the Specifications and in Manufacturer's recommendations.

B. Contractor shall provide District with all required Operation and Maintenance Data at one time. Partial or piecemeal submissions of Operation and Maintenance Data will not be accepted.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 78 23

OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Completion of the Work;
   2. Special Conditions.

1.2 QUALITY ASSURANCE

A. Contractor shall prepare instructions and data by personnel experienced in maintenance and operation of described products.

1.3 FORMAT

A. Contractor shall prepare data in the form of an instructional manual entitled “OPERATIONS AND MAINTENANCE MANUAL & INSTRUCTIONS” (“Manual”).

B. 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.

C. 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.

D. Contractor shall arrange content by systems process flow under section numbers and sequence of Table of Contents of the Contract Documents.

E. Contractor shall provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.

F. Text: The content shall include Manufacturer's printed data, or typewritten data on 24 pound paper.

G. Drawings: Contractor shall provide with reinforced punched binder tab and shall bind in with text; folding larger drawings to size of text pages.

1.4 CONTENTS, EACH VOLUME

A. 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.

B. 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.

C. Product Data: Contractor shall mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

D. 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.

E. Text: 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.

F. Warranties and Bonds: Contractor shall bind in one copy of each.

1.5 MANUAL FOR MATERIALS AND FINISHES

A. 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.

B. 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.

C. 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.

D. Additional Requirements: Contractor shall include all additional requirements as specified in the Specifications.

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

1.6 MANUAL FOR EQUIPMENT AND SYSTEMS

A. 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.

B. Panelboard Circuit Directories: Contractor shall provide electrical service characteristics, controls, and communications.

C. Contractor shall include color coded wiring diagrams as installed.

D. 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.

E. Maintenance Requirements: Contractor shall include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.

F. Contractor shall provide servicing and lubrication schedule, and list of lubricants required.

G. Contractor shall include manufacturer's printed operation and maintenance instructions.

H. Contractor shall include sequence of operation by controls manufacturer.

I. Contractor shall provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.

J. Contractor shall provide control diagrams by controls manufacturer as installed.

K. Contractor shall provide Contractor's coordination drawings, with color coded piping diagrams as installed.

L. Contractor shall provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.

M. Contractor shall provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.

N. Additional Requirements: Contractor shall include all additional requirements as specified in Specification(s).

O. Contractor shall provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

1.7 SUBMITTAL

A. Contractor shall submit to the District for review two (2) copies of preliminary draft or proposed formats and outlines of the contents of the Manual within thirty (30) days of Contractor’s start of Work.

B. For equipment, or component parts of equipment put into service during construction and to be operated by District, Contractor shall submit draft content for that portion of the Manual within ten (10) days after acceptance of that equipment or component.

C. Contractor shall submit two (2) copies of a complete Manual in final form prior to final Application for Payment. Copy will be returned with Architect/Engineer comments. Contractor must revise the content of the Manual as required by District prior to District's approval of Contractor's final Application for Payment.

D. Contractor must submit two (2) copies of revised Manual in final form within ten (10) days after final inspection.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 78 36

WARRANTIES

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Warranty/Guarantee Information;
   2. Special Conditions.

1.2 FORMAT

A. Binders: Contractor shall use commercial quality, 8-1/2 by 11 inch, three-side rings, with durable plastic covers; two inch maximum ring size.

B. Cover: Contractor shall identify each binder with typed or printed title "WARRANTIES" and shall list title of Project.

C. Table of Contents: Contractor shall provide 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.

D. 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).

1.3 PREPARATION

A. 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 District's permission, Contractor shall leave date of beginning of time of warranty blank until the date of completion is determined.

B. Contractor shall verify that documents are in proper form, contain full information, and are notarized, when required.

C. Contractor shall co-execute submittals when required.

D. Contractor shall retain warranties until time specified for submittal.

1.4 TIME OF SUBMITTALS

A. For equipment or component parts of equipment put into service during construction with District's permission, Contractor shall submit a draft warranty for that equipment or component within ten (10) days after acceptance of that equipment or component.

B. Contractor shall submit for District approval all warranties and related documents within ten (10) days after date of completion. Contractor must revise the warranties as required by the District prior to District's approval of Contractor's final Application for Payment.

C. For items of work delayed beyond date of completion, Contractor shall provide an updated submittal within ten (10) days after acceptance, listing the date of acceptance as start of warranty period.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

DOCUMENT 01 78 39

RECORD DOCUMENTS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Documents on Work;
   2. Special Conditions.

PART 2 - RECORD DRAWINGS

2.1 GENERAL

A. As indicated in the Contract Documents, the District will provide Contractor with one set of reproducible, full size original Contract Drawings (mylars).

B. Contractor shall maintain at each Project Site one set of marked-up plans and shall transfer all changes and information to those marked-up plans, 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 Drawings (“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.

C. Label and date each Record Drawing "RECORD DOCUMENT" in legibly printed letters.

D. All deviations in construction, including but not limited to pipe and conduit locations and deviations caused by without limitation Change Orders, Construction Claim Directives, RFI’s, and Addenda, shall be accurately and legibly recorded by Contractor.

E. 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 DRAWING INFORMATION

A. Contractor shall record the following information:
   1. Locations of Work buried under or outside each building, including, without limitation, all utilities, plumbing and electrical lines, and conduits.
   2. Actual numbering of each electrical circuit to match panel schedule.
   3. Locations of significant Work concealed inside each building whose general locations are changed from those shown on the Contract Drawings.

4. Locations of all items, not necessarily concealed, which vary from the Contract Documents.
5. Installed location of all cathodic protection anodes.
6. Deviations from the sizes, locations, and other features of installations shown in the Contract Documents.
7. Locations of underground work, points of connection with existing utilities, changes in direction, valves, manholes, catch basins, capped stubouts, invert elevations, etc.
8. Sufficient information to locate Work concealed in each building with reasonable ease and accuracy.

B. 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.
   1. Contractor shall provide additional drawings as necessary for clarification.

C. Contractor shall provide reproducible record drawings, made from final Shop Drawings marked "No Exceptions Taken" or "Approved as Noted."

D. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide electronic copies of the drawings (in PDF format) with one file with all of the sheets and one set of individual sheet files at the conclusion of the Project.

PART 3 - RECORD SPECIFICATIONS

3.1 GENERAL

A. Contractor shall mark each section legibly to record manufacturer, trade name, catalog number, and supplier of each Product and item of equipment actually installed.

B. After review and approval of the marked-up specifications by the Project Inspector, Contractor shall provide one electronic copy of the specifications (in PDF format) at the conclusion of the Project.

PART 4 - MAINTENANCE OF RECORD DOCUMENTS

4.1 GENERAL

A. Contractor shall store Record Documents apart from documents used for construction as follows:
   1. Provide files and racks for storage of Record Documents.
   2. Maintain Record Documents in a clean, dry, legible condition and in good order.

B. Contractor shall not use Record Documents for construction purposes.

PART 5 - PRODUCTS

NOT USED.

END OF SECTION

DOCUMENT 01 91 00

COMMISSIONING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS AND PROVISIONS:

A. All Contract Documents should be reviewed for applicable provisions related to the provisions in this document, including without limitation:
   1. General Conditions, including, without limitation, Contractor's Submittals and Schedules, Drawings and Specifications;
   2. Special Conditions.
   3. Submittal Procedures: Procedures for submittal of product data and quality assurance submittals.
   4. Closeout Procedures: General closeout requirements.
   5. Appropriate Sections of Divisions 15 and 16 specify closeout and/or commissioning related requirements for specific pieces of equipment or building operating systems.

1.2 SECTION INCLUDES

A. Equipment and system commissioning, including the following:
   1. Completion of commissioning procedures on specific equipment and systems as indicated under "Related Documents and Provisions" above.
   2. Verification of operational and functional performance of specific equipment and systems for compliance with the "Design Intent" as described in the "Related Documents and Provisions" indicated above.

1.3 REFERENCES

RESERVED

1.4 DEFINITIONS

A. Commissioning: The process of verifying that the installation and performance of selected building systems meet or exceed the specified design criteria and therefore satisfy the design intent.

B. Deficiencies and Resolutions List: List of noted deficiencies discovered as result of commissioning process.

C. Final Commissioning Report: Overall final commissioning document, prepared by the Systems Commissioning Authority, which details the actual commissioning procedures performed, inspection and testing results, and the final version of the deficiencies and resolutions list

indicating that all issues discovered through the commissioning process have been verified as resolved.

D. Functional Performance Testing Process: Documented testing of system parameters, under actual or simulated operating conditions.

E. Pre-Commissioning Checklists: Installation and start-up items to be completed by the appropriate party prior to operational verification through functional testing.

F. Physical Inspection Process: On-site inspection and review of related system components for conformance to the specifications.

G. Systems Commissioning Authority (SCA): Independent entity under contract directly with the District or District's Representative responsible for performing the specified commissioning procedures.

1.5 DESCRIPTION OF CONSTRUCTION PHASE COMMISSIONING PROCESS

A. As soon as practicable after the bid award the Systems Commissioning Authority (SCA) will conduct a pre-installation commissioning "kick-off" meeting with the contractors. Parties directly affected by the commissioning work will be required to attend. The SCA will explain the commissioning process in detail, and identify specific commissioning related responsibilities of the various parties.

B. Commissioning status meetings will be scheduled to occur during construction to monitor progress and to help facilitate the commissioning process. Contractor representatives will be required to attend these meetings.

C. Once contractors have provided the SCA with written verification indicating completion of installation and startup procedures, the SCA will conduct an on-site physical inspection of the specific systems and equipment.

D. Upon confirmation of system readiness, the SCA will schedule with the contractors to perform functional compliance with the project specifications and drawings. The SCA will oversee the process and will provide the format and documentation for these tests.

E. Deficiencies noted during these tests will be documented on the Deficiencies and Resolutions list. When corrected, issues will be resolved at the time of discovery. The responsible Contractor will resolve all other issues at a later date. All deficiencies will be noted by the SCA as either resolved or pending resolution.

F. The construction commissioning process will be complete when all noted deficiencies have been corrected, proved to be compliance with the project specifications or otherwise resolved to the satisfaction of the District.

1.6 SYSTEMS COMMISSIONING AUTHORITY'S DUTIES AND RESPONSIBILITIES

A. Meet and communicate with the District's representatives, Construction Manager, if any, Contractors, equipment manufacturers' representatives, Architect, Engineer and others as needed, to facilitate the commissioning process.

B. Review commissioning related specifications, submittals and construction documents. Communicate noted deficiencies and concerns to the District, Architect and Engineer.

C. Develop detailed and specific functional testing procedures for equipment and systems to be commissioned.

D. Develop testing, adjusting and balancing (TAB) specifications. Oversee the TAB process.

E. Perform site inspections and verify contractor readiness for the functional testing process. Document deficiencies for future resolution.

F. Witness contractor performed functional testing process as appropriate to verify contractor compliance with the functional testing procedures. Document deficiencies for future resolution.

G. Provide the District, Construction Manager, Contractor, Architect, and Engineer with a Final Commissioning Report to document the commissioning process and to verify that the commissioning process is complete.

1.7 DUTIES AND RESPONSIBILITIES OF OTHERS FOR COMMISSIONING

A. The commissioning process will require the active participation of persons qualified to represent the District, Mechanical Engineer, Electrical Engineer, General Contractor, Equipment Manufacturers' Representatives, Mechanical Contractor, HVAC Contractor, Controls Contractor, TAB Contractor, Electrical Contractor, and other specific subcontractors, as deemed appropriate. The SCA will witness the final functional performance commissioning process. Participants shall include in their contracts all costs necessary to participate in and complete the commissioning process.

B. Contractor will assure the participation and co-operation of Subcontractors, as required to complete the commissioning process.

C. The District will assure the participation of their chosen representatives as required to complete the commissioning process.

D. The Architect will assure the participation of necessary representatives from the Design Team as required to complete the commissioning process. Design team members will provide prompt replies to requests for information issued during the commissioning process.

E. It is the Contractor's specific responsibility to complete their respective start-up and checkout procedures, and to insure the complete readiness of equipment and systems, prior to the start of the functional performance testing phase. The SCA shall request written confirmation of system readiness for performance testing, from the appropriate subcontractor or Contractor. Once the SCA is provided with confirmation of all related systems completion, the actual date and times for the functional performance testing process will be confirmed. Contractors shall provide sufficient time, and qualified representatives, to complete this process.

F. After a second failure of a system to successfully meet the criteria as set forth in the functional performance testing process, the Contractor shall reimburse the District for all costs associated with any additional re-testing efforts made necessary due to remaining Contractor related system deficiencies previously reported by the Contractor as corrected. These costs shall include salary, travel costs and per diem lodging costs (where applicable) for the SCA. Rates to be used:

Mileage: $0.35/Mile
Per Diem Lodging: $115.00/Day
Salary: $100.00/Hour

G. Training on related systems and equipment operation and maintenance shall only be scheduled to commence after final performance commissioning is satisfactorily completed, and systems are verified to be 100 percent complete and functional.

1.8 SUBMITTALS

A. Submit under provisions of Document 01 33 00 Submittals.

B. Pre-Commissioning Checklist Forms: Submit two (2) signed copies of the checklist forms to the SCA upon completion of all listed items.

C. Equipment Manufacturer's Startup Forms: Submit two (2) completed copies of the installation and startup checklists provided by the equipment manufacturers to the SCA.

D. Test Reports: Submit two (2) copies of test reports for equipment and systems to the SCA.

E. Control Schematics: Submit two (2) copies of the control schematics for equipment, systems, and subsystems to the SCA.

F. Inspection Records: Submit two (2) copies of the records of inspections for code compliance, and approved permits and licenses to operate the equipment and systems to the SCA.

G. Operating Data: Submit two (2) copies of equipment and system operating data including all necessary instructions to facilitate operation to specified performance standards to the District.

H. Maintenance Data: Submit two (2) copies of equipment and system maintenance data including all necessary information required to maintain the equipment and systems in continuous operation, such as the testing, balancing and adjusting report and the as-built drawings.

PART 2 - PRODUCTS

NOT USED.

PART 3 - EXECUTION

NOT USED.

END OF SECTION

SECTION 02 41 19

SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes, but is not limited to, the following:
   1. Demolition and removal of selected portions of a building or structure.
   2. Demolition and removal of selected site elements.
   3. Repair procedures for selective demolition operations.

1.2 DEFINITIONS

A. Remove: Detach items from existing construction and legally dispose of them off-site, unless otherwise indicated.

B. Remove and Salvage: Detach items from existing construction and deliver them to the Owner, suitable for re-use where indicated.

C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse in the Work, and reinstall them where indicated.

D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.3 MATERIALS OWNERSHIP

A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.

1.4 PREINSTALLATION MEETINGS

A. Predemolition Conference: Conduct conference at Project site.
   1. Inspect and discuss condition of construction to be selectively demolished.
   2. Review structural load limitations of existing structure.
   3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
   5. Review areas where existing construction is to remain and requires protection.

1.5 SUBMITTALS

A. Temporary Roofing: Include Product Data and description of temporary roofing system and tie-ins to existing and new roofing system.

B. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of Architects and owners, and other information specified.

C. Proposed dust-control and noise-control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation.
   1. Identify options if proposed measures are later determined to be inadequate.

D. Schedule of Selective Demolition Activities:
   1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity.
   2. Interruption of utility services.
   3. Coordination for shutoff, capping, and continuation of utility services.
   4. Construction and use of temporary elevators.
   5. Locations of temporary partitions, if required, and means of egress.
   6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's occupancy of completed Work.

E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces that might be misconstrued as damage caused by selective demolition operations. Submit certification that Contractor has completed survey before Work begins. Undocumented conditions will be repaired at Contractor’s sole expense.

F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

G. Warranties: Documentation indicating that existing warranties are still in effect after completion of selective demolition.

H. Site Plan: Provide site plan indicating location and schedule of demolition activities prior to starting the Work.

1.6 QUALITY ASSURANCE

A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.

B. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.

C. Standards: Comply with ANSI A10.6 and NFPA 241.

D. Predemolition Conference: Review methods and procedures related to selective demolition including, but not limited to, the following:
   1. Inspect and discuss condition of construction to be selectively demolished.
   2. Review structural load limitations of existing structure.
   3. Review and finalize selective demolition schedule and verify availability of materials, demolition personnel, equipment, and facilities needed to make progress and avoid delays.
   4. Review requirements of work performed by other trades that rely on substrates exposed by selective demolition operations.
   5. Review areas where existing construction is to remain and requires protection.

1.7 FIELD CONDITIONS

A. Owner will occupy portions of building immediately adjacent to selective demolition area.
   1. Conduct selective demolition so Owner's operations will not be disrupted.
   2. Provide not less than 7 days notice to Owner of activities that will affect Owner's operations. Provide more than 7 days notice when required by Owner.
   3. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.

B. Owner assumes no responsibility for condition of areas to be selectively demolished.

C. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.

D. Notify Architect of discrepancies between existing conditions and Drawings before proceeding with selective demolition.

E. Hazardous Materials: Present in buildings and structures to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
   1. Hazardous material remediation is specified elsewhere in the Contract Documents.
   2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
   3. Owner will provide material safety data sheets for suspected hazardous materials that are known to be present in buildings and structures to be selectively demolished because of building operations or processes performed there.

F. Storage or sale of removed items or materials on-site will not be permitted.

G. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
   1. Maintain fire-protection facilities in service during selective demolition operations.

H. Weather Limitations: Proceed with roofing removal preparation only when existing and forecasted weather conditions permit Work to proceed without water entering existing roofing system or building.

1.8 SEQUENCING

A. Coordinate the sequencing of roofing demolition work with roofing system applicator to ensure that the roofing replacement will promptly follow demolition work.

B. Provide and install temporary protection during the period between demolition and replacement work. Building must be maintained in watertight condition for duration of the Work.

C. Take steps necessary to ensure that the building is watertight at the end of each days work and when inclement weather is forecast.
   1. Failure to adequately protect the building and its contents from weather will result in the Owner installing temporary protection at the Contractor’s expense.

1.9 WARRANTY

A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Comply with authorities having jurisdiction over selective demolition operations, including:
   1. California Occupational Safety and Health Administration (CalOSHA)
   2. Department of Transportation (DOT)
   3. Department of Health Services (DOHS)
   4. Environmental Protection Agency (EPA)
   5. California Contractors State License Board

2.2 TEMPORARY ROOFING MATERIALS

A. General: Temporary roofing preparation materials recommended by roofing system manufacturer for intended use and compatible with components of membrane roofing system.

B. Base Sheet Fasteners: Capped head, factory-coated steel fasteners, listed in FM Approval's "Approval Guide."

2.3 REPAIR MATERIALS

A. Use repair materials identical to existing materials.
   1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
   2. Use a material whose installed performance equals or surpasses that of existing materials.

B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Visit the project to survey existing conditions and correlate with Contract Document requirements indicated to determine extent of selective demolition required.
   1. Perform visual survey accompanied by the Owner or the Owner's Representative.
   2. Mark interface surfaces as required to enable workmen to identify items scheduled for demolition and those scheduled to remain.

B. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.

C. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Engineer.

D. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 PREPARATION

A. Protect existing membrane roofing system that is indicated not to be removed.

B. Coordinate with Owner to shut down air-intake equipment in the vicinity of the Work. Cover air-intake louvers before proceeding with roofing removal work that could affect indoor air quality or activate smoke detectors in the ductwork.

C. Maintain roof drains in functioning condition to ensure roof drainage at end of each workday. Prevent debris from entering or blocking roof drains and conductors. Use roof-drain plugs specifically designed for this purpose. Remove roof-drain plugs at end of each workday, when no work is taking place, or when rain is forecast.

D. Verify that rooftop utilities and service piping have been shut off before beginning the Work.

E. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.

F. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
   1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Owner and authorities having jurisdiction.
   2. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
   3. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.

4. Protect existing site improvements, appurtenances, and landscaping to remain.

G. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
4. Cover and protect furniture, furnishings, and equipment below selective demolition where applicable.

H. Protect building to have roofing removed, adjacent buildings, walkways, site improvements, exterior plantings, and landscaping from damage or soiling from roofing removal operations.

I. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities.
1. Provide temporary weathertight enclosure for building exterior.
2. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

J. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise where indicated.

K. Temporary Shoring: Provide and maintain shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
1. Strengthen or add new supports when required during progress of selective demolition.

3.3 UTILITY SERVICES

A. Existing Utilities: Maintain services and protect them against damage during selective demolition operations.

B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Owner and authorities having jurisdiction.

C. Provide temporary services during interruptions to existing utilities, as acceptable to Owner and to authorities having jurisdiction.
1. Provide at least 72 hours' notice to Owner if shutdown of service is required during changeover.

D. Utility Requirements: Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.4 POLLUTION CONTROLS

A. Dust Control: Comply with the Owner's and applicable governing environmental protection regulations.

B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
   1. Remove debris from elevated portions of building by enclosed chute, hoist, or other pre-approved device that will convey debris to grade level in a controlled descent.

3.5 SELECTIVE DEMOLITION

A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated.

B. Use methods required to complete the Work within limitations of governing regulations.

C. Proceed with selective demolition systematically, from higher to lower level.

D. Neatly cut openings and holes plumb, square, and true to dimensions required.

E. Use cutting methods least likely to damage construction to remain or adjoining construction.
   1. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces.
   2. Temporarily cover openings to remain.
   3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.

F. Do not use cutting torches until work area is cleared of flammable materials.
   1. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden space before starting flame-cutting operations.
   2. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
   3. Maintain adequate ventilation when using cutting torches.

G. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site. Review items to be removed due to decay or damage with Owner.

H. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.

I. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.

J. Dispose of demolished items and materials promptly.

K. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.

L. Existing Facilities: Comply with Owner's requirements for using and protecting elevators, stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.

M. Removed and Salvaged Items:
1. Clean salvaged items.
2. Pack or crate items after cleaning, identifying contents of containers.
3. Store items in a secure area until delivery to Owner.
4. Transport items to Owner's storage area where so indicated.
5. Protect items from damage during transport and storage.

N. Removed and Reinstalled Items:
1. Clean and repair items to functional condition adequate for intended reuse.
2. Paint equipment where indicated.
3. Reinstall items in locations indicated.
4. Comply with installation requirements for new materials and equipment.
5. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.

O. Existing Items to Remain: Protect construction to remain against damage and soiling during selective demolition.
1. When permitted by Engineer, items may be removed to a suitable, protected storage location during selective demolition and reinstalled in their original locations after selective demolition operations are complete.

P. Roofing: Remove no more existing roofing than can be covered in one day by new roofing.

3.6 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.

B. Promptly replace items demolished that were not so scheduled to the satisfaction of the Owner.

C. Repairs: Where repairs to existing surfaces are required, patch to produce surfaces suitable for new materials.
1. Completely fill holes and depressions in existing masonry walls that are to remain with an approved masonry patching material applied according to manufacturer's written recommendations.

D. Finishes: Restore exposed finishes of patched areas and extend restoration into adjoining construction in a manner that eliminates evidence of patching and refinishing.
1. Patch with durable seams that are as invisible as possible. Provide materials and comply with installation requirements specified in other Sections of these Specifications.
2. Where patching occurs in a painted surface, apply primer and intermediate paint coats over patch and apply final paint coat over entire unbroken surface containing patch. Provide additional coats until patch blends with adjacent surfaces.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials and dispose of at designated spoil areas on Owner's property.

D. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

3.8 CLEANING

A. Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations.

B. Return adjacent areas to condition existing before selective demolition operations began.

3.9 SELECTIVE DEMOLITION SCHEDULE

A. Existing Construction to Be Removed: Remove existing construction where indicated. Remove existing construction as required to install the Work.
   1. Existing construction as indicated and as needed to complete the Work.
   2. Other construction where shown or noted on the Drawings and where specified in the Project Manual.

B. Existing Items to Be Removed and Reinstalled: Items and/or construction requiring temporary removal and/or disconnection, modification, etc. to remain a part of the Work.
   1. Existing construction as indicated and as needed to complete the Work.
   2. Other construction where shown or noted on the Drawings and where specified in the Project Manual

END OF SECTION

SECTION 03 01 33

CONCRETE REHABILITATION

PART 1 - GENERAL

1.1 SUMMARY

A. This Section specifies concrete rehabilitation of exterior horizontal, vertical, and overhead surfaces.
   1. Removal of loose and deteriorated concrete.
   2. Clean and repair reinforcing steel.
   3. Prepare surfaces to receive materials of this Section.
   4. Anti-Corrosion treatments of reinforcing steel.
   5. Patching and rebuilding of cast-in-place and pre-cast concrete.
   6. Crack Repair
   7. Crack Injection

1.2 RELATED REQUIREMENTS

A. Section 07 18 14, “Heavy Pedestrian Traffic Coating;” For product, administrative, and procedural requirements related to the Work in this section.

1.3 SUBMITTALS

A. Product Data: For each type of product indicated.
   1. Include MSDS for Owner’s use.

B. Product Certificates: Signed by the manufacturers, and certifying that products furnished comply with requirements, and are recommended by manufacturer for the uses indicated.

1.4 QUALITY ASSURANCE

A. Manufacturer Qualifications: Manufacturers shall have factory-trained representatives who are available for consultation and project site inspection at no additional cost to the Owner.

B. Installer Qualifications: Installer shall be qualified in the field of concrete repair and protection with a successful record of experience of not less than 5 years. Installer shall maintain qualified personnel who have received product training by a manufacturer’s representative and provide letter from manufacturer documenting that training has been provided for products identified in this section within the past 5 years.

C. Mock-up: Perform in-situ work on a designated area of the building to demonstrate preparation, materials, and execution. Provide access to the mock-up area for the Owner, Engineer, and Manufacturer's Representative. The Manufacturer shall review the mock-up and provide documentation to the Owner's Consultant when the mock-up is acceptable to the Manufacturer.

D. Spall Classifications: Spall repair volumes completed during construction shall be measured and quantified in cubic inches. The Contractor shall be responsible for the documenting of all spall repair work.

E. Spall Documenting
   1. Maintain a 3 ring binder for each building on site containing the following
      a. 8-1/2 x 11 photo print as necessary to document the location of each repaired spall. This can be in the form of a façade or a location documented with a dry erase board. A red felt pen shall uniquely identify the spall on the photo print with an approved system consistent throughout the project. The photo print shall be of sufficient zoom to easily identify the spall repair location in the future. Multiple spall repairs can be shown on a single photo print.
      b. The contractor shall create a chart with the following headings:
      c. Spall Number, Spall Cubic Inches, Contractors Foreman initials, Owners Agent initials, Date approved.
      d. The Contractor shall contact the Owner's Agent for inspection when the rebar has been cleaned and ready for epoxy. This shall be the Date Approved noted in the log.

F. The Contractor shall create two CD's of the binder at the completion of each building. The two CD's shall be turned over to the Owner's Agent.

1.5 DELIVERY STORAGE AND HANDLING

A. All materials shall be delivered in original, unopened containers with the manufacturer's name, labels, product identification, and batch numbers. Damaged material must be removed from the site immediately.

B. Store materials off-ground and protected from rain, freezing, or excessive heat until ready for use.

C. Condition the product as recommended by the Manufacturer prior to use.

1.6 FIELD CONDITIONS

A. Environmental Conditions: Do not apply material if it is raining or snowing, or if such conditions are forecast within 24 hours. Minimum application temperature is 40 deg. F and rising.

B. Protection: Take all necessary precautions to avoid damage to surfaces near the work area due to mixing, handling, or application of materials.

C. Neutralize and collect alkaline and acid wastes for legal disposal off Owner's property.

D. Dispose of runoff from wet operations by legal means and in a manner that prevents damage to landscaping and water penetration into building interiors.

1.7 WARRANTY

A. Provide the manufacturer's standard written warranty against defects of materials
   1. Manufacturer's Warranty Period: 5 years from date of final acceptance.
   2. Contractor must be eligible for, and make application to manufacturer prior to the start of work under this section.

B. Provide installer's written labor warranty against defects of workmanship.
   1. Installer's Warranty Period: 5 years from date of final acceptance.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Dowels:
   1. AISI 316 Threaded Stainless Steel.

B. Epoxy for embedding dowels and reinforcing bars - High modulus, high strength, smooth, epoxy paste anchoring adhesive:
   1. Sikadur 31 High-Mod Gel.

C. Epoxy Resin/Portland Cement Bonding Adhesive/Anti-Corrosion Coating:
   1. Sika Armatec 110 EpoCem.

D. Polymer modified Portland cement Mortar (horizontal applications):
   1. SikaTop 122 Plus.

E. Polymer modified Portland cement Mortar (vertical/overhead applications):
   1. SikaTop 123 Plus.

F. Polymer Modified Portland Cement (Form Pour)
   1. Sikatop 111 Plus

G. Polymer Modified Self Compacting Concrete (Form Pour)
   1. Sikacrete 211 SCC Plus

H. Cementitious Repair Mortar (sloping course)
   1. SikaQuick 1000

I. Epoxy-Injected Crack Repair - High-modulus, high-strength, structural, extended pot life epoxy paste adhesive for sealing cracks and for sealing around injection ports, prior to pressure-injection grouting of cracks:
   1. Sikadur 31 High-Mod Gel LPL.

J. Epoxy-Injected Crack Repair - High-modulus, low-viscosity, high-strength epoxy grouting/sealing/binder adhesive for pressure injection of large (greater than ¼") crack repairs:
   1. Sikadur Injection Gel

K. Penetrating, corrosion inhibiting, impregnation coating for hardened concrete.
   1. Sika FerroGard 903.

2.2 MISCELLANEOUS MATERIALS

A. Aggregate:
   1. Washed aggregate complying with ASTM C33.
   2. Where patch will be exposed, size and class coarse-aggregate to match surrounding aggregate.
   3. Add only as permitted by mortar manufacturer.

B. Compressible Filler Strips: ASTM D 1751, asphalt-saturated cellulosic fiber.
   1. Deck-O-Foam by W.R. Meadows.

PART 3 - EXECUTION

3.1 GENERAL

A. Provide protection for all building users in both exterior and interior locations.

B. Install materials in accordance with the manufacturer's recommendations.

3.2 SURFACE PREPARATION

A. Consult concrete restoration product Manufacturer's written instructions for surface preparation.

B. Areas to be repaired must be clean, sound, and free of contaminants.
   1. All loose and deteriorated concrete shall be removed by mechanical means.
   2. Mechanically prepare concrete substrate by shot blasting to obtain a surface profile of +/- 1/8" (CSP-6 or greater as per ICRI Guidelines) with a new exposed aggregate surface.
   3. Area to be patched shall not be less than 1/8" in depth.
   4. Area for sloping course shall not be less than 1/4" in depth.

C. Where reinforcing steel with active corrosion is encountered:
   1. Wire-wheel, or sandblast the steel to remove all scale and loose rust.
   2. Where corrosion has occurred due to the presence of chlorides, the steel shall be high pressure washed after mechanical cleaning.

3. Remove concrete from behind corroded bars to provide a minimum of 3/4-inch clearance behind bars unless noted otherwise in drawings.
4. Once unsound concrete has been removed, remove additional concrete to expose a minimum of 2 inches of clean steel at exposed ends, unless otherwise indicated in the concrete restoration product Manufacturer's written instructions or recommendations for preparation and exposing of steel reinforcement.
5. Where section loss of reinforcing bar is more than 25 percent, or 20 percent in two or more adjacent bars, cut bars, remove and replace.
   a. Splice replacement bars to existing bars according to plan details.
6. Where the ends of existing reinforcing bars extend within 3/4 inch of the surface, cut reinforcing bar back to provide 3/4 inch minimum cover unless noted on plans.
7. Prime steel with 2 coats of Epoxy Resin/Portland Cement Adhesive/Anti-Corrosion Coating.

3.3 DOWELS

A. Install dowels in epoxy at patch locations where recommended by the manufacturer and where indicated on detail sheets.
   1. Clean dowels prior to application of materials.

3.4 EPOXY RESIN/PORTLAND CEMENT BONDING ADHESIVE 1 (SIKA ARMATEC 110 EPOCEM):

A. Mix in accordance with product Manufacturer's instructions.

3.5 PLACEMENT PROCEDURES FOR ANTI-CORROSION COATING (SIKA ARMATEC 110 EPOCEM):

A. Apply to prepared steel surfaces with a stiff-bristle brush being careful to fully coat all surfaces including underside of exposed steel.

B. Apply in accordance with manufacturer's instructions.

3.6 PLACEMENT PROCEDURES FOR BONDING ADHESIVE (SIKA ARMATEC 110 EPOCEM):

A. Apply in accordance with manufacturer's instructions

3.7 POLYMER MODIFIED CEMENT AND CONCRETE PRODUCTS

A. Prepare and apply in accordance with manufacturer's instructions

3.8 SLOPING COURSE

A. Prime the prepared substrate with a scrub coat of SikaQuick 1000. Apply mortar to wet scrub coat before it dries.

B. Prepare and apply in accordance with manufacturer's instructions

3.9 EPOXY INJECTED CRACK REPAIR

A. If penetration of any cracks is impossible, consult the Owners Consultant before discontinuing the injection procedure. If modification of the proposed procedure is required to fill the cracks, submit said modification in writing to the Owners Consultant prior to proceeding

B. Adhere to all limitations and cautions for the epoxy resin adhesive in the manufactures current printed literature

C. Repair cracks in substrate larger than 1/16" wide by v-grooving cracks to a depth of 1/8" minimum. Ensure substrate is free and clear of dust and loose debris prior to application of epoxy crack repair.

D. Cleaning
1. After the epoxy resin adhesive for grouting has cured, the epoxy resin adhesive for sealing cracks and porting devices shall be removed. Clean the substrate and repair the substrate to match the existing in finish, texture, and color.

3.10 FIELD QUALITY CONTROL

A. The manufacturer's representative will sample materials, perform tests, and submit test reports during material placement.
1. Coordinate activities to facilitate observation by Owner's representative.

END OF SECTION

SECTION 07 18 14

HEAVY PEDESTRIAN TRAFFIC COATING

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

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

1.2 SUMMARY

A. Section Includes:
   1. Heavy pedestrian traffic coating system including substrate preparation, primer and textured top coat for use at exterior concrete deck and where indicated on the Drawings.

1.3 RELATED REQUIREMENTS

A. Section 03 0133, “Concrete Rehabilitation,” for products, procedural, and administrative requirements relating to preparation of concrete substrate and application of cementitious sloping course as it relates to the Work in this section.

B. Section 07 9200, “Joint Sealants,” for products pertaining to sealing joints in between substrates and crack repair.

1.4 REFERENCE STANDARDS

A. SSPC-SP1 – Solvent Cleaning; 2016.

B. SSPC-SP11 – Power Tool Cleaning to Bare Metal; 2012.

C. SSPC-SP16 – Brush of Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals; 2010.

D. ASTM D 4285 – Standard Test method for Indicating Oil or Water in Compressed Air; 2018

E. ASTM D 4417 – Standard Test Methods for Field Measurement of Surface Profile of Blasted Cleaned Steel; 2014

F. ASTM D 7127 – Standard Test Method of Measurement of Surface Roughness of Abrasive Blast Cleaned Metal Surfaces Using a Portable Stylus Instrument; 2017.

G. ASTM D 7393 – Standard Practice for Indicating Oil in Abrasives; 2010.

1.5 PERFORMANCE REQUIREMENTS

A. Cold fluid applied polyurethane traffic waterproofing system is intended to perform as a continuous barrier against liquid water and to flash or discharge to the incidental water. Membrane system shall accommodate movements of building materials as required with accessory sealant materials at such locations, changes in substrate, perimeter conditions and penetrations.

B. Installed waterproofing membrane/surfacing system shall not permit the passage of water, and will withstand the anticipated traffic wear exposures in accordance with the most current revision of ASTM C957, High-Solids Content, Cold Liquid-Applied Elastomeric Waterproofing Membrane with Integral Wearing Surface.

C. Intent is to bridge and seal the following air and water leakage pathways and gaps:
   1. Connections of the walls to the deck.
   2. Piping, conduit, duct and similar penetrations.
   3. All other air leakage and water intrusion pathways to building envelope connections.

1.6 SUBMITTALS

A. Submittals: Comply with project requirements for submittals as specified in Division 01.

B. Product Data:
   1. Materials list of items proposed to be provided under this Section.
   2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
   3. Drawings or catalog illustrations in sufficient detail to show installation and interface of the work of this Section with the work of adjacent trades.
   4. Manufacturer's current recommended installation procedures.

C. Mock Ups: Provide a mock up on site to demonstrate workmanship and final appearance. Locate in an area acceptable to the Architect. Accepted mock up may remain in place.

1.7 QUALITY ASSURANCE

A. Installer Qualifications: Installer shall have at least three years of experience in installing materials of types specified and shall have successfully completed at least three projects of similar scope and complexity. Installer shall designate a single individual as project foreman who shall be on site at all times during installation.

B. Field Adhesion Test Method: Use manufacturer's standard field adhesion test methods and methods to verify proper priming and surface preparation techniques required to obtain optimum adhesion. Evaluate and report results of field adhesion testing.

C. Waterproofing Terminology: Refer to ASTM D1079 and the Manufacturer’s Applicator Manual for definitions of waterproofing terms related to this section.

1.8 PRE-INSTALLATION CONFERENCE

A. Prior to scheduled commencement of installation and associated work, conduct a meeting at the project site with the installer, architect/consultant, owner, manufacturer's representative and any other persons directly involved with the performance of the Work. Verify that final traffic coating system details comply with manufacturer's current installation requirements and recommendations. The Installer shall record conference discussions and to include decisions and agreements reached (or disagreements), and furnish copies of recorded discussions to each attending party. The main purpose of this meeting is to review foreseeable methods and procedures related to the Work.
   1. Examine deck substrate conditions and finishes for compliance with requirements.
   2. Review flashings, special details, deck drainage, penetrations, expansion joint, curbs, and condition of other construction that will affect traffic coating.

1.9 REGULATORY REQUIREMENTS

A. Applicable Regulations: Comply with local code and requirements of authorities having jurisdiction. Do not exceed VOC regulations as established by the State in which they are being installed; including total VOC content, in grams per liter, for all system components (i.e. primers, adhesives, coatings, and similar items.)

1.10 DELIVERY, STORAGE AND HANDLING

A. Deliver materials to the job site in the manufacturer's unopened containers with all labels intact and legible at time of use. Handle and store materials in accordance with manufacturer's recommendations with proper precautions to ensure fitness of material when installed.

1.11 WARRANTY

A. Manufacturer's Warranty: Manufacturer's Material warranty for each type of product. Include written testing documentation and test reports if requested by Architect.
   1. Warranty Period Ten (10) years from date of Substantial Completion

B. Installer Qualifications: Installer shall demonstrate qualifications to perform the work of this Section by submitting the following documentation:
   1. Certification or license by the pedestrian traffic coating manufacturer as a locally based, authorized applicator of the products indicated for the specified warranty, for a minimum of five (5) years.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Basis-of-Design Manufacturer: Subject to compliance with manufacturer, provide Sikalastic 720/745 Textured Traffic System by Sika Corporation

2.2 TRAFFIC COATINGS

A. Primers: For use in the Sikalastic 720/745 Traffic System.
   1. Sikalastic Primer: One-component polyurethane primer.
      a. For use over concrete substrates, cementitious sloping course, and where indicated in Drawings.
   2. Sikalastic EP Primer: Two-component, epoxy prime.
      a. For use on metal substrates
   3. Sikalastic FTP: Water-based epoxy primer.
   4. Sikalastic FTP LoVOC 100% solids epoxy primer
      a. For use as a standard primer and for recoat applications and elevated moisture content up to 6% by Tramex.
   5. Sikalastic PF Lo-VOC: 100% solids epoxy primer
      a. For use on rough and/or porous substrates.

B. Base Coat: Two-component aromatic polyurethane base coat.
   1. Sikalastic 720 Base; Sika Corporation
      a. Thickness: 30 mils WFT

C. Top Coat: Sikalastic 745 Textured two-component aliphatic polyurethane top coat with integrated aggregate.
      a. Color: Custom color to be mixed in field and chosen by Architect from manufacturer's available color packs.
      b. Thickness: 16 mils WFT
         1) Application: 2 layers

D. Fabric reinforcement: Woven nylon reinforcement
   1. Sikalastic Flexitape; Sika Corporation

E. Base and Top Coats: Typical Physical properties complying with the following.

Table 1: Physical properties of base and top coats

PHYSICAL PROPERTY	720 BASE COAT	736 TEXTURED TOP COAT
Pot Life	10-15 minutes	n/a
Total Volume Solids (ASTM D2697)	95%	78.23%
VOC Content (ASTM D2369)	59 g/l	85 g/l
Tensile Strength (ASTM D412)	500 +/- 100 psi	4000 +/- 300 psi
Elongation at Break (ASTM D412)	800 +/- 50%	250 +/- 50%
Tear Resistance (Die C, ASTM D624)	300 +/- 25 pli	400 +/- 50 psi

Tests were performed with material and curing conditions at 75 °F and 50% relative humidity.

2.3 MIXING AND TINTING

A. Do not use thinner unless specifically directed to, in writing, by the manufacturer.

B. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

C. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.
   1. Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

D. Primers:
   1. For concrete with maximum 4% moisture content as measured with a Tramex Concrete Moisture Encounter meter, use:
      a. Sikalastic Primer - No mixing required.
      b. Sikalastic FTP - Premix both components. Part B is dark olive green in color and may appear black in the container, Part A is light amber in color.
         1) Add 1 gallon of Part A to the 1.25 gallon pail containing Part B. Mix thoroughly with a mechanical mixer (Jiffy) for 3 minutes.
   2. For concrete with maximum 5% moisture content as measured with a Tramex Concrete Moisture Encounter meter, use:
      a. Sikalastic PF Lo-VOC Primer – Premix both components. Part A is white in color, Part B is black in color.
         1) In a separate mixing vessel, add Part B to Part A. Mix thoroughly with a mechanical mixer (Jiffy) for 3 minutes.
         2) This mixture will appear as a grey color.

E. Base Coat:
   1. Premix Sikalastic 720 Base Part A and Part B using a mechanical mixer (Jiffy) at slow speeds to obtain uniform color, making sure to scrape the solids from the bottom and sides of the pails. Do not break down kits into smaller quantities; portions are premeasured.
   2. Pour Part B into Part A slowly and while mixing, scrape the sides of the container. Mix the combined materials thoroughly until a homogenous mixture and uniform color is obtained (typically 3 minutes). Use care not to allow the entrapment of air into the mixture.

F. Intermediate and Top Coat:
   1. Premix Sikalastic 745 AL Part A and Part B using a mechanical mixer (Jiffy) at slow speeds to obtain uniform color, making sure to scrape the solids from the bottom and sides of the pails. Do not break down kits into smaller quantities; portions are premeasured.
   2. Pour Part B into Part A slowly and while mixing, scrape the sides of the container. Mix the combined materials thoroughly until a homogenous mixture and uniform color is obtained (typically 3 minutes). Use care not to allow the entrapment of air into the mixture.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which applicaiton will be performed for compliance with coating application requirements.
   1. Do not begin to apply coating until unsatisfactory conditions have been corrected and surfaces receiving coating are thoroughly dry.
   2. Start of coating will be construed as the Applicator's acceptance of surfaces and conditions within a particular area. Notify the Architect or Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
   1. Notify the Architect or Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be coated. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and coating.
   1. After completing coating operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Protection: Protect surfaces not being painted concurrently, or not to be painted, and the finished Work of other trades.
   1. Mask UL labels and hardware items that cannot be removed, before painting the surface on which they occur.
   2. Remove masking when painting of surfaces or items is completed.

3.3 PREPARATION OF SURFACES

A. Prepare substrate in strict accordance with manufacturer's written instructions. If there is conflict between the manufacturer's instructions and the Contract Documents, the more stringent shall apply.
   1. Substrates shall be clean, dry, sound, free of surface contaminants, with an open texture. Remove all traces of dust, laitance, grease, oils, curing compounds, form release agents and foreign particles by mechanical means, such as milling, scarifying, or shotblasting, as acceptable to the Architect.
   2. Blow surface free of dust using compressed air line-equipped with an oil trap. All projections, depressions and rough spots should be dressed off to achieve a level surface prior to the application.
   3. Existing coatings should be cleaned and mechanically abraded to provide a contaminant free, open textured surface. Use recoat primer to reactivate the old coating.

B. Cleaning: Before applying coating or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   1. Schedule cleaning and coating so dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.
      a. Power wash areas of exterior surfaces to be coated using a mild detergent solution, thoroughly rinsing with clear clean water until all residues have been removed. Allow all surfaces to thoroughly dry prior to proceeding with preparation or painting.
   2. Prepare the surface of areas to be coated, removing all dirt, chalk, and surface contaminates that will interfere with the adhesion of subsequent coats. Refer to SSPC-SP1, "Solvent Clean," to remove visible and soluble surface contaminants.
   3. Brush blast all surfaces of substrates to receive new coating to an angular surface profile of 1.5 mils minimum, according to SSPC-SP16. Solvent clean surface after it has received new coating. When abrasive blasting is not practical, use power tools to create a surface profile and do not burnish the surface. Substrates with rusting and corrosion shall be prepared according to SSPC-SP11, "Power Tool Clean to Bare Metal."
      a. Treat areas that show signs of mildew with a commercial grade mildicide.
   4. Carefully examine all areas after preparation and prior to receiving coating for cracking, blistering, peeling or flaking of existing coating. Remove loose, unsound, or non-adhering coating. All surfaces shall be clean and free of all surface contaminants, including passivated surface. Ensure the substrates are dry and uniformly roughened to a surface profile of 1.5 mils before applying coating.
   5. Report existing damage to buildings or other structures, including, but not limited to, broken windows, existing paint splatters, broken wood trim, dry rot and termite infestation. Report conditions out of the ordinary found to exist to the Owner's Representative prior to starting any work.

3.4 PRIMER APPLICATION

A. Apply at the recommended coverage rate using a notched squeegee or trowel, applying enough pressure to obtain an adequate and uniform compaction and constant thickness. Backroll prior to applying top coat in every direction to create an even texture. Do not dip and roll this product from the pail.
   1. Re-coat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

B. Concrete (<4% moisture content by weight, measured with Tramex Concrete Moisture Encounter Meter):
   1. Apply Sikalastic Primer at 280 sf/gal or Sikalastic FTP primer at 300 sf/gal with a flat squeegee or roller and work well into the substrate to insure adequate penetration and sealing. Puddles are to be avoided.
      a. Refer to data sheet for more detailed information, or consult Sika for other primer options.
   2. Use a phenolic resin core roller to apply the primer.
   3. Allow primer to cure a minimum of 45 minutes at 70°F and 50% RH or until tack free before applying base coat.
   4. Allow primer to cure a minimum of 3-4 hours at 70°F and 50% RH or until tack free before applying base coat.

C. Concrete (<5% moisture content by weight, measured with Tramex Concrete Moisture Encounter Meter):
   1. For concrete substrates with 5% maximum moisture content by weight, apply Sikalastic PF Lo-VOC primer at 200 sf/gal. with a flat squeegee or roller and work well into the substrate to insure adequate penetration and sealing. Puddles are to be avoided.
      a. Refer to data sheet for more detailed information, or consult Sika for other primer options.
   2. Allow primer to cure a minimum of 6 hours at 70°F and 50% RH or until tack free before applying second primer or base coat.

D. Consult with manufacturer for application of primer to concrete substrates in excess of 5% moisture by content.

3.5 APPLICATION, GENERAL

A. General: Apply finish coat according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied. If there are discrepancies between the manufacturer's instructions and the Contract Documents, the more stringent shall govern.
   1. Wind Conditions:
      a. Apply coating materials using a spray gun only when no wind conditions exist above 10 miles per hour.
      b. When wind conditions exceed 10 miles per hour, apply coating materials using rollers and brushes.
      c. Carefully monitor and avoid overspray in any kind of wind condition.

B. Minimum Coating Thickness: Apply coating materials no thinner than manufacturers recommended spreading rate. Provide the total dry film thickness (TDF) of the entire system as recommended by the manufacturer or 62 mils DFT whichever is greater

C. Scheduling Coating: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration.
   1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
   2. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

D. Completed Work: Match approved samples for color, texture, and coverage. Remove, refinish, or recoat work not complying with requirements.

3.6 DETAILING

A. Fabric Reinforcement: Apply a minimum 3" wide strip of fabric reinforcement embedded within the base coat. Width shall be chosen such that a minimum of 1" tape is embedded on either side of the crack/joint. Apply additional coating as required to fully embed the fabric reinforcement in the coating.

B. Joints over 1 inch or where indicated: Treat as expansion joints and brought up through the Sikalastic Traffic System and sealed with Sikaflex 2c sealant, see Section 07 92 00 “Joint Sealants.”

3.7 BASE COAT APPLICATION

A. Apply base coat at a rate of 30 mils WFT using 3/16 inch notched squeegee or trowel, and backroll using a phenolic resin core roller. Extend base coat over entire area.

B. Allow 720 Base Coat to cure a minimum of 3-4 hours at 70 °F and 50% R.H. or until tack free before top coating.

3.8 TOP COAT APPLICATION

A. Apply 2 layers of 745 AL Top Coat at a rate of 16 mils wet film thickness, per manufacturer’s recommendations, using a notched squeegee.

B. Backroll using a phenolic resin core roller. Apply aggregate evenly seeded and distributed at 10-20 lbs. per 100 sf into the wet coating.

C. Allow coating to cure a minimum of 3-4 hours at 70 degrees F and 50% RH or until tack free between coats. Allow a minimum of 36 hours before opening to pedestrian traffic.

3.9 CLEANING

A. Remove uncured materials from tools or other surfaces with an approved solvent. Remove cured materials by mechanical means.

B. Leave finished work and work area in a neat, clean condition without evidence of spillovers onto adjacent areas.

END OF SECTION

SECTION 07 62 00

SHEET METAL FLASHING AND TRIM

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
1. Formed low-slope roof sheet metal fabrications.
2. Formed wall sheet metal fabrications.
3. Joint sealants associated with sheet metal flashing.
4. Other sheet metal as indicated.

1.2 RELATED REQUIREMENTS

A. Section 07 92 00 “Joint Sealants;” for procedural and administrative, product and execution requirements for joint sealants referred to in this Section.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: A preinstallation meeting shall be held at the project site prior to commencement of field installation to establish procedures to maintain required working conditions and to coordinate this Work with related and adjacent Work. Verify that final details comply with current recommendations published in SMACNA’s "Architectural Sheet Metal Manual" and NRCA’s Roofing and Waterproofing Manual. Meeting attendees shall include representatives for the Owner, Consultant, inspection firm, Contractor, sheet metal contractor and installers of related and adjacent Work.

1.4 SUBMITTALS

A. Product Data: For each type of product indicated.

B. Shop Drawings: Show fabrication and installation layouts of sheet metal flashing and trim, including plans, elevations, expansion-joint locations, and keyed details. Distinguish between shop- and field-assembled work. Reference applicable Contract Drawing detail.
1. Identification of material, thickness, weight, and finish for each item and location in Project.
2. Details for forming sheet metal flashing and trim, including profiles, shapes, seams, and dimensions.
3. Details for joining, supporting, and securing sheet metal flashing and trim, including layout of fasteners, cleats, clips, and other attachments. Include pattern of seams.
4. Details of termination points and assemblies, including fixed points.

5. Details of expansion joints and expansion-joint covers, including showing direction of expansion and contraction.
6. Details of perimeter conditions.
7. Details of specialized conditions including saddles, transitions and terminations in sheet metal flashing.
8. Details of connections to adjoining work.
9. Detail formed flashing and trim at a scale of not less than 3 inches per 12 inches.

C. Samples for Initial Selection: For each type of sheet metal flashing and accessory indicated with factory-applied color finishes involving color selection.
1. 6” square samples of specified sheet metal materials to be exposed as finished surfaces.
2. 12” long samples of factory-fabricated products exposed as finished Work. Provide complete with specified factory finish.
3. One 11 oz. tube of each specified sealant.
4. Two samples each of proposed fasteners and accessories to be used.

D. Samples for Verification: For each type of exposed finish required, prepared on Samples of size indicated below:
1. Sheet Metal Flashing: 12 inches long by actual width of unit, including finished seam and in required profile. Include fasteners, cleats, clips, closures, and other attachments.
2. Expansion Joints, Joint Intersections, and Miscellaneous Fabrications: 12 inches long and in required profile. Include fasteners and other exposed accessories.
3. Accessories and Miscellaneous Materials: Full-size Sample.

E. Qualification Statements: For qualified fabricator.

F. Warranty: Sample of special warranty.

1.5 CLOSEOUT SUBMITTALS

A. Maintenance data.

1.6 QUALITY ASSURANCE

A. Fabricator Qualifications: Shop that employs skilled workers who custom fabricate sheet metal flashing similar to that required for this Project and whose products have a record of successful in-service performance.

B. Installer Qualifications: Engauge an experience Installer who has completed sheet metal flashing and trim work similar in material, design, and extent to that indicated for this Project and with a record of successful in-service performance.

C. Sheet Metal Flashing and Trim Standard: Comply with SMACNA's "Architectural Sheet Metal Manual" unless more stringent requirements are specified or shown on Drawings.

D. Mockups: Build mockups to verify selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for fabrication and installation.

1. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
2. Build mockup of each fabrication, including, but not limited to, saddles, coping, reglet and counterflashing, approximately 10 feet long, including inside corners, outside corners, supporting construction cleats, seams, attachments, underlayment, and accessories.
3. Locate mockups on-site in the location and of the size indicated or, if not indicated, as directed by Consultant.
4. Notify the Owner and the Consultant one week in advance of the dates and times when mockups will be constructed.
5. Demonstrate the proposed range of aesthetic effects and workmanship.
6. Obtain Consultant's approval of mockups before start of final unit of Work.
7. Approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

E. Coordinate Work of this Section with interfacing and adjoining Work for proper sequencing of each installation.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Do not store sheet metal flashing materials in contact with other materials that might cause staining, denting, or other surface damage. Store sheet metal flashing materials away from uncured concrete and masonry.

B. Protect strippable protective covering on sheet metal flashing from exposure to sunlight and high humidity, except to the extent necessary for the period of sheet metal flashing installation.

1.8 WARRANTY

A. Special Installer's Warranty: Manufacturer's standard form in which Installer agrees to repair or replace sheet metal flashing and trim that does not comply with performance and other requirements specified in this Section within specified warranty period.
1. Warranty Period: Five years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 PERFORMANCE CRITERIA

A. General: Sheet metal flashing assemblies as indicated shall withstand wind loads, structural movement, thermally induced movement, and exposure to weather without failure due to defective manufacture, fabrication, installation, or other defects in construction.
1. Completed sheet metal flashing shall not rattle, leak, or loosen, and shall remain watertight.

B. Install systems to allow movement of components without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subjected to 100-year seasonal temperature ranges.

C. Thermal Movements: Provide sheet metal flashing that allows for thermal movements from ambient and surface temperature changes.
   1. Temperature Change (Range): 120 degrees F, ambient; 180 degrees F, material surfaces.

D. Install specialized, custom fabricated, sheet metal saddles for waterproof performance at terminations and transitions of sheet metal flashing and trim such as multi-plane intersects, and:
   1. Where indicated.
   2. Where constructed conditions will not provide watertight performance without saddles.

E. Contractor shall inspect transitions and terminations to make Project watertight. Contract Documents indicate design intent and may not indicate all instances where saddles apply. Field verify locations where saddles are required.

2.2 SHEET METALS

A. General: Protect mechanical and other finishes on exposed surfaces from damage by applying a strippable, temporary protective film before shipping.

B. Stainless-Steel Sheet: ASTM A 240/A 240M or ASTM A 666, Type 316, dead soft, fully annealed; 2D (dull, cold rolled) finish.
   1. Locations: For use at sills, edge metal, counterflashing, and where indicated.

2.3 MISCELLANEOUS MATERIALS

A. General: Provide materials and types of fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required for complete sheet metal flashing and trim installation and recommended by manufacturer of primary sheet metal or manufactured item unless otherwise indicated.

B. Solder:
   1. For Stainless Steel: ASTM B 32, Grade Sn60, with an acid flux of type recommended by stainless-steel sheet manufacturer.

C. Concealed Sealant Tape: Pressure-sensitive, 100 percent solids, gray polyisobutylene compound sealant tape with release-paper backing. Provide permanently elastic, nonsag, nontoxic, nonstaining tape 1/2 inch wide and 1/8 inch thick.
   1. Subject to compliance with requirements, provide ADCO GT-206; ADCO or approved equal.
   2. Provide pre-shimmed butyl sealant tape between sheet metal laps, at concealed locations, and where indicated.

D. Exposed Sealants: Elastomeric Sealant ASTM C 920, elastomeric polymer sealant; low modulus; of type, grade, class, and use classifications required to seal joints in sheet metal flashing and trim and remain watertight.

1. Refer to Section 07 92 00 – Joint Sealants.

E. Concealed Sealant: Single-component, non-curing, solvent-release butyl rubber sealant; polyisobutylene plasticized; heavy bodied for hooked-type expansion joints with limited movement.
   1. Subject to compliance with requirements, provide ElastiSeal BP-300; Royal Adhesives or approved equal.
   2. Provide butyl sealant between sheet metal laps, at concealed locations, and where indicated.

F. Bituminous Coating: Cold-applied asphalt emulsion complying with ASTM D 1187.

G. Sealing Washers: Stainless steel backed EPDM washers.

2.4 FASTENERS

A. Annular threaded nails, self-tapping screws, self-locking rivets and bolts, and other suitable fasteners designed to withstand design loads and recommended by manufacturer of primary sheet metal or manufactured item. Nails to be secured into wood shall be annular threaded.

B. General: Blind fasteners or self-drilling screws, gasketed, with hex-washer head.
   1. Exposed Fasteners: Heads matching color of sheet metal using plastic caps or factory-applied coating.
   2. Blind Fasteners: High-strength stainless-steel rivets suitable for metal being fastened.

C. Fasteners for Stainless Steel Sheet: Type 316 stainless steel.

D. Fasteners for Stainless-Steel Sheet Metal to Stainless-Steel Sheet Metal Components: No.10, stainless steel sheet metal screws equipped with sealing washers.

E. Drive Pin Anchors: Subject to compliance with requirements provide Zamac Nailin; Powers Fasteners or approved equal.
   1. Body: Zamac alloy, mushroom.
   2. Pin: Type 316 stainless steel.

F. Fastener Length: Fasteners shall be sized to penetrate substrate not less than 1-1/4 inches or not less than 3/4 inch through wood substrates.

2.5 FABRICATION, GENERAL

A. General: Custom fabricate sheet metal flashing and trim to comply with recommendations in SMACNA's "Architectural Sheet Metal Manual" that apply to design, dimensions, geometry, metal thickness, and other characteristics of item indicated. Fabricate items at the shop to greatest extent possible.
   1. Sheet metal components requiring fabrication must have shop drawings submitted and approved prior to fabrication and delivery to the project site. Materials delivered to the project site without the required Architect’s approval shall be immediately removed from the site and not incorporated into the completed Work.

2. Fabricate sheet metal flashing and trim in thickness or weight needed to comply with performance requirements, but not less than that specified for each application and metal.
3. Obtain field measurements for accurate fit before shop fabrication.
4. Form sheet metal flashing and trim without excessive oil canning, buckling, and tool marks and true to line and levels indicated, with exposed edges folded back to form hems.
5. Conceal fasteners and expansion provisions where possible. Exposed fasteners are not allowed on faces exposed to view.
6. Field verify dimensions prior to fabrication.
7. Solder sheet metal prior to application of finish.
8. Flashings shall have minimum 4 inch vertical back leg and 2 inch overlap at exposed side.

B. Materials delivered to the project site without the required Consultant's approval shall be immediately removed from the site and shall not be incorporated into the completed Work.

C. Fabrication Tolerances: Fabricate sheet metal flashing and trim that is capable of installation to specified tolerance.

D. Sealed Joints: Form nonexpansion but movable joints in metal to accommodate elastomeric sealant.

E. Expansion Provisions: Where lapped expansion provisions cannot be used, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with butyl sealant concealed within joints.

F. Fabricate cleats and attachment devices from same material as accessory being anchored or from compatible, noncorrosive metal.

G. Seams: Solder all seams watertight with the exception seams of prefinished metals including those coil-coated, seams requiring movement and seams otherwise indicated in the Contract Documents.
1. Fabricate nonmoving seams with flat-lock seams. Pop rivet pieces together at 1 inch on center prior to soldering. Tin edges to be seamed, form seams, and solder. Sweat solder the lap. Solder rivet holes watertight.

H. Coil-Coated Seams: Fabricate nonmoving seams with flat-lock seams. Lap seams 4 inches and seal in a full bed of butyl sealant. Apply butyl sealant so it does not ooze out of seam. Rivet joints at 1 inch on center. Apply polyurethane sealant over rivets.

I. Form pieces to a minimum length of 8 feet with the exception of pieces with a total length of less than 8 feet.

J. Form pieces to maximum length of 10 feet.

K. Corners: Sheet metal corner flashing shall be fully soldered to form one watertight piece.

L. Hem exposed edges on underside 1/2 inch.

M. Fabricate head flashing, sill flashing and similar with end closures and end dams soldered/welded watertight.

N. Provide drip edges where indicated on the Contract Drawings.

O. Provide 4 inch wide (minimum) horizontal flanges where dimension is not indicated on Contract Drawings
   1. Locations: Where flanges are stripped in or lapped for weather protection.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

A. Counterflashing and Flashing Receivers: Fabricate from the following materials:
   1. Stainless Steel: 24 gauge.

B. Edge Metal: Fabricate from the following materials:
   1. Stainless Steel: 24 gauge.

2.7 WALL SHEET METAL FABRICATIONS

A. Fabricate wall sheet metal flashings with minimum 4 inch vertical leg.

B. Counterflashing: Fabricate from the following materials:
   1. Stainless Steel: 24 gauge.

C. Sill Pan Flashing: Fabricate from the following materials:
   1. Stainless Steel: 24 gauge.

D. Saddles: Fabricate from the following materials:
   1. Stainless Steel: 24 gauge.

2.8 MISCELLANEOUS SHEET METAL FABRICATIONS

A. Saddles, Transitions, and Terminations in Sheet Metal Flashing and Trim: Fabricate from the following materials:
   1. Deck Related Flashing: Stainless steel 24 gauge, unless otherwise noted.

B. Provide specialized, custom fabricated, sheet metal saddles for waterproof performance at terminations and transitions of sheet metal flashing and trim and construction components such as multi-plane intersects, and:
   1. Where constructed conditions will not provide watertight performance without saddles.
   2. Contractor shall inspect transitions and terminations to make Project watertight. Contract Documents indicate design intent and may not indicate all instances where saddles apply. Field verify locations where saddles are required.
   3. Where indicated.

C. Fabricate saddles with diverters, minimum 1/2 inch high by 1 inch deep at multi-plane intersects and where indicated.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with Installer present, to verify actual locations, dimensions and other conditions affecting performance of the Work.
   1. Verify compliance with requirements for installation tolerances of substrates.
   2. Verify that substrate is sound, dry, smooth, clean, sloped for drainage, and securely anchored.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

A. General: Anchor sheet metal flashing and trim and other components of the Work securely in place, with provisions for thermal and structural movement so that completed sheet metal flashing and trim shall not rattle, leak, or loosen, and shall remain watertight. Use fasteners, solder, welding rods, protective coatings, separators, sealants, and other miscellaneous items as required to complete sheet metal flashing and trim system.
   1. Install sheet metal flashing and trim true to line and levels indicated. Provide uniform, neat seams with minimum exposure of solder, welds, and sealant.
   2. Install sheet metal flashing and trim to fit substrates and to result in watertight performance. Verify shapes and dimensions of surfaces to be covered before fabricating sheet metal.
   3. Space cleats not more than 12 inches apart. Anchor each cleat with two fasteners. Bend tabs over fasteners.
   4. Install exposed sheet metal flashing and trim without excessive oil canning, buckling, and tool marks.
   5. Install sealant tape where indicated.
   6. Torch cutting of sheet metal flashing and trim is not permitted.

B. Install all metal flashing and sheet metal in accordance with the recommendations of:
   1. SMACNA Architectural Sheet Metal Manual.
   2. NRCA Roofing and Waterproofing Manual.
   3. The requirements of this Section supersede the above noted references except where the requirements of the reference specification are more stringent.

C. Saddles: Secure with fasteners and sealing washers and continuous cleat.

D. Do not fabricate or install any sheet metal item without the Consultant’s written approval.

E. Lap joints in direction of water flow.

F. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces. Carefully clean and dispose of cuttings so not to damage adjacent materials. Repair or replace damaged materials at no additional cost to the Owner.

G. Use concealed fasteners except where specifically approved by the Consultant. Provide expansion joints concealed within system.

H. Flash and counter flash mechanical and electrical items projecting through roof membrane.

I. Metal Protection: Where dissimilar metals will contact each other or corrosive substrates, protect against galvanic action by painting contact surfaces with bituminous coating or by other permanent separation as recommended by SMACNA.
   1. Where installing metal flashing directly on cementitious or wood substrates, install a course of high temperature self-adhering flashing.

J. Expansion Provisions: Provide for thermal expansion of exposed flashing and trim. Space movement joints at a maximum of 10 feet with no joints allowed within 24 inches of corner or intersection. Where lapped expansion provisions cannot be used or would not be sufficiently watertight, form expansion joints of intermeshing hooked flanges, not less than 1 inch deep, filled with sealant concealed within joints.

K. Solder or seal all seams and end joints as shown in the Drawings or required by field conditions. Measure all dimensions in the field necessary to properly fabricate the flashings. Fit flashings tight in place, however, allow for 3/4 inch minimum clearance to install components. Make corners square, surfaces true and straight in planes, and lines accurate to profiles.

L. Seal joints as shown and as required for watertight construction.
   1. Where sealant-filled joints are used, embed hooked flanges of joint members not less than 1 inch into sealant.
   2. Form joints to completely conceal sealant.
   3. When ambient temperature at time of installation is moderate, between 40 and 70 degrees F, set joint members for 50 percent movement each way.
   4. Adjust setting proportionately for installation at higher ambient temperatures. Do not install sealant-type joints at temperatures below 40 degrees F.
   5. Lap sheet metal flashing and trim 4 inches in a full bed of sealant. Sealant shall be fully concealed. Remove visible sealant.
   6. Rivet sealed laps at 1 inch on center.
   7. Apply sealant over rivets.
   8. Prepare joints and apply sealants to comply with requirements in Division 07 Section "Joint Sealants."
   9. Install compatible sealants where required to prevent direct weather penetration.

M. Soldered Joints: Clean surfaces to be soldered, removing oils and foreign matter. Pre-tin edges of sheets to be soldered to a width of 1-1/2 inches, except reduce pre-tinning where pre-tinned surface would show in completed Work.
   1. Do not solder coil-coated or membrane-clad sheet metal.
   2. Neatly solder all sheet metal to be soldered.
   3. Do not use torches for soldering. Heat surfaces to receive solder and flow solder into joint. Fill joint completely. Completely remove flux and spatter from exposed surfaces.
   4. Stainless-Steel Soldering: Tin edges of uncoated sheets using solder recommended for stainless steel and acid flux. Promptly remove acid flux residue from metal after tinning and soldering. Comply with solder manufacturer's recommended methods for cleaning and neutralization.

5. All flat lock seams and lap seams, where soldered, shall be at least 1/2 inch. Pop rivet pieces together 1 inch on center prior to soldering. Sweat solder under the lap. Do not bead solder. Solder rivet holes to be water tight.
6. Thoroughly wash all flux off work after soldering. Failure to do this may result in back charges as a result of damages to finishes.

N. Rivets: Rivet joints where indicated and where necessary for strength at 1 inch on center, unless otherwise indicated. Apply sealant over rivets.

O. Paint metal where indicated in strict accordance with manufacturer's written instructions, including minimum dry mil thicknesses.

3.3 LOW-SLOPE ROOF FLASHING INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

B. Counterflashing: Coordinate installation of counterflashing with installation of base flashing. Insert counterflashing in reglets or receivers and fit tightly to base flashing. Extend counterflashing 4 inches over base flashing. Lap counterflashing joints a minimum of 4 inches and bed with sealant.

C. Edge Metal: Secure edge metal to substrate at 3 inches on center staggered unless otherwise noted.

3.4 WALL SHEET METAL INSTALLATION

A. General: Install sheet metal flashing and trim to comply with performance requirements, sheet metal manufacturer's written installation instructions, and SMACNA's "Architectural Sheet Metal Manual." Provide concealed fasteners where possible, set units true to line, and level as indicated. Install work with laps, joints, and seams that will be permanently watertight and weather resistant.

3.5 MISCELLANEOUS FLASHING INSTALLATION

A. Saddles, Transitions, and Terminations: Coordinate installation of saddles, transitions, and terminations with installation of siding, self-adhering sheet waterproofing, weather resistive barrier, and other components of the construction.
1. Miscellaneous flashing not installed in accordance with the Contract Documents will require the removal and reinstallation of construction to properly install the required flashing at no additional cost to the Owner.

3.6 ERECTION TOLERANCES

A. Installation Tolerances: Shim and align sheet metal flashing and trim within installed tolerance of 1/4 inch in 20 feet on slope and location lines as indicated and within 1/8-inch offset of adjoining faces and of alignment of matching profiles.

3.7 CLEANING AND PROTECTION

A. Clean exposed metal surfaces of substances that interfere with uniform oxidation and weathering.

B. Clean and neutralize flux materials. Clean off excess solder.

C. Clean off excess sealants.

D. Remove temporary protective coverings and strippable films as sheet metal flashing and trim are installed unless otherwise indicated in manufacturer's written installation instructions. On completion of installation, remove unused materials and clean finished surfaces. Maintain in a clean condition during construction.

E. Replace sheet metal flashing and trim that have been damaged or that have deteriorated beyond successful repair by finish touchup or similar minor repair procedures.

END OF SECTION

SECTION 07 92 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes joint sealants for weather seals:
   1. Silicone joint sealants.
   2. Polyurethane joint sealants.
   3. Silyl-terminated polyether joint sealants.
   4. Preformed silicone seal.
   5. Joint sealant backing.

1.2 RELATED REQUIREMENTS

A. Section 07 18 14 “Heavy Pedestrian Traffic Coatings;” for sealants associated with heavy pedestrian traffic coatings.

B. Section 07 62 00 “Sheet Metal Flashing and Trim;” for butyl sealant and butyl sealant tape.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Preinstallation Meeting: A preinstallation meeting shall be held at the project site prior to commencement of field installation to establish procedures to maintain required working conditions and to coordinate this Work with related and adjacent Work. Verify that final details comply with manufacturers’ current requirements and recommendations. Meeting attendees shall include representatives for the Owner, Consultant, inspection firm, Contractor, joint sealants contractor and installers of related and adjacent Work

1.4 PRECONSTRUCTION TESTING

A. Preconstruction Compatibility and Adhesion Testing: Submit to joint-sealant manufacturers, for testing indicated below, samples of materials that will contact or affect joint sealants.
   1. Testing will not be required if joint-sealant manufacturers submit joint preparation data that are based on previous testing, not older than 24 months, of sealant products for adhesion to, and compatibility with, joint substrates and other materials matching those submitted.
   2. Use ASTM C 1087 to determine whether priming and other specific joint preparation techniques are required to obtain rapid, optimum adhesion of joint sealants to joint substrates.
   3. Submit not fewer than eight pieces of each kind of material, including joint substrates, shims, joint-sealant backings, secondary seals, and miscellaneous materials.
   4. Schedule sufficient time for testing and analyzing results to prevent delaying the Work.

5. For materials failing tests, obtain joint-sealant manufacturer's written instructions for corrective measures including use of specially formulated primers.

B. Preconstruction Field-Adhesion Testing: Before installing sealants, field test their adhesion to Project joint substrates as follows:
1. Locate test joints where indicated on Project or, if not indicated, as directed by Building Envelope Engineer.
2. Conduct field tests for each kind of sealant and joint substrate indicated.
3. Notify Building Envelope Engineer seven days in advance of dates and times when test joints will be erected.
4. Arrange for tests to take place with joint-sealant manufacturer's technical representative present.
   a. Test Method: Test joint sealants according to Method A, Tail Procedure, in ASTM C 1521.
      1) For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
5. Report whether sealant failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. For sealants that fail adhesively, retest until satisfactory adhesion is obtained.
6. Evaluation of Preconstruction Field-Adhesion-Test Results: Sealants not evidencing adhesive failure from testing, in absence of other indications of noncompliance with requirements, will be considered satisfactory. Do not use sealants that fail to adhere to joint substrates during testing.

1.5 ACTION SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. Shop Drawings: Submit shop drawings indicating control joint, including expansion joints and reveals if applicable, layout on 24”x36” drawings sheets.

C. Samples for Initial Selection: Manufacturer's color charts consisting of strips of cured sealants showing the full range of colors available for each product exposed to view.

D. Samples for Verification: For each kind and color of joint sealant required, provide Samples with joint sealants in 1/2-inch- wide joints formed between two 6-inch- long strips of material matching the appearance of exposed surfaces adjacent to joint sealants.

E. Joint-Sealant Schedule: Include the following information:
1. Joint-sealant application, joint location, and designation.
2. Joint-sealant manufacturer and product name.
3. Joint-sealant formulation.
4. Joint-sealant color.

F. Qualification Data: For qualified Installer.

G. Product Certificates: For each kind of joint sealant and accessory, from manufacturer.

H. Sealant, Waterproofing, and Restoration Institute (SWRI) Validation Certificate: For each sealant specified to be validated by SWRI's Sealant Validation Program.
   1. If SWRI validation certificate cannot be obtained for sealants specified and substrates sealants will be adhered to, test in accordance with Preconstruction Testing Article.

I. Product Test Reports: Based on evaluation of comprehensive tests performed by a qualified testing agency, indicating that sealants comply with requirements.

J. Preconstruction Compatibility and Adhesion Test Reports: From sealant manufacturer, indicating the following:
   1. Materials forming joint substrates and joint-sealant backings have been tested for compatibility and adhesion with joint sealants.
   2. Manufacturer’s interpretation of test results and written recommendations for primers and substrate preparation needed for adhesion.

K. Preconstruction Field-Adhesion Test Reports: Indicate which sealants and joint preparation methods resulted in optimum adhesion to joint substrates based on testing specified in "Preconstruction Testing" Article.

L. Field-Adhesion Test Reports: For each sealant application tested.

M. Warranties: Sample of warranties.

1.6 QUALITY ASSURANCE

A. Installer Qualifications: Manufacturer's authorized installer who is trained and approved for installation of units required for this Project.

B. Source Limitations: Obtain each kind of joint sealant from single source from single manufacturer.

C. Product Testing: Test joint sealants without SWRI validation certificate using a qualified testing agency as outlined below.
   1. Testing Agency Qualifications: An independent testing agency qualified according to ASTM C 1021 to conduct the testing indicated.
   2. Test according to SWRI's Sealant Validation Program for compliance with requirements specified by reference to ASTM C 920 for adhesion and cohesion under cyclic movement, adhesion-in-peel, and indentation hardness.

D. Mockups: Install sealant in mockups of assemblies specified in other Sections that are indicated to receive joint sealants specified in this Section. Use materials and installation methods specified in this Section.

1.7 PROJECT CONDITIONS

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

1.8 WARRANTY

A. Special Installer's Warranty: Installer’s standard form in which Installer agrees to repair or replace joint sealants that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period: Five years from date of Substantial Completion.

B. Special Manufacturer's Warranty: Manufacturer's standard form in which joint-sealant manufacturer agrees to furnish joint sealants to repair or replace those that do not comply with performance and other requirements specified in this Section within specified warranty period.
   1. Warranty Period, Polyurethane: Five years from date of Substantial Completion.
   2. Warranty Period, STPE: Ten years from date of Substantial Completion.
   3. Warranty Period, Silicone: Twenty years from date of Substantial Completion.
   4. Warranty Period, Preformed Silicone Seal: Ten years from date of Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

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

B. Stain-Test-Response Characteristics: Where sealants are specified to be nonstaining to porous substrates, provide products that have undergone testing according to ASTM C 1248 and have not stained porous joint substrates indicated for Project.

2.2 SILICONE JOINT SEALANTS

A. Neutral-Curing Silicone Joint Sealant: ASTM C 920.
   1. Product: Subject to compliance with requirements, provide Dow 795 and Dow 756SMS by Dow Corning Corporation, or approved equal.
      a. Preapproved Equal: SilPruf SCS2000 and SilPruf NB SCS9000 by Momentive Performance Materials.
      b. Dow 756SMS and SilPruf NB SCS9000 are for joints where masonry is a substrate.
   2. Type: Single component (S).
   3. Grade: nonsag (NS).
   4. Class: 50.
   5. Uses Related to Exposure: Nontraffic (NT).
   6. Location: For use with storefronts, windows, skylights, and where indicated.

B. Ultra-low Modulus Neutral-Curing Silicone Joint Sealant: ASTM C 920.
   1. Product: Subject to compliance with requirements, provide Dow 790 by Dow Corning Corporation, or approved equal.
      a. Preapproved Equal: Silpruf LM SCS 2700 by Momentive Performance Materials.
   2. Type: Single component (S).
   3. Grade: nonsag (NS).
   4. Class: 100/50.
   5. Uses Related to Exposure: Nontraffic (NT).
   6. Location: For use with EIFS and where indicated.

2.3 POLYURETHANE JOINT SEALANTS

A. Urethane Joint Sealant: ASTM C 920.
   1. Product: Subject to compliance with requirements, provide MasterSeal NP 1; BASF.
      a. Preapproved Equal: Sikaflex-1a; Sika Corporation.
         1) Not for use with GCP Applied Technologies products.
   2. Type: Single component (S).
   3. Grade: nonsag (NS).
   4. Class: 35.
   5. Uses Related to Exposure: Nontraffic (NT).
   6. Location: Where indicated.

B. Traffic-Grade, Urethane Joint Sealant: ASTM C 920
   1. Product: Subject to compliance with requirements, provide Sikaflex-2c NS; Sika Corporation or one of the following preapproved equals:
      a. MasterSeal NP 2; BASF Building Systems
   2. Type: Multicomponent (M).
   3. Grade: nonsag (NS).
   4. Class: 25.
   5. Uses Related to Exposure: Traffic (T).
   6. Location: For horizontal locations subject to pedestrian or vehicular traffic.

2.4 SILYL-TERMINATED POLYETHER JOINT SEALANTS

A. Silyl-Terminated Polyether Joint Sealant: ASTM C 920.
   1. Product: Subject to compliance with requirements, provide MasterSeal NP 150; BASF.
   2. Type: Single component (S).
   3. Grade: nonsag (NS).
   4. Class: 50.
   5. Uses Related to Exposure: Nontraffic (NT).
   6. Location: For general use unless otherwise indicated.

2.6 PREFORMED SILICONE SEAL

A. Preformed Silicone Seal: Subject to compliance with requirements, provide Dow Corning 123 Silicone Seal by Dow Corning Corporation or approved equal.
   1. Pre-approved Equal: US1100 Ultraspan by Momentive Building Products.
   2. Thickness: 1/8 inch, minimum.
   3. Shape: Factory formed to shapes indicated on the Contract Drawings.
   4. Color: To be selected by Building Envelope Engineer from manufacturer's full range including custom colors.
   5. Adhesive: Compatible silicone type as recommended and provided by silicone seal manufacturer.
      a. Color: Match preformed silicone seal.
   6. Substrate primer: As recommended for project conditions and provided by silicone seal manufacturer.
   7. Location: For use at skylights and where indicated.

2.7 JOINT SEALANT BACKING

A. General: Provide sealant backings of material that are nonstaining; are compatible with joint substrates, sealants, primers, and other joint fillers; and are approved for applications indicated by sealant manufacturer based on field experience and laboratory testing.

B. Cylindrical Sealant Backings: ASTM C 1330, Type C (closed-cell material with a surface skin) or Type B (bicellular material with a surface skin), as approved in writing by joint-sealant manufacturer for joint application indicated, and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance.

C. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer for preventing sealant from adhering to rigid, inflexible joint-filler materials or joint surfaces at back of joint. Provide self-adhesive tape where applicable.

2.8 MISCELLANEOUS MATERIALS

A. Primer: Material recommended by joint-sealant manufacturer where required for adhesion of sealant to joint substrates indicated, as determined from preconstruction joint-sealant-substrate tests and field tests.

B. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials, free of oily residues or other substances capable of staining or harming joint substrates and adjacent nonporous surfaces in any way, and formulated to promote optimum adhesion of sealants to joint substrates.

C. Masking Tape: Nonstaining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joints indicated to receive joint sealants, with Installer present, for compliance with requirements for joint configuration, installation tolerances, and other conditions affecting joint-sealant performance.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.
   1. Remove all foreign material from joint substrates that could interfere with adhesion of joint sealant, including dust, paints (except for permanent, protective coatings tested and approved for sealant adhesion and compatibility by sealant manufacturer), old joint sealants, oil, grease, waterproofing, water repellents, water, surface dirt, and frost.
   2. Clean porous joint substrate surfaces by brushing, grinding, mechanical abrading, or a combination of these methods to produce a clean, sound substrate capable of developing optimum bond with joint sealants. Remove loose particles remaining after cleaning operations above by vacuuming or blowing out joints with oil-free compressed air. Porous joint substrates include the following:
      a. Unglazed surfaces of ceramic tile.
   3. Remove laitance and form-release agents from concrete.
   4. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants. Nonporous joint substrates include the following:
      a. Metal.
      b. Glass.
      c. Porcelain enamel.
      d. Glazed surfaces of ceramic tile.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal.

3.3 INSTALLATION

A. General: Comply with joint-sealant manufacturer's written installation instructions for products and applications indicated, unless more stringent requirements apply.

B. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated.

C. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.
   1. Do not leave gaps between ends of sealant backings.
   2. Do not stretch, twist, puncture, or tear sealant backings.
   3. Remove absorbent sealant backings that have become wet before sealant application and replace them with dry materials.

D. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

E. Install sealants using proven techniques that comply with the following and at the same time backings are installed:
   1. Place sealants so they directly contact and fully wet joint substrates.
   2. Completely fill recesses in each joint configuration.
   3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

F. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.
   1. Remove excess sealant from surfaces adjacent to joints.
   2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
   3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

G. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.4 PREFORMED SILICONE SEAL INSTALLATION

A. Install preformed silicone seal in accordance with manufacturer's recommendations and written instructions.

B. Complete horizontal joints prior to vertical joints. Lap vertical joints over horizontal joints.

C. Apply a bead of manufacturer's recommended sealant to each side of joint. Refer to manufacturer's instructions for approximate size of bead of sealant.

D. Seat sealant tape into sealant at pressure recommended by manufacturer. Use a roller to apply sufficient and consistent pressure and ensure uniform contact between sealant and both sealant tape and substrate.

E. Vertical strips shall be continuous unless length of joint is longer than length of new roll of sealant tape. Where full roll length is exceeded, a strip should be lapped over existing strip and bonded with manufacturer's recommended sealant.

3.5 FIELD QUALITY CONTROL

A. Field-Adhesion Testing: Field test joint-sealant adhesion to joint substrates as follows:
   1. Extent of Testing: Test completed and cured sealant joints, including preformed silicone seals, as follows:
      a. Perform 10 tests for the first 1000 feet of joint length for each kind of sealant and joint substrate.
      b. Perform 1 test for each 1000 feet of joint length thereafter or 1 test per each floor per elevation.
   2. Test Method: Test joint sealants according to Method A, Field-Applied Sealant Joint Hand Pull Tab, in Appendix X1 in ASTM C 1193 or Method A, Tail Procedure, in ASTM C 1521.
      a. For joints with dissimilar substrates, verify adhesion to each substrate separately; extend cut along one side, verifying adhesion to opposite side. Repeat procedure for opposite side.
   3. Inspect tested joints and report on the following:
      a. Whether sealants filled joint cavities and are free of voids.
      b. Whether sealant dimensions and configurations comply with specified requirements.
      c. Whether sealants in joints connected to pulled-out portion failed to adhere to joint substrates or tore cohesively. Include data on pull distance used to test each kind of product and joint substrate. Compare these results to determine if adhesion passes sealant manufacturer's field-adhesion hand-pull test criteria.
   4. Record test results in a field-adhesion-test log. Include dates when sealants were installed, names of persons who installed sealants, test dates, test locations, whether joints were primed, adhesion results and percent elongations, sealant fill, sealant configuration, and sealant dimensions.
   5. Repair sealants pulled from test area by applying new sealants following same procedures used originally to seal joints. Ensure that original sealant surfaces are clean and that new sealant contacts original sealant.

B. Evaluation of Field-Adhesion Test Results: Sealants not evidencing adhesive failure from testing or noncompliance with other indicated requirements will be considered satisfactory. Remove sealants that fail to adhere to joint substrates during testing or to comply with other requirements. Retest failed applications until test results prove sealants comply with indicated requirements.

3.6 CLEANING

A. Clean off excess sealant or sealant smears adjacent to joints as the Work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

3.7 PROTECTION

A. Protect joint sealants during and after curing period from contact with contaminating substances and from damage resulting from construction operations or other causes so sealants are without deterioration or damage at time of Substantial Completion. If, despite such protection, damage or deterioration occurs, cut out and remove damaged or deteriorated joint sealants immediately so installations with repaired areas are indistinguishable from original work.

END OF SECTION

SECTION 07 9500

EXPANSION CONTROL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes procedural and administrative, product and execution requirements for preformed expansion joints including:

1. Preformed traffic grade expansion joint.
2. Accessories.

B. Field-verify joint openings prior to ordering materials. Provide expansion joint systems appropriate for movement and sizes of openings.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination: Coordinate installation of expansion control systems with adjacent expansion control systems to ensure that transitions are watertight.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of product indicated.
B. Shop Drawings: For each expansion control system specified. Include plans, elevations, sections, details, splices, blockout requirement, attachments to other work, and line diagrams.
C. Samples: For each exposed expansion control system and for each color and texture specified.

1. Provide Samples for initial color selection and for verification to be approved by the College.

1.4 DELIVERY, STORAGE AND HANDLING

A. All products delivered to the job site shall be in the original unopened containers or wrappings bearing all seals and approvals.
B. Handle materials to prevent damage. Place materials on pallets and fully protect from moisture.
C. Materials which are determined by the College or the manufacturer to be damaged are to be removed from the job site and replaced at no cost to the College.

1.5 QUALITY ASSURANCE

A. Obtain each expansion joint cover assembly type and accessories from a single source.
B. Products shall be installed either by manufacturers licensed applicators, approved installers or after installation training from the manufacturer.

PART 2 - PRODUCTS

2.1 SYSTEM DESCRIPTION

A. General: Provide expansion control systems of design, basic profile, materials, and operation indicated. Provide units with capability to accommodate variations in adjacent surfaces.

1. Furnish units in longest practicable lengths to minimize field splicing.
2. Include accessories including transition accessories as required to provide continuous expansion control systems.

2.2 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Expansion control systems shall withstand the effects of earthquake motions determined according to ASCE/SEI 7.

1. The term "withstand" means "the system will remain in place without separation of any parts when subjected to the seismic forces specified and the system will be fully operational after the seismic event."

2.3 PREFORMED TRAFFIC GRADE EXPANSION JOINT

A. Seismic Joint: Subject to compliance with requirements, provide DSM Expansion Joint by Emseal or approved equal.
B. Source Limitations: Obtain expansion control systems from single source from single manufacturer.

2.4 ACCESSORIES

A. Manufacturer's standard primers, sealants and other accessories as indicated or required for complete installations.

B. Prefabricated Transitions: Universal 90, Emseal.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare substrates according to expansion control system manufacturer's written instructions.
B. Coordinate and furnish accessories, setting drawings, and instructions for installing expansion control systems.

3.2 GENERAL INSTALLATION

A. Comply with manufacturer's written instructions for storing, handling, and installing expansion control systems and materials unless more stringent requirements are indicated.
B. Remove and repair unsound concrete in and around blockout. Repair any spalls.
C. Sandblast substrate and ensure substrate is clean and dry prior to installing expansion joint.
D. Ensure material nominal size matches joint size.

3.3 PREFORMED TRAFFIC GRADE EXPANSION JOINT INSTALLATION

A. Ensure material nominal size matches joint size.
B. Mix epoxy and trowel a thin layer onto the joint faces to at least the depth of the DSM foam.

C. Apply a thin layer of epoxy to both sides of the joint face.
D. Remove shrink-wrap packaging and hardboard. Allow partial expansion until snug when inserted into epoxied joint faces.
E. Insert material into joint until bellows is recessed by 1/4” in traffic applications.
F. Join lengths by pushing silicone coated ends firmly together.
G. Wipe silicone facing using clean, lint-free rag made damp with solvent.
H. Before the epoxy cures, force the tip of the sealant tube between the foam and the substrate and inject a silicone sealant band. Tool overflow sealant into a cove bead between the top of the silicone bellows and the substrate. Tool silicone between joined lengths so that bellows is not restrained by excess silicone.

3.4 REPAIRS

A. Defects or deficiencies include adhesive and cohesive failures, system’s inability to accommodate specified movements, moisture penetration in case of watertight applications, inability to withstand loading and traffic requirements, cracking of nosing/ filler materials due to aggregate loading, not conforming to specified geometries, and improper workmanship.
B. Defects and deficiencies are to be corrected by the expansion joint installer at no cost to the College during the period of warranty.

3.5 PROTECTION

A. Do not remove protective covering until finish work in adjacent areas is complete.
B. Protect the installation from damage by work of other Sections. Damaged expansion joints shall be replaced at no cost to the College.

END OF SECTION

SECTION 09 91 00

EXTERIOR PAINTING

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes surface preparation, sealing, and field painting of the following:
   1. Exposed steel channels and plates.
   2. Exposed concrete walls and columns.
   3. Where indicated.

B. Paint exposed surfaces, except where the paint schedules indicate that a surface or material is not to be painted or is to remain natural. If the paint schedules do not specifically mention an item or a surface, paint the item or surface the same as similar adjacent materials or surfaces whether or not schedules indicate colors. If the schedules do not indicate color or finish, the Owner's Representative will select from standard colors and finishes available.

C. Do not paint prefinished items, concealed surfaces, finished metal surfaces, operating parts, and labels.
   1. Prefinished items including factory-finished components.
   2. Concealed surfaces include walls or ceilings in inaccessible spaces.
   3. Finished metal surfaces.
   4. Operating parts include moving parts of operating equipment.
   5. Labels: Do not paint over Underwriters Laboratories (UL), Factory Mutual (FM), or other code-required labels or equipment name, identification, performance rating, or nomenclature plates.

1.2 DEFINITIONS

A. Paint: Paint systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats, and of various degrees of opacity or sheen.

B. Minimum Dry Film Thickness (MDFT or DFT): The depth or thickness of a coating in the dry state, usually expressed in mils per coat by manufacturer.

C. Sheen: The following terms used by the Consultant to denote specific sheen for coatings in the Contract Documents, Color Schedule or other correspondence relating to the Project, will apply:
   1. Flat: Less Than 3 based on 60 degree meter
   2. Low Sheen: 5 to 10 based on 60 degree meter
   3. Eggshell: 10 to 15 based on 60 degree meter
   4. Satin Gloss: 25 to 35 based on 60 degree meter
   5. Semi-Gloss: 50 to 55 based on 60 degree meter
   6. Gloss: Above 70 based on 60 degree meter

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Conference: Contractor, installer, manufacturer's representative, and representatives of other affected trades shall meet at Site to review painting procedure, acceptance of substrate surfaces, and coordination with other trades.

1.4 SUBMITTALS

A. Materials and Products List: Organize in the same order indicated in the Paint Schedules specified at the end of this Section. Indicate material to be painted, manufacturer, product name, catalog number and color, surface preparation for each application or special condition, number of coats and DFT.
   1. Include one product data sheet for each product identified on the Materials and Products List. Organize product sheets in same order as Materials and Product List.

B. Color Samples: Submit two (at least 3 by 5 inch) paper-backed samples of each color and sheen combination indicated. Samples will be reviewed for sheen as well as for color.

C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
   1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
      a. Provide samples of multiple sheens for Owner selection.
   2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

D. Certificates: Submit written approval by manufacturer of each substrate test location as well as additional instructions if necessary to correct deficiencies identified in the test sample installations.

E. Warranty: Provide sample of manufacturer and installer warranty.

1.5 EXTRA STOCK MATERIALS

A. Deliver to Owner one gallon of finish paint in each color required for Project.
   1. Mark each container with color and areas where paint was used, without obscuring manufacturer's label.

1.6 QUALITY ASSURANCE

A. Contractor shall note that all conditions are not provided for in contract document. Contractor shall meet design intent and provide all necessary shop drawings and details for submission to Engineer for review and approval. Contractor shall meet most conservative of industry standards.

B. Applicator Qualifications: Engage an experienced applicator who has completed painting system applications similar in material and extent to that indicated for this Project with a record of successful in-service performance.

C. Paints and coatings shall be mixed and applied strictly in accordance with the manufacturer's written recommendations.

D. Source Limitations: Obtain primers, and undercoat materials for each coating system from the same manufacturer as the finish coats, unless otherwise indicated.

E. Mockups: Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with "Benchmark Sample" procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
   1. The Consultant will select one surface to represent surfaces and conditions for each type of coating and substrate to be painted.
      a. Wall Surfaces: Provide samples on at least 50 sq. ft. of wall surface.
      b. Small Areas and Items: The Owner's Representative will designate an item or area as required.
      c. After finishes are accepted, the Owner's Representative will use the surface to evaluate coating systems of a similar nature.
   2. Final approval of colors will be from Mockups.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver products in original unopened packaging with legible manufacturer's product identification.
   1. Product name or title of material.
   2. Product description (generic classification or binder type).
   3. Manufacturer's stock number and date of manufacture.
   4. Contents by volume, for pigment and vehicle constituents.
   5. Thinning instructions.
   6. Application instructions.
   7. Color name and number.

8. VOC content.

B. Storage: Comply with manufacturer's recommendations.
   1. Remove oily rags, waste, and similar every night and take every precaution to prevent fire.
   2. Store in a cool, dry place out of direct sunlight.
   3. Protect from the elements and from damage.
   4. Store at a temperature of not less than 40 degrees F.

1.8 FIELD CONDITIONS

A. Environmental Requirements: Comply with manufacturer's recommendations for conditions under which paint systems can be applied, and the following:
   1. Maintain ambient temperature above 40 degrees F during and (24 hours) after installation.
   2. Apply water-borne paints when the temperature of surfaces to be painted and surrounding air temperature is between 50 degrees F and 90 degrees F.
   3. Apply solvent-thinned paints only when the temperature of surfaces to be painted and the surrounding air temperature is between 45 degrees F and 95 degrees F.
   4. Do not apply paint in precipitation, fog or mist, when relative humidity exceeds 85 percent, or at temperatures less than 5 degrees F above dew point, or to damp or wet surfaces.

B. Do not apply paint in areas where dust is being generated.

C. Do not apply paint until moisture content of surface is within limitations recommended by paint manufacturer. Test with a moisture meter.
   1. Concrete: 12 percent.

1.9 WARRANTIES

A. Provide a warranty on paint products used and all labor to correct problems that occur from product failure, improper application or insufficient coverage of the products used.
   1. Paint Manufacturer: Ten (10) years on materials.
   2. Installer: Five (5) years on labor and materials.

PART 2 - PRODUCTS

2.1 MANUFACTURER

A. Subject to compliance with requirements, provide paint by Sherwin Williams Corporation, or approved equal in accordance with “Paint Schedule” at end of Section.

2.2 MATERIALS

A. Material Compatibility: Provide fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

B. Material Quality: Provide manufacturer's best-quality paint material of the various coating types specified. Paint-material containers not displaying manufacturer's product identification will not be acceptable.

C. Colors: Color to be selected by Owner’s Representative from manufacturer’s full range, including custom colors.

D. Primers: Prime all surfaces, including pre-primed surfaces with manufacturer’s recommended primer for each type of material.

2.3 EQUIPMENT

A. Painting and Decorating Equipment: Appropriate for product type and application.

2.4 MIXING AND TINTING

A. Unless otherwise specified herein or pre-approved, paint shall be ready-mixed and pre-tinted. Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

B. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

C. Where thinner is used, addition shall not exceed paint manufacturer's recommendations. Do not use kerosene or any such organic solvents to thin water-based paints.

2.5 FINISH AND COLORS

A. Colors not already indicated shall be selected by the Owner’s Representative from the manufacturer’s full range of colors.

2.6 ACCESSORIES

A. Accessory Materials: Provide material not specified, such as linseed oil, shellac, thinners, and solvents of top commercial quality, designed for intended use and compatible with specified paints.

B. Patching and fillers: Provide top quality material appropriate for patching and adjoining the surface on which it is being used.

C. Sealants: Sealants for substrates shall be compatible with each substrate and paint coating.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with paint application requirements.
   1. Do not begin to apply paint until unsatisfactory conditions have been corrected and surfaces receiving paint are thoroughly dry.
   2. Start of painting will be construed as the Applicator's acceptance of surfaces and conditions within a particular area. Notify the Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
   1. Notify the Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

C. Test Panels: Contractor shall provide test samples at one representative building location.
   1. The Owner will select the location.
   2. Location shall be 3-feet square.
   3. The surface shall be prepared as specified.
   4. Test location shall be installed as specified.

D. Test locations must be reviewed by the Owner and manufacturer's technical representative.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be painted. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and painting.
   1. Lightly coat rubber door seals with petroleum jelly to prevent newly painted door edges from sticking to the seals.
   2. After completing painting operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Protection: Protect surfaces not being painted concurrently, or not to be painted, and the finished Work of other trades.
   1. Mask UL labels and hardware items that cannot be removed, before painting the surface on which they occur.
   2. Remove masking when painting of surfaces or items is completed.

3.3 PREPARATION OF SURFACES

A. Prepare substrate in strict accordance with manufacturer's written instructions. If there is conflict between the manufacturer's instructions and the Contract Documents, the more stringent shall apply.

B. Cleaning: Before applying paint or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
   1. Schedule cleaning and painting so dust and other contaminants from the cleaning process will not fall on wet, newly painted surfaces.
   2. Power wash areas of exterior surfaces to be painted using a mild detergent solution, thoroughly rinsing with clear clean water until all residues have been removed. Allow all surfaces to thoroughly dry prior to proceeding with preparation or painting.
   3. Prepare the surface of areas to be re-painted, removing all dirt, chalk, and surface contaminates that will interfere with the adhesion of subsequent coats without damaging the substrates or adjacent areas.
   4. Treat areas that show signs of mildew with a commercial grade mildicide.
   5. Carefully examine all areas after preparation and prior to painting for cracking, blistering, peeling or flaking of existing paint. Remove loose, unsound, or non-adhering paint.
   6. Report existing damage to buildings or other structures, including, but not limited to, broken windows, existing paint splatters, broken wood trim, dry rot and termite infestation. Report conditions out of the ordinary found to exist to the Owner's Representative prior to starting any work.
   7. Remove soil along bottom edge of buildings and surface areas to permit proper application of paint below ground level where applicable.
   8. Remove efflorescence, white residue salt deposits, which may appear on cementitious or plaster surfaces by wire brushing and acid etching with phosphoric acid.

C. Abrasive Blasting: Comply with SSPC-SP3, Power Tool Cleaning.

D. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

E. Primer: Spot prime bare or patched areas or prime entire surface, as needed to provide surface for painting. Prime lightly-chalked painted surfaces with a suitable surface conditioner. Omit primer on metal surfaces that have been shop primed and touchup painted.
   1. Re-coat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

F. Provide barrier coats over incompatible materials or remove and re-prime.

G. Fill all cracks, gaps, holes, and other defects with appropriate filler.

3.4 PH TESTING OF SUBSTRATE

A. Fill cracks and holes prior to painting.

B. Measure pH where fine cracking and areas with early signs of efflorescence are visible. Measure pH where building exterior has different exposure and temperature variations including sun-exposed and shady wall areas.
   1. Coordinate pH testing with Owner's Representative.

C. Building exterior shall have pH less than 11 prior to priming and painting.

3.5 APPLICATION

A. General: Apply paint according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied. If there are discrepancies between the manufacturer's instructions and the Contract Documents, the more stringent shall govern.
   1. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to formation of a durable paint film.
   2. Provide finish coats that are compatible with primers used.
   3. Paint surfaces behind movable equipment the same as similar exposed surfaces.
   4. Finish exterior doors on tops, bottoms, and side edges the same as exterior faces.

B. Wind Conditions:
   1. Apply paint materials using a spray gun only when no wind conditions exist above 10 miles per hour.
   2. When wind conditions exceed 10 miles per hour, apply paint materials using rollers and brushes.
   3. Carefully monitor and avoid paint overspray in any kind of wind condition.

C. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for painting as soon as practicable after preparation and before subsequent surface deterioration.

D. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.

E. Apply at rates recommended on manufacturer's label. Do not exceed application rate recommended for the surface involved. Use materials without adulteration and only with thinning agents recommended by the manufacturer in the printed instructions.

F. Apply materials with suitable brushes, rollers, or spraying equipment. Keep brushes, rollers and spraying equipment, clean, free from contaminants and suitable for the finish required.

G. Vary slightly the color of successive coats under the finish coat.

H. Allow sufficient time between successive coats to permit proper drying. Do not re-coat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.

1. Comply with the recommendation of the manufacturer for drying time between succeeding coats.

I. Sand and dust between each coat to remove defects visible from a distance of 5 feet.

J. Apply paints smooth, free of brush marks, streaks, laps, pile-up of paint, runs, sags, holidays, air bubbles, and excessive roller stipple. Apply additional finish coats to entire surface if undercoats show through and to correct any defect.

K. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

L. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

M. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping.

N. Maintain a wet edge to avoid lap marks.

O. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted. Back-brush bottom edge of siding to ensure full coverage of all areas.
2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

P. Minimum Coating Thickness: Apply paint materials no thinner than manufacturers recommended spreading rate.

Q. Completed Work: Match approved mockups for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements

3.6 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
1. The Owner may engage the services of an independent agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
2. The testing agency or Consultant will perform appropriate tests for the characteristics as required by the Owner including but not limited to Dry Film Thickness and adhesion.

3. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove non-complying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.7 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
   1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.

3.8 PROTECTION

A. Protect the Work, whether being painted or not, against damage. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Consultant. Remove masking tape and other protection media and its residue after painting.

B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
   1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

3.9 SCHEDULE

A. Concrete
   1. Primer 247 Acry-Shield
   2. First Coat 1245 Acry-Shield Low Sheen
   3. Second Coat 1245 Acry-Shield Low Sheen

B. Approved Equal: Concrete
   1. Primer Eff-Stop Premium Masonry Primer (EXPR00)
   2. First Coat Spartashield Exterior Latex Paint (SSHL20)
   3. Second Coat Spartashield Exterior Latex Paint (SSHL20)

END OF SECTION

SECTION 09 96 03

HIGH PERFORMANCE COATING FOR METAL

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes surface preparation and coating of the following in accordance with manufacturer's recommendations and industry best-practice:
   1. Exposed structural steel
   2. Other work as indicated on Contract Drawings.

1.2 RELATED REQUIREMENTS

A. Section 03 01 33; "Concrete Rehabilitation," For procedures and requirements relating to treatment of metal embedded in concrete.

1.3 REFERENCE STANDARDS

A. SSPC-SP1 – Solvent Cleaning; 2016.

B. SSPC-SP11 – Power Tool Cleaning to Bare Metal; 2012.

C. SSPC-SP16 – Brush of Blast Cleaning of Coated and Uncoated Galvanized Steel, Stainless Steels, and Non-Ferrous Metals; 2010.

D. ASTM D 4285 – Standard Test method for Indicating Oil or Water in Compressed Air; 2018

E. ASTM D 4417 – Standard Test Methods for Field Measurement of Surface Profile of Blasted Cleaned Steel; 2014

F. ASTM D 7127 – Standard Test Method of Measurement of Surface Roughness of Abrasive Blast Cleaned Metal Surfaces Using a Portable Stylus Instrument; 2017.

G. ASTM D 7393 – Standard Practice for Indicating Oil in Abrasives; 2010.

1.4 DEFINITIONS

A. Coating: Coat systems materials, including primers, emulsions, enamels, stains, sealers and fillers, and other applied materials whether used as prime, intermediate or finish coats, and of various degrees of opacity or sheen.

B. Minimum Dry Film Thickness (MDFT or DFT): The depth or thickness of a coating in the dry state, usually expressed in mils per coat by manufacturer.

C. Sheen: The following terms used by the Consultant to denote specific sheen for coatings in the Contract Documents, Color Schedule or other correspondence relating to the Project, will apply:
   1. Flat: Less Than 3 based on 60 degree meter
   2. Low Sheen: 5 to 10 based on 60 degree meter
   3. Eggshell: 10 to 15 based on 60 degree meter
   4. Satin Gloss: 25 to 35 based on 60 degree meter
   5. Semi-Gloss: 50 to 55 based on 60 degree meter
   6. Gloss: Above 70 based on 60 degree meter

1.5 ADMINISTRATIVE REQUIREMENTS

A. Pre-installation Conference: Contractor, installer, manufacturer's representative, and representatives of other affected trades shall meet at Site to review coating procedure, acceptance of substrate surfaces, and coordination with other trades.

1.6 SUBMITTALS

A. Product Data: For each coating system specified. Include block fillers and primers.
   1. Material List: Provide an inclusive list of required coating materials. Indicate each material and cross-reference specific coating, finish system, and application. Identify each material by manufacturer's catalog number and general classification.
   2. Manufacturer's Information: Provide manufacturer's technical information, including label analysis and instructions for handling, storing, and applying each coating material proposed for use.
   3. Certification by the manufacturer that products supplied comply with local regulations controlling use of volatile organic compounds (VOCs).

B. Color Samples: Submit two (at least 3 inches x 5 inches) paper-backed samples of each color and sheen combination indicated. Samples will be reviewed for sheen as well as for color.

C. Samples for Verification: Of each color and material to be applied, with texture to simulate actual conditions, on representative Samples of the actual substrate.
   1. Provide stepped Samples, defining each separate coat, including block fillers and primers. Use representative colors when preparing Samples for review. Resubmit until required sheen, color, and texture are achieved.
      a. Provide samples of multiple sheens for Owner selection.
   2. Provide a list of materials and applications for each coat of each sample. Label each sample for location and application.

D. Qualification Data: For firms and persons specified in the "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.

E. Certificates: Submit written approval by manufacturer of each substrate test location as well as additional instructions if necessary to correct deficiencies identified in the test sample installations.

1.7 EXTRA STOCK MATERIALS

A. Deliver to Owner one gallon of coating in each color required for Project.
   1. Mark each container with color and areas where coating was used, without obscuring manufacturer's label.

1.8 QUALITY ASSURANCE

A. Contractor shall note that all conditions are not provided for in contract document. Contractor shall meet design intent and provide all necessary shop drawings and details for submission to Engineer for review and approval. Contractor shall meet most conservative of industry standards.

B. Applicator Qualifications: Engage an experienced applicator who has completed coating system applications similar in material and extent to that indicated for this Project with a record of 5 years minimum of successful in-service performance. Contractor shall maintain qualified personnel who have received product training by a manufacturer's representative.

C. Paints and coatings shall be mixed and applied strictly in accordance with the manufacturer’s written recommendations.

D. Source Limitations: Obtain primers, and undercoat materials for each coating system from the same manufacturer as the finish coats, unless otherwise indicated.

E. Mockups: Provide a full-coat benchmark finish sample of each type of coating and substrate required on the Project. Comply with “Benchmark Sample” procedures specified in PDCA P5. Duplicate finish of approved prepared samples.
   1. The Consultant will select one surface to represent surfaces and conditions for each type of coating and substrate to be painted.
      a. After finishes are accepted, the Owner’s Representative will use the surface to evaluate coating systems of a similar nature.
   2. Final approval of colors will be from Mockups.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Delivery: Deliver products in original unopened packaging with legible manufacturer's product identification.
   1. Product name or title of material.
   2. Product description (generic classification or binder type).
   3. Manufacturer's stock number and date of manufacture.
   4. Contents by volume, for pigment and vehicle constituents.
   5. Thinning instructions.
   6. Application instructions.
   7. Color name and number.
   8. VOC content.

B. Storage: Comply with manufacturer's recommendations.
   1. Remove oily rags, waste, and similar every night and take every precaution to prevent fire.
   2. Store in a cool, dry place out of direct sunlight.
   3. Protect from the elements and from damage.
   4. Store at a temperature of not less than 45 °F.

1.10 FIELD CONDITIONS

A. Environmental Requirements: Comply with manufacturer's recommendations for conditions under which coating systems can be applied, and the following:
   1. Maintain ambient temperature above 40 °F during and (24 hours) after installation.
   2. Apply water-borne coatings when the temperature of surfaces to be coated and surrounding air temperature is between 50 °F and 90 °F.
   3. Do not apply coating in precipitation, fog or mist, when relative humidity exceeds 85 percent, or at temperatures less than 5 °F above dew point, or to damp or wet surfaces.

B. Do not apply coating in areas where dust is being generated.

C. Do not apply coating until moisture content of surface is within limitations recommended by coating manufacturer. Test with a moisture meter.

1.11 WARRANTIES

A. Provide a warranty on coating products used and all labor to correct problems that occur from product failure, improper application or insufficient coverage of the products used.
   1. Coating Manufacturer: Ten (10) years on materials.
   2. Installer: Five (5) years on labor and materials.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. Products: Subject to compliance with requirements, provide one of the products in the materials section.

B. Manufacturers Names:
   1. Tnemec Company, Inc.

2.2 MATERIALS

A. Spot Primer: One-component; micaceous iron oxide and zinc filled primer for bonding to rusty steel and tightly adhered, existing coatings.
   1. Product: PerimePrime Series 394; Tnemec Company, Inc.
      a. Thickness: 2.5 to 3.5 mils DFT
      b. Prime bare metal, sharp edges, and welds

B. Intermediate Coat: High-build coating for marginally prepared rusty steel and tightly adhering old coatings.
   1. Product: Chembuild Series 135; Tnemec Company, Inc.
      a. Thickness: 3.0 to 5.0 mils DFT

C. Finish Coat: Acrylic polymer finish coat for long term protection of exterior exposed steel substrates.
   1. Product: Enduratone Series 1028; Tnemec Company, Inc.
      a. Thickness: 2.0 to 3.0 mils DFT
      b. Color to be selected by Owner from manufacturer's full range; including custom colors.

D. Material Compatibility: Provide fillers, primers, undercoats, and finish-coat materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by manufacturer based on testing and field experience.

2.3 EQUIPMENT

A. Application Equipment: Appropriate for product type and application.

2.4 MIXING AND TINTING

A. Unless otherwise specified herein or pre-approved, paint shall be ready-mixed and pre-tinted. Re-mix paint in containers prior to and during application to ensure break-up of lumps, complete dispersion of settled pigment, and color and gloss uniformity.

B. Paste, powder or catalyzed paint mixes shall be mixed in strict accordance with manufacturer's written instructions.

C. Do not use thinner unless specifically directed to, in writing, by the manufacturer.

2.5 ACCESSORIES

A. Accessory Materials: Provide material not specified, such as linseed oil, shellac, thinners, and solvents of top commercial quality, designed for intended use and compatible with specified coatings.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, with the Applicator present, under which painting will be performed for compliance with coating application requirements.
   1. Do not begin to apply coating until unsatisfactory conditions have been corrected and surfaces receiving coating are thoroughly dry.

2. Start of coating will be construed as the Applicator's acceptance of surfaces and conditions within a particular area. Notify the Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

B. Coordination of Work: Review other Sections in which primers are provided to ensure compatibility of the total system for various substrates. On request, furnish information on characteristics of finish materials to ensure use of compatible primers.
1. Notify the Owner's Representative about anticipated problems using the materials specified over substrates primed by others.

3.2 PREPARATION

A. General: Remove hardware and hardware accessories, plates, machined surfaces, lighting fixtures, and similar items already installed that are not to be coated. If removal is impractical or impossible because of the size or weight of the item, provide surface-applied protection before surface preparation and coating.
1. After completing coating operations in each space or area, reinstall items removed using workers skilled in the trades involved.

B. Protection: Protect surfaces not being painted concurrently, or not to be painted, and the finished Work of other trades.
1. Mask UL labels and hardware items that cannot be removed, before painting the surface on which they occur.
2. Remove masking when painting of surfaces or items is completed.

3.3 PREPARATION OF SURFACES

A. Prepare substrate in strict accordance with manufacturer's written instructions. If there is conflict between the manufacturer's instructions and the Contract Documents, the more stringent shall apply.

B. Cleaning: Before applying coating or other surface treatments, clean the substrates of substances that could impair the bond of the various coatings. Remove oil and grease before cleaning.
1. Schedule cleaning and coating so dust and other contaminants from the cleaning process will not fall on wet, newly coated surfaces.
2. Prepare the surface of areas to be coated, removing all dirt, chalk, and surface contaminates that will interfere with the adhesion of subsequent coats. Refer to SSPC-SP1, "Solvent Clean," to remove visible and soluble surface contaminants.
3. Brush blast all surfaces of substrates to receive new coating to an angular surface profile of 1.5 mils minimum, according to SSPC-SP16. Solvent clean surface after it has received new coating. When abrasive blasting is not practical, use power tools to create a surface profile and do not burnish the surface. Substrates with rusting and corrosion shall be prepared according to SSPC-SP11, "Power Tool Clean to Bare Metal."
4. Carefully examine all areas after preparation and prior to receiving coating for cracking, blistering, peeling or flaking of existing coating. Remove loose, unsound, or non-adhering coating. All surfaces shall be clean and free of all surface contaminants, including passivated surface. Ensure the substrates are dry and uniformly roughened to a surface a surface profile of 1.5 mils before applying coating.

5. Report existing damage to buildings or other structures, including, but not limited to, broken windows, existing paint splatters, broken wood trim, dry rot and termite infestation. Report conditions out of the ordinary found to exist to the Owner's Representative prior to starting any work.

C. Tinting: Tint each undercoat a lighter shade to simplify identification of each coat when multiple coats of the same material are applied. Tint undercoats to match the color of the finish coat, but provide sufficient differences in shade of undercoats to distinguish each separate coat.

D. Primer: Spot prime bare or patched areas or prime entire surface, as needed to provide surface for coating. Prime lightly-chalked painted surfaces with a suitable surface conditioner.
1. Re-coat primed and sealed surfaces where evidence of suction spots or unsealed areas in first coat appears, to ensure a finish coat with no burn through or other defects due to insufficient sealing.

E. Provide barrier coats over incompatible materials or remove and re-prime.

3.4 APPLICATION

A. General: Apply finish coat according to manufacturer's written instructions. Use applicators and techniques best suited for substrate and type of material being applied. If there are discrepancies between the manufacturer's instructions and the Contract Documents, the more stringent shall govern.

B. Wind Conditions:
1. Apply coating materials using a spray gun only when no wind conditions exist above 10 miles per hour.
2. When wind conditions exceed 10 miles per hour, apply coating materials using rollers and brushes.
3. Carefully monitor and avoid overspray in any kind of wind condition.

C. Scheduling Coating: Apply first coat to surfaces that have been cleaned, pretreated, or otherwise prepared for coating as soon as practicable after preparation and before subsequent surface deterioration.
1. The number of coats and the film thickness required are the same regardless of application method. Do not apply succeeding coats until the previous coat has cured as recommended by the manufacturer. If sanding is required to produce a smooth, even surface according to manufacturer's written instructions, sand between applications.
2. If undercoats or other conditions show through final coat, apply additional coats until coating film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

D. Apply at rates recommended on manufacturer's label. Do not exceed application rate recommended for the surface involved. Use materials without adulteration and only with thinning agents recommended by the manufacturer in the printed instructions.

E. Apply materials with suitable brushes, rollers, or spraying equipment. Keep brushes, rollers and spraying equipment, clean, free from contaminants and suitable for the finish required.

F. Vary slightly the color of successive coats under the finish coat.

G. Allow sufficient time between successive coats to permit proper drying. Do not re-coat surfaces until paint has dried to where it feels firm, does not deform or feel sticky under moderate thumb pressure, and where application of another coat of paint does not cause the undercoat to lift or lose adhesion.
   1. Comply with the recommendation of the manufacturer for drying time between succeeding coats.

H. Sand and dust between each coat to remove defects visible from a distance of 5 feet.

I. Apply paints smooth, free of brush marks, streaks, laps, pile-up of paint, runs, sags, holidays, air bubbles, and excessive roller stipple. Apply additional finish coats to entire surface if undercoats show through and to correct any defect.

J. If undercoats, stains, or other conditions show through final coat of paint, apply additional coats until paint film is of uniform finish, color, and appearance. Give special attention to ensure edges, corners, crevices, welds, and exposed fasteners receive a dry film thickness equivalent to that of flat surfaces.

K. Pigmented (Opaque) Finishes: Completely cover surfaces as necessary to provide a smooth, opaque surface of uniform finish, color, appearance, and coverage. Cloudiness, spotting, holidays, laps, brush marks, runs, sags, ropiness, or other surface imperfections will not be acceptable.

L. Make edges of paint adjoining other materials or colors clean and sharp with no overlapping.

M. Maintain a wet edge to avoid lap marks.

N. Application Procedures: Apply paints and coatings by brush, roller, spray, or other applicators according to manufacturer's written instructions.
   1. Brushes: Use brushes best suited for the type of material applied. Use brush of appropriate size for the surface or item being painted. Back-brush bottom edge of siding to ensure full coverage of all areas.
   2. Rollers: Use rollers of carpet, velvet back, or high-pile sheep's wool as recommended by the manufacturer for the material and texture required.
   3. Spray Equipment: Use airless spray equipment with orifice size as recommended by the manufacturer for the material and texture required.

O. Minimum Coating Thickness: Apply paint materials no thinner than manufacturers recommended spreading rate.

P. Completed Work: Match approved mockups for color, texture, and coverage. Remove, refinish, or repaint work not complying with requirements

3.5 FIELD QUALITY CONTROL

A. The Owner reserves the right to invoke the following test procedure at any time and as often as the Owner deems necessary during the period when paint is being applied:
   1. The Owner may engage the services of an independent agency to sample the paint material being used. Samples of material delivered to the Project will be taken, identified, sealed, and certified in the presence of the Contractor.
   2. The testing agency or Consultant will perform appropriate tests for the characteristics as required by the Owner including but not limited to Dry Film Thickness and adhesion.
   3. The Owner may direct the Contractor to stop painting if test results show material being used does not comply with specified requirements. The Contractor shall remove non-complying paint from the site, pay for testing, and repaint surfaces previously coated with the rejected paint. If necessary, the Contractor may be required to remove rejected paint from previously painted surfaces if, on repainting with specified paint, the two coatings are incompatible.

3.6 CLEANING

A. Cleanup: At the end of each workday, remove empty cans, rags, rubbish, and other discarded paint materials from the site.
   1. After completing painting, clean glass and paint-spattered surfaces. Remove spattered paint by washing and scraping. Be careful not to scratch or damage adjacent finished surfaces.
   2. Owner has the right to check wet mils as well as TDF and take coating samples for thickness measurement with an optical retinal device. Contractor shall promptly patch all samples and test cuts.

3.7 PROTECTION

A. Protect the Work, whether being painted or not, against damage. Correct damage by cleaning, repairing or replacing, and repainting, as approved by Consultant. Remove masking tape and other protection media and its residue after painting.

B. Provide "Wet Paint" signs to protect newly painted finishes. Remove temporary protective wrappings provided by others to protect their work after completing painting operations.
   1. At completion of construction activities of other trades, touch up and restore damaged or defaced painted surfaces. Comply with procedures specified in PDCA P1.

END OF SECTION