Home of the Falcons

PROJECT MANUAL
INCLUDING SPECIFICATIONS

FOR

Venetia Valley Building H
Roofing Improvement

177 North San Pedro Road
San Rafael, CA 94903

ARCHITECT

SVA Architects, Inc.

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SVA Project Number:

2023-40119

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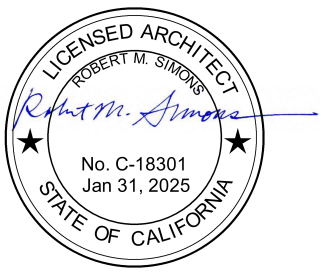

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GENERAL CONDITIONS

1 GENERAL CONDITIONS

A. The General Conditions of the Contract for Construction, AIA Document A201, 2017 Edition, Articles 1 through 15 inclusive, is a part of this Contract, and is incorporated herein as fully as if here set forth.

1. A copy of the General Conditions may be obtained at www.aia.org under “Contract Documents”, bottom of page “Store”; by calling 800-242-3837 (option 4); or at www.aiasf.org under “Publications”.

END OF SECTION

SECTION 01 11 00

SUMMARY OF WORK

PART 1 - GENERAL

1.1 SUMMARY

A. Project consists of construction of ***Venetia Valley Building H Roofing Improvement, 177 N San Pedro Rd, San Rafael, CA 94903*** as indicated in Contract Documents.

1. Owner reserves right to remove and retain possession of existing items prior to start of Contract.

2. Removal of hazardous material shall be per separately provided hazardous material abatement report prepared by others. Architect shall not be involved in determination, removal or disposal of hazardous materials.

1.2 REQUIREMENTS INCLUDED

A. This section includes administrative provisions:

1. Work sequence.
2. Contractors use of premises.
3. Building occupancy.
4. Field engineering.
5. Lines and levels.
6. Regulatory requirements and reference standards.
7. Owner furnished Contractor installed products (OFCI).
8. Owner pre-ordered products.

1.3 WORK SEQUENCE

A. Coordinate construction schedule and operations with Owner and Architect.

1. Construct Work to accommodate Owner's occupancy requirements during construction period.

B. Perform construction in phases as indicated.

1.4 CONTRACTORS USE OF PREMISES

A. Limit use of premises for Work and construction operations and to allow for:

1. Building occupancy.
2. Work by other contractors.
3. Authorized access to restricted areas.
4. Public access to public areas.

B. Coordinate use of premises and access to site under direction of Owner or Architect.

1.5 BUILDING OCCUPANCY

A. Building will be occupied during construction for conduct of normal operations; cooperate with Owner to minimize conflict and to facilitate building operations.

1.6 FIELD ENGINEERING

A. Provide field engineering services; establish lines and levels by use of recognized engineering survey practices.

B. Locate and protect control and reference points.

1.7 LINES AND LEVELS

A. Establish lines and levels by use of recognized engineering practices.

B. Locate and protect control and reference points.

1.8 REGULATORY REQUIREMENTS AND REFERENCE STANDARDS

A. Regulatory Requirements:

1. Architect has contacted governing authorities and reviewed design requirements of local, state and federal agencies for applicability to Project.

2. Contractor shall be responsible for contacting governing authorities directly for necessary information and decisions bearing upon performance of Work.

B. Reference Standards:

1. For Products specified by association or trade standards, comply with requirements of referenced standard, except when more rigid requirements are specified or are required by applicable codes.

2. Applicable date of each standard is that in effect as of date on proposal or date on Contract where no proposal is available, except when a specific date is specified.

1.9 OWNER FURNISHED CONTRACTOR INSTALLED PRODUCTS (OFCI)

A. Select products are to be furnished and paid for by Owner and installed by Contractor:

1. Refer to Drawings and Specifications.

B. Owner's Responsibilities:

1. Arrange for and deliver shop drawings, product data, and samples to Contractor.
2. Arrange and pay for product delivery to site.
3. Inspect products jointly with Contractor on delivery.
4. Submit claims for transportation damage.
5. Arrange for replacement of damaged, defective, or missing items.
6. Arrange for manufacturer's warranties, inspections, and service.

C. Contractor's Responsibilities:

1. Review shop drawings, product data, and samples.
2. Receive and unload products at site.
3. Inspect jointly with Owner for completeness and damage.
4. Handle, store, and install products.
5. Finish products as required after installation.
6. Repair or replace items damaged by Work of this Contract.

1.10 OWNER PRE-ORDERED PRODUCTS

A. Select products have been pre-ordered by Owner:

1. Refer to Drawings.

B. Owner has negotiated purchase orders for these products for incorporation into Project.

1. Purchase orders are assigned to Contractor; costs shall be included into base bid.

2. Contractor's responsibilities are same as if Contractor negotiated purchase orders.

END OF SECTION

SECTION 01 20 00

PAYMENT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Special administrative and procedural requirements necessary to prepare and process Application for Payment.

1.2 SCHEDULE OF VALUE

A. Coordination: Coordinate preparation of Schedule of Values with preparation of Contractor's Construction Schedule.

1. Correlate line items in Schedule of Values with other required administrative forms and schedules, including application for Payment forms with Continuation Sheets, Submittals Schedule, and Contractor's Construction Schedule.

2. Submit Schedule of Values to Architect at earliest possible date but no later than seven days before date scheduled for submittal of initial Application for Payment.

B. Format and Content: Use Project Manual table of contents as guide to establish line items for Schedule of Values. Provide at least one line item for each Specification Section.

1. Identification: Include following Project identification on Schedule of Values.

a. Project name and location.
b. Name of Architect.
c. Architect's Project number.
d. Contractor's name and address.
e. Date of submittal.

2. Submit draft of AIA Document G703 Continuation Sheets.

3. Provide breakdown of Contract Sum in enough detail to facilitate continued evaluation of Application for Payment and progress reports. Coordinate with Project Manual table of contents.

a. Provide several line items for principal subcontract amounts where appropriate.

4. Round amounts to nearest whole dollar; total shall equal Contract Sum.

5. Provide separate line item in Schedule of Values for each part of Work where Applications for Payment may include materials or equipment purchased or fabricated and stored, but not yet installed.

6. Provide separate line items in Schedule of Value for initial cost of materials, for each subsequent stage of completion, and for total installed value of that part of Work.

7. Each item in Schedule of Values and Application for Payment shall be complete. Include total cost and proportionate share of general overhead and profit for each item.

    a. Temporary facilities and other major cost items that are not direct cost of actual work-in-place may be shown either as separate line items in Schedule of Values or distributed as general overhead expense at Contractor's option.

8. Schedule Updating: Update and resubmit Schedule of Values before next application for Payment when Change Orders or Construction Change Directives result in a change in Contract Sum.

1.3 APPLICATIONS FOR PAYMENT

A. Each Application for Payment shall be consistent with previous applications and payments as certified by Architect and paid for by Owner.

1. Initial Application for Payment: Application for Payment at time of Completion, and final Application for Payment involve additional requirements.

B. Payment Application Times: Date for each progress payment is indicated in Agreement between Owner and Contractor. Period of construction Work covered by each Application for Payment is period indicated in Agreement.

C. Payment Application Forms: AIA Document G702 and AIA Document G703 Continuation Sheets as form for Application for Payment.

USE FOLLOWING FOR LEED CERTIFIED PROJECTS.

1. LEED Progress Reports: With each application for payment, submit LEED action plans as specified in Section 01 35 10.

D. Application Preparation: Complete every entry on form. Execute by person authorized to sign legal documents on behalf of Contractor. Architect will return incomplete applications without action.

1. Entries shall match data on Schedule of Values and Contractor's Construction Schedule. Use updated schedules if revisions were made.

2. Include amounts of Change Orders and Construction Change Directives issued before last day of construction period covered by application.

E. Transmittal:

1. Contractor shall provide ten copies of Application for Payment one week prior to Payment Request ("Draw") Meeting, for review of team members.

2. Contractor shall provide ten wet signed copies of Application for Payment at Payment Request ("Draw") Meeting.

    a. Provide each copy with transmittal form listing attachments and recording appropriate information about application.

b. Copies shall include waivers of lien and similar attachments if required.

F. Waivers of Mechanic's Lien: With each Application for Payment submit waivers of mechanic's lien from every entity who is lawfully entitled to file a mechanic's lien arising out of Contract and related to Work covered by payment.

1. Submit partial waivers on each item for amount requested in previous application, after deduction for retainage, on each item.

2. When an application shows completion of an item, submit final or full waivers.

3. Owner reserves right to designate which entities involved in Work must submit waivers.

4. Waiver Forms: Submit waivers of lien on forms executed in manner acceptable to Owner.

G. Initial Application for Payment: Administrative actions and submittals that must precede or coincide with submittal of first Application for Payment include the following.

1. List of subcontractors.

2. Schedule of Values.

3. Contractor's Construction Schedule (preliminary if not final).

4. Schedule of unit prices.

5. Submittals Schedule (preliminary if not final).

6. List of Contractor's staff assignments.

7. List of Contractor's principal consultants.

8. Copies of building permits.

9. Copies of authorizations and licenses from authorities having jurisdiction for performance of Work.

10. Initial progress report.

11. Report of preconstruction conference.

12. Certificates of insurance and insurance policies.

H. Final Payment Application: Submit final Application for Payment with releases and supporting documentation not previously submitted and accepted including but not necessarily limited to following.

1. Evidence of completion of Project closeout requirements.

2. Insurance certificates for products and completed operations where required and proof that taxes, fees, and similar obligations were paid.

3. Updated final statement accounting for final changes to Contract Sum.

4. AIA Document G706, Contractor's Affidavit of Payment of Debts and Claims.

5. AIA Document G706A, Contractor's Affidavit of Release of Liens.

6. AIA Document G707, Consent of Surety to Final Payment.

7. Evidence that claims have been settled.

8. Final meter readings for utilities, a measured record of stored fuel, and simliar data as of date of Completion.

9. Final liquidated damages settlement statement.

USE FOLLOWING FOR LEED CERTIFIED PROJECTS.

10. LEED Final Reports: Submit complete set of LEED Reports as required for submittal to USGBC and as specified in Section 01 35 10.

END OF SECTION

SECTION 01 25 00

SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. General: Procedures are described for requesting substitution of unlisted materials in lieu of materials named in Specifications or approved for use in addenda.

1. Provide products listed in Contract Documents, products by manufacturers listed in Contract Documents, and products meeting specified requirements.

a. Contract Amount: Base on materials and products included in Contract Documents.

b. Where materials and products are listed in Contract Documents, materials and products by manufacturers not listed shall not be used without Owner's and Architect's approval of Contractor's written request for substitution.

2. Purpose: After bidding, substitutions will only be considered where Owner will receive benefit or because specified materials are no longer available due to no fault of Contractor.

3. Purpose: Substitutions will only be considered where Owner will receive benefit or because specified materials are no longer available due to conditions beyond Contractor control.

a. Owner benefits either from a Contractor proposed reduction of the Contract amount or from a reduction in Contract time based on acceptance of proposed substitution.

b. List proposed cost or time reductions on request for substitution.

c. Requests not including a proposed cost or time reduction will not be considered unless Contractor submits supporting information indicating specified materials are not available.

B. Related Sections:

1. Section 01 60 00: Product requirements.

1.2 SUBSTITUTIONS

A. Within a period of 35 days after award of Contract, Owner and Architect will consider formal requests for substitutions only from Contractor as specified in 1.1 Summary.

1. Owner and Architect will consider only one request for substitution for each material; where requests are denied Contractor shall be required to provide specified materials.

2. After initial 35-day period, requests will be considered only when a product becomes unavailable through no fault of Contractor; more than one request for substitution will be considered if necessary.

B. Prior to submittal of second Request for Payment Owner and Architect will consider formal requests for substitutions from Contractor as specified in 1.1 Summary.

1. Owner and Architect will consider only one request for substitution for each material; where requests are denied Contractor shall be required to provide specified materials.

2. After payments begin, requests will be considered only when a product becomes unavailable through no fault of Contractor; more than one request for substitution will be considered if necessary.

C. Submit each request with sequentially numbered “Substitution Request Transmittal” acceptable to Owner and Architect; submit separate request for each product and support each request with:

1. Product identification with manufacturer's literature and samples where applicable.

2. Name and address of similar projects on which product has been used, and date of installation.

D. Submit itemized comparison of proposed substitution with product specified and list significant variations.

E. Submit data relating to changes in construction schedule.

F. Note effect of substitution on other work, products, or separate contracts.

1. Note if acceptance of substitution could require revision of Contract Documents, Drawings, details or Specifications.

G. Include accurate cost data comparing proposed substitution with product and amount of net change in Contract price.

1. Include costs to other contractors and costs for revisions to Drawings, details or Specifications.

H. Substitutions will not be considered for acceptance when:

1. They are indicated or implied on submittals without a formal request from Contractor.

2. They are requested directly by a subcontractor or supplier.

3. Acceptance will require substantial revision of Contract Documents.

I. Substitute products shall not be ordered without written acceptance of Owner and Architect.

J. Owner and Architect will determine acceptability of proposed substitutions and reserves right to reject proposals due to insufficient information.

1.3 CONTRACTOR'S REPRESENTATION

A. Requests constitute a representation that Contractor:

1. Has investigated proposed product and determined it meets or exceeds, in all respects, specified product.

2. Will provide same warranty or longer warranty for substitution as for specified product.

3. Will coordinate installation and make other changes that may be required for Work to be complete in all respects.

4. Waives claims for additional costs that subsequently become apparent.

5. Will pay costs of changes to Contract Documents, Drawings, details and Specifications required by accepted substitutions.

1.4 ARCHITECT'S DUTIES

A. Review Contractor's requests for substitutions with reasonable promptness.

1. Architect will recommend that Owner accept or reject substitution request.

2. Upon request, Architect will provide cost for changes to Contract Documents, Drawings, details and Specifications required for substitutions.

B. Notify Contractor in writing of decision to accept or reject requested substitution.

CONTRACTOR'S SUBSTITUTION REQUEST

(Use separate form for each request)

Date: _____ Request No.: _____

TO: Architect _____
Phone: _____ Fax: _____

PROJECT: _____ Project No.: _____
CONTRACTOR _____

SPECIFIED ITEM: _____
Section: _____ Page: _____ Paragraph: _____ Description: _____
Drawing Number(s): _____ Detail Number(s): _____
The undersigned request consideration of the following:
PROPOSED SUBSTITUTION: _____

REASON FOR NOT GIVING PRIORITY TO SPECIFIED ITEMS: _____

SAVINGS or CREDIT to OWNER for ACCEPTING SUBSTITUTE: $ _____
PROJECT COMPLETION CHANGE for ACCEPTING SUBSTITUTE Days _____

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

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

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

1. Proposed substitution has been fully checked and coordinated with the Contract Documents.
2. The proposed substitution does not affect dimensions shown on Drawings.
3. The proposed substitution does not require revisions to mechanical or electrical work.
4. The undersigned will pay for changes to the building design, including architectural and engineering design, detailing, and construction costs caused by the requested substitution.
5. The proposed substitution will have no adverse effect on other trades, construction schedule, or warranty.
6. Maintenance and service parts will be locally available for the proposed substitution.
7. The proposed substitution will have no adverse effect on LEED credits (applies to LEED Projects ONLY)
8. The proposed substitution will have no adverse effect on Green Building Requirements where applicable.

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

Attachments: The attached data is furnished herewith for evaluation of the proposed substitution.
☐ Catalog ☐ Drawings ☐ Samples ☐ Reports ☐ Tests ☐ Other: _____

Submitted by:

_____ _____
(Firm) (Authorized Legal Signature)

_____ ( )
(Address) (Telephone)

For use by the Architect: ☐ Accepted ☐ Accepted as Noted ☐ Rejected: Submit Specified Item

BY: _____
(Authorized Signature)

Date: _____ Remarks: _____

END OF SECTION

SECTION 01 26 00

CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: This section specifies administrative and procedural requirements governing Contract modification procedures.

1. Requests for Information (RFI).
2. Change Order.
3. Allowances.
4. Construction Change Directive.

B. Related Requirements:

1. Section 01 25 00: Substitution procedures.
2. Section 01 30 00: Administrative requirements.

1.2 MINOR CHANGES IN WORK

A. Architect will issue supplemental instructions authorizing minor changes in Work, not involving adjustment to Contract Sum or Contract Time, on AIA Form G710, Architect's Supplemental Instructions or similar form.

1.3 REQUESTS FOR INFORMATION

A. Contractor may submit a written Request for Information (RFI) in format approved by Architect relating to perceived inconsistencies and omissions in Contract Documents.

1. A record of RFI's is to be maintained by Contractor along with information regarding origin of request, date of request, and date request was received from Architect. Number RFI's sequentially based on date of request.

B. Requests for Information shall be used only as a means of obtaining clarification of information not included in Contract Documents and shall not be used to assist Contractor in preparation of shop drawings or other information required by Contract.

1. Contract Documents are intended to contain enough information to show aesthetic and design intent and to provide information such that construction procedures (means and methods) may be reasonably inferred.

2. Contract Documents are not intended to provide specific information related to means and methods of construction nor are they intended to be exhaustive in content.

C. Contractor shall carefully review requests for information by subcontractors and suppliers to ascertain if information is in Contract Documents prior to submitting a Request for Information to Architect based on requests by others.

1. Contractor may suggest possible solutions to fit Project conditions where appropriate.

D. Architect reserves right to return RFI's that do not reasonably relate to necessary clarification of intent of Contract Documents and to charge Contractor for time and materials involved in answering RFI's where information is in Contract Documents.

1. RFI's shall not be used as a request for substitutions; refer to Section 01 25 00 – Substitution Procedures.

1.4 CHANGE ORDERS

A. Owner-Initiated Proposal Requests: Architect will issue detailed description of proposed changes in Work that require adjustment to Contract Sum or Contract Time. If necessary, description will include supplemental or revised Drawings and Specifications.

1. Proposal requests issued by Architect are for information only. Do not consider changer order proposal requests as instruction either to stop work in progress or to execute proposed change.

2. Within 10 days of receipt of a proposal request, submit estimate of cost necessary to execute change to Architect for Owner's review.

a. Include list of quantities of products required and unit costs, with total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

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

c. Include a statement indicating effect of proposed change in Work will have on Contract Time.

B. Contractor-Initiated Proposals: When latent or unforeseen conditions require modifications to Contract, Contractor may propose changes by submitting a request for a change to Architect and Owner.

1. Include statement of reasons for change and effect of change on Work. Provide a complete description of proposed change. Indicate effect of proposed change on Contract Sum and Contract Time.

2. Include a list of quantities of products required and unit costs with total amount of purchases to be made. Where requested, furnish survey data to substantiate quantities.

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

4. Comply with requirements in Section 01 25 00 - Substitution Procedures if proposed change requires substitution of unspecified product or system for specified product or system.

C. Proposal Request Form: Use AIA Document G709 for Change Order Proposal Requests; other substitute formats shall be submitted to Owner and Architect for approval prior to use.

D. Change Order Procedures: Contractor shall be directed to proceed with Work upon Owner's approval of Proposal.

1. Architect will issue Change Order for signatures of Owner and Contractor on AIA Form G701 or similar form, including approved Change Order proposals for that time period.

2. Amounts of each Change Order shall be indicated in each Request for Payment including payment status for each individual Change Order.

1.5 ALLOWANCES

A. Allowance Adjustment: For Contract items bid based on allowance, submit Change Order Proposal on difference between actual purchase amount and allowance, based on work-in-place.

1. Include installation cost in purchase amount only where indicated as part of allowance.

2. When requested, prepare explanations and documentation to substantiate amounts claimed for work done based on allowances.

3. Submit substantiation of a change in Scope of work claimed in Change Orders related to allowances.

4. Owner reserves right to establish actual quantity of work-in-place by independent quantity survey, measure or count.

B. Submit claims for increase costs because of a change in scope or nature of allowance described in Contract Documents, whether for purchase order amount or Contractor's handling, labor, installation, overhead and profit.

1. Submit claims within 21 days of receipt of Change Order or Construction Change Directive authorizing work to proceed. Owner will reject claims submitted later than 21 days.

2. Do not include Contractor's or subcontractor's indirect expense in Change Order cost amount unless it is clearly shown that nature or extent of work has changed from what could have been foreseen from information in Contract Documents.

3. No change to Contractor's indirect expense is permitted for selection of higher or lower-priced materials or systems of same scope and nature as originally indicated.

1.6 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: When Owner and Contractor disagree on terms of Proposal Request, Architect may issue a Construction Change Directive per AIA Form G714 or similar form.

1. Construction Change Directive instructs Contractor to proceed with change in Work, for subsequent inclusion in Change Order.

2. Construction Change Directive contains a complete description of change in Work. It also designates method to be followed to determine change in Contract Sum or Contract Time.

B. Documentation: Maintain detailed records on a time and material basis of Work required by Construction Change Directive. Coordinate scheduling with Construction Manager to allow monitoring by Owner if desired.

1. After completion of change, submit itemized account and supporting data necessary to substantiate cost and time adjustments to Contract.

END OF SECTION

SECTION 01 30 00

ADMINISTRATIVE REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes general procedural requirements for ongoing submittals.

1. Schedule of values.
2. Product data and manufacturer’s literature.
3. Shop drawings.
4. Samples.
5. Manufacturers' certificates.
6. Excess materials and attic stock.
7. Design build (delegated design) procedures.
8. Deferred approval requirements.

B. Related Requirements:

1. Section 01 31 00: Project management and coordination.
2. Section 01 32 00: Construction Schedule – Network Analysis.
3. Section 01 32 10: Construction Schedule – Bar Chart.
4. Section 01 40 00: Test reports, manufacturer's field reports, and mock-ups.
5. Section 01 70 00: Manufacturers’ instructions.
6. Section 01 77 00: Closeout requirements including Project Record Documents.
7. Section 01 78 00: Warranties.

1.2 GENERAL SUBMITTAL PROCEDURES

A. Submittals: Transmit each item using form approved by Architect; submit sample to Architect for approval prior to use.

1. Identify Project, Contractor, subcontractor, major supplier.

   a. Attach sequential identification number for each new submittal.

   b. Identify each resubmittal using original submittal number and sequential identification clearly indicating item is resubmitted.

2. Identify pertinent Drawing sheet and detail number, and Specification section number as appropriate.

3. Identify deviations from Contract Documents.

4. Provide space for Contractor and Architect review stamps.

5. Contractor: Review and stamp submittals from subcontractors prior to submitting to Architect.

    a. Review submittals and indicate where conflicts occur with Contract Documents and with work of other subcontractors.

    b. Return submittals that vary significantly from Contract Documents for correction and resubmittal prior to submitting to Architect.

    c. Submittals that vary significantly from Contract Documents and that fail to indicate thorough Contractor review prior to submission to Architect will be returned without review.

    d. Cursory review and stamping of subcontractor submittal by Contractor shall not be acceptable.

B. Initial Schedules: Submit initial progress schedule and schedule of value in duplicate within 15 working days after award of Contract.

    1. After review by Owner and Architect revise and resubmit where required.

C. Comply with progress schedule for submittals related to Work progress. Coordinate submittal of related items.

D. After Architect review of submittal, revise and resubmit as required, identify changes made since previous submittal.

E. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report any inability to comply.

1.3 TYPES OF SUBMITTALS

A. General: Project requires various types of submittals to maintain communications, minimize misunderstandings, avoid unnecessary conflicts, and to ensure complete documentation for Project Record Documents.

    1. Maintain complete set of submittals including required revisions.

B. Construction Schedules: Submit construction progress schedules for Design Team and Owner review and to maintain entire team up-to-date on construction activities.

C. Schedule of Values: Submit Schedule of Values indicating division of Work, subcontractors to perform work, products being used, and values attributed to each to inform Design Team and Owner.

D. Action Submittals: Submittals relating to product data and manufacturer’s literature, shop drawings, and samples for Design Team review and comment; do not begin fabrication, delivery, or installation until Design Team review is complete.

E. Information Submittals: Submittals relating to certifications, qualifications, reports, including test reports, and instructions are for information; Design Team may choose to comment but action is not generally anticipated.

1. Manufacturer installation instructions and recommendations shall be considered information submittals.

F. Design/Build Submittals: Where portion of Work requires design by specialized professionals submit information necessary to ensure work complies with Contract Documents along with certifications signed by qualified professional.

1. Calculations: Do not submit calculations unless specifically required by Contract Documents; submit calculations required by applicable authorities directly to applicable authorities;

a. Submit certification by qualified professional indicating required calculations have been prepared and work conforms to Contract Documents and applicable codes and regulations.

G. Maintenance Materials Submittals: Compile maintenance information and materials during Work to ensure complete set of documents, maintenance manuals, and operation instructions.

H. Closeout Submittals: Compile closeout submittals, organize, and submit to Owner prior to or at time of Substantial Completion. Project will not be considered Substantially Complete until closeout submittals have been received by Owner.

I. Material Safety Data Sheets (MSDS): MSDS will only be reviewed by Architect when submitted to show compliance with LEED certification requirements.

1. Non-LEED submittals that include material safety data sheets will be returned for resubmittal.

1.4 SCHEDULE OF VALUES

A. Submit typed schedule on AIA Form G703 or another Owner and Architect pre-approved 8-1/2" by 11" paper format; Contractor's standard media-driven printout will be considered on request. Submit within 15 days after award of Contract.

B. Format: Table of Contents of this Project Manual, with modifications as pre-approved by Owner and Architect; identify each line item with number and title of major Specification sections.

C. Include in each line item a directly proportional amount of Contractor overhead and profit.

D. Revise schedule to list change orders for each Application for Payment.

1. Submit subschedule for each phase of Work.

1.5 PRODUCT DATA/MANUFACTURERS' LITERATURE

A. Action Submittals: Mark each copy to identify applicable Products, models, options, and other data; supplement manufacturers' standard data to provide information unique to the Work.

B. Information Submittals: Include manufacturers' installation instructions only when required by Specifications or specifically requested by Architect.

1. Maintain copy of manufacturer installation instructions and recommendations in Contractor's field office for review.

C. Product data shall be submitted as electronic PDF files unless otherwise noted or approved by Architect in advance.

1. Where paper copies are permitted submit number of copies Contractor requires, plus one copy to be retained by Architect.

D. Submit number of copies Contractor requires, plus one copy to be retained by Architect.

1.6 SHOP DRAWINGS

A. Shop drawings shall be submitted as electronic PDF files unless otherwise noted or approved by Architect in advance.

1. Where prints are permitted submit one reproducible print; minimum sheet size 8-1/2” by 11”.

B. Shop drawings shall be submitted in reproducible format acceptable to Architect and Owner; computerized PDF files will be acceptable unless otherwise directed.

1. Prints: Submit one reproducible print; minimum sheet size 8-1/2” by 11”.

2. Prints: Submit three reproducible prints; minimum sheet size 8-1/2" by 11".

C. Distribution: After review, reproduce and distribute.

1.7 SAMPLES

A. Submit full range of manufacturers' standard colors, textures, and patterns for Architect's selection.

B. Submit samples to illustrate functional characteristics of Product, with integral parts and attachment devices.

C. Coordinate submittal of different categories for interfacing work.

D. Include identification on each sample, giving full information.

E. Submit number of samples required by Contractor plus one to be retained by Architect.

1. Maintain one set of approved samples at Project Field Office.

F. Sizes: Provide following sizes unless otherwise specified.

1. Flat or Sheet Products: Minimum 6" square, maximum 12" by 12".
2. Linear Products: Minimum 6", maximum 12" long.
3. Bulk Products: Minimum one pint, maximum one gallon.

G. Full size samples may be used in the Work upon approval.

1.8 MANUFACTURERS' CERTIFICATES

A. Submit certificates, in duplicate in accordance with requirements of each Specification section.

1.9 EXCESS MATERIALS AND ATTIC STOCK

A. Excess Materials: Excess materials shall be considered property of Owner; inform Owner of extent of excess materials and methods required for handling and storage; remove from site excess materials not required by Owner for maintenance stock.

B. Attic Stock: Owner may choose to obtain additional attic stock for maintenance purposes where excess materials are not considered adequate.

1. Owner may require as much as 5% extra materials for maintenance purposes. Exact amount of each material shall be determined by Owner based on following meeting and additional costs determined by Contractor.

a. Contractor shall be prepared to order up to 5% extra materials on items that may not be readily available in future such as custom colors, off-shore manufacture, anticipated life span under 5 years, and potential for damage.

1) Do not order extra attic stock until extent is determined and agreed to by Owner including which materials require extra stock and exactly how much those materials will cost including shipping and handling.

b. Excess Materials: Furnish excess materials only for materials that have a shelf-life of more than three years.

2. Meeting: Conduct meeting prior to beginning Work to discuss extent of materials Owner would like to receive at Project Closeout for attic stock for maintenance materials; where available include personnel from Owner’s maintenance crew.

a. Estimate amount of excess materials to be anticipated to be ordered in addition to materials for handling and storage and how those materials will be invoiced and identified regarding material and location in Project.

b. Determine area necessary for adequate storage, handling, and identifying excess materials and attic stock and discuss with Owner.

c. Submit information regarding equipment necessary for handling of excess materials and attic stock due to weight, size, and storage requirements.

d. Assist Owner in determining where on-site or off-site additional attic stock for maintenance purposes will be delivered and stored.

3. Additional Costs: After meeting submit to Owner detailed listing of additional costs for each material Owner may like to receive for attic stock and assist Owner in modifying listing to determine acceptable final costs.

    a. Include unit prices for desired attic stock where excess materials are not adequate for Owner maintenance stock.

4. Substantial Completion: Submit Construction Bulletin at Substantial Completion indicating changes to Contract Amount for attic stock including unit price totals for materials where excess materials are not adequate.

5. Final Completion: Ensure attic stock has been received, identified, cataloged, and stored at locations agreed upon with Owner based on Change Order indicating amounts finally agreed to by Owner.

1.10 DESIGN/BUILD PROCEDURES

A. Design as Part of Means and Methods of Construction: Select Project components require construction team design as part of means and methods of construction as described in various sections.

1. Terms commonly used such as Design/Build, Delegated Design, and Design/Assist are applicable to these procedures as determined by law but shall be generally referred to in these documents as Design/Build.

    a. In general Design/Build includes design by licensed professionals with expertise beyond that allowed under standard architectural licensure, and outside of scope of work of other design professionals on the design team.

2. Contractor may be required to provide design services as part of construction for specific work defined as design or design-build where special expertise is required that is not available in the Project design team.

3. Subcontractors, fabricators, and manufacturers may be required to provide design services as part of their work due to special expertise in design services for their specific components, refer to technical sections for Design/Build.

4. Contractor, subcontractors, fabricators, manufacturers, and suppliers shall be responsible for attachments, anchors, fasteners, adhesives, and connectors suitable to applications unless specific items are listed in Contract Documents.

    a. Where specific items are listed in Contract Documents Contractor, subcontractors, fabricators, manufacturers, and suppliers shall review and submit comments where items listed are not acceptable.

    b. Where no comments are received, listed items shall be considered acceptable.

B. Contractor acknowledges and accepts responsibility for specialty design as part of means and methods of construction, as well as coordination of parties involved to achieve architectural design intent indicated in Contract Documents.

1. Design-build work includes sizing, sequencing, and detailing for construction by professional licensed or registered engineer or design professional with special expertise applicable to portion of Work involved.

2. Design-build work shall be constructed in compliance with building codes and regulations in effect and shall be fit and proper for intended use.

3. Design-build work shall include drawings, specifications, and calculations prepared, stamped, and signed by qualified professional licensed or registered engineer licensed in the Project location as appropriate to design-build work.

a. Plans, specifications, and calculations shall be acceptable to Owner, Owner's Representative, and applicable authorities.

C. Where required by Owner Contractor shall submit copies of current insurance policies covering errors and omissions of persons designing design-build work with deductibles and limits per occurrence as mutually agreed by Owner and Contractor.

1. Provide endorsement to insurance providing for 30-day notice to Owner prior to cancellation or material reduction in coverage.

2. Insurance shall be maintained for not less than applicable statute of limitations for claims of latent defects, if such insurance is not written on an occurrence basis during time design-build work is designed and constructed.

D. Review proposed layouts with Design Team and with various trades prior to commencing work related to design-build work.

1.11 DEFERRED APPROVAL REQUIREMENTS

A. Installation of deferred approval items shall not be started until detailed plans, specifications, and engineering calculations have been accepted and signed by Architect or Engineer of Record responsible for Project design.

B. Deferred Approval Items shall be signed by California registered architect or professional engineer delegated responsibility covering specific work shown requiring approval by Division of the State Architect.

1. Deferred approval items for this Project include but may not be limited to following:

a. Translucent Walls and Roofs – Section 08 45 00.

b. Telescopic Bleachers – Section 12 66 01.

c. Grandstands – Section 13 34 16.

d. Hydraulic Elevators – Section 14 24 00.

2. Deferred approval drawings and specifications become part of the approved submittal documents for the Project when they are submitted to and approved by Division of the State Architect.

3. Submit four prints of each drawing. Drawings shall include empty 7” by 9” space on first sheet reserved for Architect to add “General Conformance Block” required for DSA.

4. Submit four copies of calculations, product data and test reports.

5. Identify and specify supports, fasteners, spacing, penetrations, etc., for each deferred approval items, including calculations for each fastener.

6. Submit documents to Architect of Record for review.

7. Deferred submittal documents shall bear stamp and signature of architect or engineer licensed in State of California and responsible for work shown on deferred submittal documents.

8. Architect of Record will forward submittal to appropriate Project Engineer.

9. Review of Project Architect or Engineer of Record is for conformance with design concept shown on Contract Documents. Neither Architect or Engineer of Project shall be responsible for review for correctness of deferred approval items.

10. After review by Architect/Engineer of Record, Architect of Record will forward two copies of submittal to Division of the State Architect for approval.

11. Respond to review comments made by Division of the State Architect and revise and resubmit submittal for final approval.

12. Architect of Record will forward two copies of final revised submittal to the Division of the State Architect for approval.

13. The Division of the State Architect will return one copy of final submittal to the Architect of Record.

14. Architect of Record will forward one copy of evidence of submittal approval by Division of the State Architect for final distribution by General Contractor.

END OF SECTION

SECTION 01 31 00

PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Description of Project management and coordination including but not necessarily limited to the following:

1. General Project coordination procedures.
2. Coordination drawings.
3. Staff names.
4. Administrative and supervisory personnel.
5. Project meetings.

B. Related Sections:

1. Section 01 30 00: Administrative requirements.
2. Section 01 79 00: Demonstration and training.

1.2 COORDINATION

A. Coordination: Coordinate construction operations included in various Specifications sections to ensure efficient and orderly installation of each part of Work.

1. Coordinate construction operations that depend on each other for proper installation, connection, and operation.

2. Coordinate work to assure efficient and orderly sequence of installation of construction elements.

3. Make provisions for accommodating items installed by Owner or under separate contracts.

B. Prepare memoranda for distribution to each party involved as needed, outlining special procedures required for coordination.

1. Include required notices, reports, and list of attendees at meetings; include Architect and Owner in distribution.

C. Verify characteristics of interrelated operating equipment are compatible; coordinate work having interdependent responsibilities for installing, connection to, and placing such equipment in service.

D. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings.

1. Follow routing shown for pipes, ducts, and conduits as closely as possible; make runs parallel with lines of building.

2. Utilize spaces efficiently to maximize accessibility for other installations, for maintenance, and for repairs.

E. Conceal pipes, ducts, and wiring in finished areas unless otherwise indicated; coordinate locations of fixtures and outlets with finish elements.

F. Administrative Procedures: Coordinate scheduling and timing of administrative procedures with other construction activities and activities of other contractors to avoid conflicts and ensure orderly progress of Work.

1.3 SUBMITTALS

A. Coordination Drawings: Prepare Coordination Drawings for areas where space availability is limited and necessitates maximum utilization of space for components and where separate entities, products, and materials require coordination.

1. Require each subcontractor with items located in ceiling space to furnish coordination drawings of their items to assist in preparation of Contractor's Coordination Drawings.

2. Indicate relationship of components shown on separate Shop Drawings.

3. Indicate required installation sequences.

4. Ceiling Spaces: Take special care to coordinate structure, ceiling systems, equipment located in ceiling spaces, fire protection systems, mechanical systems, and electrical systems.

B. Staff Names: Immediately after receipt of notice to proceed or immediately after signing of Contract by Owner and Contractor, submit list of principal staff assignments, including superintendent and other personnel in attendance at Project site.

1. Post copies of list in Project meeting room, in temporary field office, and by each temporary telephone.

1.4 SUPERVISORY AND ADMINISTRATIVE PERSONNEL

A. Provide supervisory personnel, in addition to Project Superintendent, as required for proper and timely performance of Work and coordination of subcontracts.

B. Provide administrative staff as required to allow Project Superintendent and supervisory personnel to allocate maximum time to Project supervision and coordination.

1.5 PROJECT MEETINGS

A. Schedule and administer Project meetings throughout progress of Work:

1. Pre-construction meeting.
2. Progress meetings at weekly intervals.
3. Pre-installation conferences.
4. Coordination meetings.
5. Special meetings.

B. Make physical arrangements for meetings, prepare agenda with copies for participants, preside at meetings, record minutes and distribute copies within two days to Architect, Owner, participants, and those affected.

C. Attendance: Job superintendent, major subcontractors and suppliers as appropriate to agenda; Architect, Owner, and Owner and Architect's consultants as appropriate to agenda topics for each meeting.

D. Suggested Agenda: Review of Work progress, status of progress schedule and adjustments, delivery schedules, submittals, requests for information, maintenance of quality standards, pending changes and substitutions, and issues needing resolution.

END OF SECTION

SECTION 01 35 15

CALGREEN ENVIRONMENTAL REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Comply with CALGreen environmental requirements related to energy efficiency, water efficiency and conservation, material conservation and resource efficiency, and environmental quality.

1. Comply with specific CALGreen requirements as adopted by authorities having jurisdiction and applicable to Project.

1.2 ENVIRONMENTAL REQUIREMENTS

A. Mandatory Measures: Comply with CALGreen Mandatory Measures applicable to Project.

1. Design team and construction team are each required to participate to maximum degree possible to achieve CALGreen environmental requirements.

2. Contract Documents are not intended to limit alternative means of achieving environmental requirements.

a. Suggestions from Contractor, subcontractors, suppliers, and manufacturers for achieving environmental requirements are encouraged; team approach is also encouraged.

3. Voluntary Tiers: Verify extent of Voluntary Tiers applicability to Project.

a. Construction team is encouraged to work with Owner and Design Team to incorporate additional measures as defined in CALGreen Appendixes.

b. Contact Owner and Architect regarding extent of intent of Project to reach Voluntary Tiers, additional work necessary to achieve enhanced Voluntary Tiers, and potential costs involved in achieving each Voluntary Tier.

c. Construction team is required to achieve Mandatory Measures and Voluntary Tiers as applicable, and to achieve as much as possible without unacceptable cost impact or schedule impact as determined by Owner.

B. Requirements: Construction team is required to review CALGreen requirements relative to Project related to following.

1. Energy Efficiency: Comply with California Energy Commission requirements.

2. Water Efficiency and Conservation: Comply with requirements for both indoor and outdoor water use.

3. Material Conservation and Resource Efficiency:

a. Nonresidential Projects: Provide weather-resistant exterior wall and foundation envelope including prevention of landscape irrigation spray on structures (if any) and prevent water intrusion at exterior entries.

b. Residential Projects: Seal openings and penetrations in building envelope Construction Waste:

c. Provide construction waste management plan as defined by CALGreen with demolition and construction waste diverted from landfill by recycling or salvage for reuse.

d. Nonresidential Projects Building Maintenance and Operation: Provide for commissioning requirements as required by CALGreen including but not limited to testing, documentation and training, testing and adjusting.

e. Residential Projects Building Maintenance and Operation: Provide operation and maintenance data as required by CALGreen.

4. Nonresidential Projects Environmental Quality: Comply with following as adopted by authorities having jurisdiction and as applicable to Project.

a. Fireplaces: Comply with requirement for fireplaces (if any) to be direct-vent sealed-combustion gas type or sealed wood-burning fireplace, woodstove, or pellet stove.

b. Mechanical Equipment Pollution Control: Cover duct and related air distribution component openings to prevent dust and debris accumulation.

c. Finish Material Pollution Control: Comply with CALGreen requirements for volatile organic compound (VOC) emissions including but not necessarily limited to following (as applicable):

1) Adhesives, sealants and caulks.
2) Paints and coatings.
3) Carpet systems including carpet, carpet cushion, and adhesives.
4) Resilient flooring systems.
5) Composite wood products formaldehyde limitations.

d. Filters: Comply with requirements for mechanically ventilated buildings to have air filtration media for outside and return air prior to occupancy.

e. Environmental Tobacco Smoke (ETS) Control: Comply with CALGreen requirements for ETS.

f. Interior Moisture Control: Comply with California Building Code requirements and CALGreen requirements for vapor retarder at concrete slab foundations and capillary break (aggregate base).

g. Building Material Moisture Content: Do not use water damaged building materials, remove and place wet and high moisture content insulation, and do not enclose wall or floor framing when moisture content exceeds 19%.

h. Indoor Air Quality: Comply with CALGreen requirements for outside air delivery and carbon dioxide monitoring.

i. Environmental Comfort: Comply with CALGreen requirements for whole acoustical control and interior sound control.

j. Outdoor Air Quality: Comply with CALGreen requirements for reduction of greenhouse gases and ozone depletion.

5. Residential Projects Environmental Quality:

a. Fireplaces: Comply with requirement that gas fireplaces (if any) shall be direct-vent sealed-combustion type and woodstoves or pellet stoves (if any) comply with U.S. EPA Phase II emissions limits.

b. Mechanical Equipment Pollution Control: Cover duct and related air distribution component openings to prevent dust and debris accumulation.

c. Finish Material Pollution Control: Comply with CALGreen requirements for volatile organic compound (VOC) emissions including but not necessarily limited to following (as applicable):

1) Adhesives, sealants and caulks.
2) Paints and coatings.
3) Carpet systems including carpet, carpet cushion, and adhesives.
4) Resilient flooring systems.
5) Composite wood products formaldehyde limitations.

d. Interior Moisture Control: Comply with CALGreen requirements for vapor retarder at concrete slab foundations and capillary break (aggregate base).

e. Building Material Moisture Content: Do not use water damaged building materials, remove and place wet and high moisture content insulation, and do not enclose wall or floor framing when moisture content exceeds 19%.

f. Indoor Air Quality: Provide humidistat-controlled bathroom exhaust fans with Energy Star compliance, ducted to terminate outside building.

g. Environmental Comfort: Comply with CALGreen requirements for whole house exhaust fan louvers to be insulated or have covers which close when fan is off, and with heating and air-conditioning system design requirements.

C. Planning and Design: Construction team shall coordinate with Design Team regarding Project Planning and Design methods related to CALGreen requirements related to Project design and shall comply with requirements related to construction.

1.3 QUALITY ASSURANCE

A. Project Management and Coordination: Contractor to identify one person on Contractor’s staff to be responsible for CALGreen issues compliance and coordination.

1. Experience: Environmental project manager to have experience relating to CALGreen building construction.

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

    a. Submittals: Collect, compile, verify, and maintain sufficient information for submittals indicating compliance with applicable CALGreen requirements.

3. Meetings: Discuss CALGreen Goals at following meetings.

    a. Pre-construction meeting.
    b. Pre-installation meetings.
    c. Regularly scheduled job-site meetings.

B. CALGreen Issues Criteria: Comply with requirements listed in CALGreen and various Specification sections.

PART 2 - PRODUCTS

2.1 MATERIALS

A. General Issues: Do not use materials with moisture stains or with signs of mold or mildew.

1. Moisture Stains: Materials that have evidence of moisture damage, including stains, are not acceptable, including both stored and installed materials; immediately remove from site.

2. Mold and Mildew: Materials that have evidence of growth of molds or of mildew are not acceptable, including both stored and installed materials; immediately remove from site.

2.2 SUBSTITUTIONS

A. Substitutions Environmental Issues: Requests for substitutions shall comply with requirements specified in Section 01 25 00 – Substitution Procedures, with following additional information required where environmental issues are involved.

1. Indicate each proposed substitution complies with CALGreen requirements.

2. Owner and Architect reserve right to reject proposed substitutions where CALGreen information is not provided and where substitution may impact mandatory requirements or Project voluntary tier requirements.

PART 3 - EXECUTION

3.1 PROTECTION

A. Environmental Issues: Protect interior materials from water damage; where interior products not intended for wet applications are exposed to moisture, immediately remove from site.

1. Protect installed products using methods that do not support growth of molds and mildews. Immediately remove from site materials with mold and materials with mildew.

END OF SECTION

SECTION 01 40 00

QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes general quality control requirements.

1. General quality control.
2. Manufacturers' field services.
3. Mock-ups.
4. Independent testing laboratory services and inspections.

B. Related Requirements:

1. Refer to applicable codes and Specifications sections for test requirements.

1.2 QUALITY CONTROL, GENERAL

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

1.3 MANUFACTURER'S FIELD SERVICES

A. When specified in respective Specification sections, require manufacturer or supplier to have qualified personnel provide on-site observations and recommendations.

1. Observe field conditions, including conditions of surfaces and installation.
2. Observe quality of workmanship.
3. Provide recommendations to assure acceptable installation and workmanship.
4. Where required, start, test, and adjust equipment as applicable.

B. Representative shall submit written report to Architect or Owner listing observations and recommendations.

1.4 MOCK-UPS

A. Erect field samples and field mock-ups at locations on site as approved in advance and in accordance with requirements where included in Specifications section.

1. Test mock-ups requiring special equipment may be erected at location having access to necessary equipment; coordinate with Architect.

B. Field samples and mock-ups not approved and not capable of being acceptably revised shall be removed from site.

C. Approved field samples and mock-ups may be used as part of Project.

1.5 TESTING LABORATORY SERVICES AND INSPECTIONS

A. Testing laboratory services and inspections specified and required by applicable codes and regulations will be performed by firms independent of firms related to construction operations and shall be acceptable to applicable authorities.

1. Notify Owner immediately where potential conflict of interest may be involved with testing laboratories or inspection services for Project.

2. Owner or Architect may also require independent testing of items where doubts exist that product or system does not conform to Contract Documents.

3. Owner will employ and pay for testing laboratory and special inspectors to provide Project specific testing and inspections under applicable codes and Specification sections except where indicated otherwise.

a. Owner employment of testing laboratory and inspectors shall not relieve Contractor of obligation to perform Work in accordance with requirements of applicable codes and Contract Documents.

1) Laboratory and inspectors may not release, revoke, alter, or enlarge on requirements of Contract Documents.

b. Retesting required because of non-conformance to specified requirements shall be performed by Owner's testing laboratory.

1) Payment for retesting shall be charged to Contractor by deducting inspection and testing charges from Contract amount.

c. Owner provided testing shall be limited to Project specific testing and shall not include general tests or approvals of materials, equipment or systems.

d. Owner provided inspections shall be limited to Project design team inspections and special inspectors required by applicable authorities.

B. Services shall be performed in accordance with requirements of governing authorities and with specified standards.

C. DSA Projects: Testing and inspections shall be performed in accordance with DSA 103 Form.

D. Reports will be submitted to Architect in duplicate giving observations and results of tests and inspections, indicating compliance or non-compliance with specified standards and with Contract Documents.

1. Where required, testing laboratory and inspectors will submit copy of tests and inspections directly to enforcing agency.

E. Contractor shall cooperate with testing laboratory and inspection personnel; furnish tools, samples of materials, design mix, equipment, storage and assistance as requested.

1. Notify Owner, Architect, inspectors, and testing laboratory sufficiently in advance of expected time for operations requiring inspection and testing services.

END OF SECTION

SECTION 01 41 10

SLIP-RESISTANT HARD SURFACES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Teamwork is required to establish requirements for slip-resistance for hard floor and paving surfaces.

1. Authorities Having Jurisdiction: Upon publication of standards and tests by authorities having jurisdiction those standards and tests shall take precedence over this Section.

2. Hard Surface Flooring and Paving: Construction team shall review Contract Documents for hard surface flooring and paving systems and work with Designer and Owner to ensure slip-resistant materials are appropriate to each situation.

1.2 SUBMITTALS

A. Product Data:

1. Submit manufacturer recommendations for areas and locations where flooring and paving systems are considered to have appropriate slip-resistance and areas where flooring and paving systems are not considered appropriate.

2. Submit information regarding special methods materials used to achieve slip-resistance such as integral abrasives, textures, and coatings.

B. Test Results: Submit test results for each flooring and paving material indicating slip-resistance testing performed by manufacturer for material and as specified under Testing in this Section.

1. Submit test data for slip-resistance on each flooring and paving system specified indicating which testing system was used and where it was installed.

2. Where certain flooring or paving materials have not been tested previously, submit evidence material has been used successfully in similar applications without well-recorded issues of slip resistance.

a. Concrete and flooring and paving materials not by a specific manufacturer and with finishes successfully used for decades shall be considered acceptable unless otherwise directed by authorities having jurisdiction.

1) Acceptable Finishes: Broom finish, medium salted finish.

C. Maintenance Data: Submit manufacturer recommendations for periodic maintenance recommended to ensure continuance of slip-resistance under anticipated use.

1. Indicate special maintenance procedures which might be required due to special circumstances such as special contaminants due to location of flooring or paving such as food preparation areas, auto repair areas, and other special conditions.

1.3 QUALITY ASSURANCE

A. Manufacturer: Manufacturers of hard flooring and paving materials, including floor coatings, shall be responsible for laboratory testing of each type of flooring material, including each optional finish, to show suitability for each application indicated.

1. Where tests other than those listed below are used, manufacturer shall provide information indicating comparison of tests results with appropriate tests listed below presented in manner that can be understood by design team

a. Acceptable Testing: Following tests may be used where authorities having jurisdiction accept results based on comparisons with other standards.

1) ANSI A326.3 Standard Test Method for Measuring Dynamic Coefficient of Friction of Hard Surface Flooring Materials.

a) Limited to interior level hard flooring wet and dry surfaces for tile, stone, terrazzo, and brick.

b) Hard floor and paving shall be tested for wet conditions but only those with water and a soap solution comparable to that used in ANSI A326.3, not other contaminants.

2) ASTM E303 Standard Test Method for Measuring Surface Frictional Properties Using the British Pendulum Tester (laboratory or field test).

B. Suppliers and Subcontractor: Review products specified, supplied, and installed to verify they are appropriate based on manufacturer information.

1.4 CLASSIFICATIONS

A. Due to the complexity of the determination of slip resistance for hard floor and paving surfaces, several classification systems have been established and are presently being referenced by manufacturers.

B. Wet Pendulum Test Classifications, ASTM E303 British Pendulum Test:

Classification	Slider 96 Rubber (Hard)	Slider 55 Rubber (Soft)
P5 (most slip-resistant)	>54	>44
P4	45-54	40-44
P3	35-44	35-39
P2	25-34	20-34
P1	12-24	<20
P0 (least slip-resistant)	<12	Not Reliable

1. Slider 96 Rubber (Hard): Best for surfaces with relatively low slip resistance (also known as Four S Rubber).

2. Slider 55 Rubber (Soft): Best for surfaces with relatively high slip resistance such as textured concrete, textured tiles, and thermal stone finishes (also known as TRL Rubber).

3. Above numbers in table are considered Mean British Pendulum Numbers (BPN).

1.5 SLIP-RESISTANCE REQUIREMENTS

A. Where specifications include hard floor and paving surfaces materials shall comply with follow requirements for non-slip surfaces.

1. Maintenance: Numbers are based on wet hard floors or paving surfaces using materials such as soap solutions where included as part of standard test procedure such as ANSI A326.3 SLS solution (wet).

a. All test results are to be based on dynamic coefficient of friction (DCOF).

B. Slip-Resistant Surface Requirements for Dry Level Interior Locations: Note dry floor friction test is not appropriate for heavily profiled surfaces.

1. Interior Level Surfaces (Dry): ANSI A326.3/0.20 to 0.42.

2. Interior Level Surfaces (Dry):AS 4586 Dry Floor Friction Test/D1/≥0.40

C. Slip-Resistant Surface Requirements based on Water Wet Level Interior Locations: Items 2 and higher are based on ASTM E303 British Pendulum Test hard rubber (12 to 55) and soft rubber (NS to 45) in format shown (R9/12-NS or R10/35 - 35).

1. General Areas: Locations not anticipated to get wet beyond occasional spills.

a. ANSI A326.3: 0.42 or greater.
b. ASTM E303 Pendulum Tests: R9/25-20.

2. Foyer, Transition from Exterior to Interior Space (Wet): R10/35-40.

3. Mall, Food Court (Wet): R10/35-40.

4. Shops (Dry): R9/25-20).

5. Commercial Kitchen serving 100 Plus Meals (Wet): R12/55-50.

6. Warming Kitchen and Kitchens serving less than 100 Meals (Wet): R11/45-40.

7. Residential Kitchen (Wet): R10/35-30.

8. Restaurant Seating Area (Dry): R9/25-20.

9. Bar Seating Area (Wet): R10/35-30.

10. Back Bar (Wet): R11/45-40.

11. Market General Aisles (Dry): R9/25-20.

12. Market Fresh Food, Meat, and Fish Areas (Wet): R10/35-30.

13. Market Fresh Fruit and Vegetable Area (Wet): R10/35-30.
14. Hospitals and Aged Care Facilities (Dry): R9/25-20.
15. Hospitals and Aged Care Facilities (Wet): R10/35-30.
16. General Public Toilet Facilities without Showers (Wet): R10/35-30.
17. General Public Toilet Facilities with Showers (Wet): R11/45-40.
18. Locker Rooms (Wet): R11/45-40.
19. Interior Stair Tread with Railing (Full tread to minimum 2" at nosing): P2/Hard Rubber 30/Soft Rubber 25.
20. Interior Stair Tread no Railing within 24" (Full treat to minimum 2" at nosing): P3/Hard Rubber 35/Soft Rubber 30.
21. Wet Barefoot Interior Areas (Pools, Showers, Changing Rooms): Limit to materials where manufacturer can provide not less than 5 years successful experience in interior pool, shower, and changing room areas.
    a. At least 20 projects shall be included in 5-year period with no indication hard floor material involved resulted in recorded slip and fall incidents.

END OF SECTION

SECTION 01 50 00

TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes temporary construction facilities and temporary controls.

1. Electricity and lighting.
2. Heat and ventilation.
3. Water and sanitary facilities.
4. Construction aids.
5. Temporary enclosures.
6. Barriers.
7. Cleaning during construction.
8. Project identification.
9. Field offices.
10. Cellular telephone service.
11. Storage.

B. Related Requirements:

1. Section 01 70 00: Progress cleaning and final cleaning.
2. Section 01 74 10: Waste management.

C. Provide temporary construction facilities and temporary controls as required to conform to applicable authorities and as required to complete Project in accordance with Contract Documents.

1. Authorities: Contact governing authorities to establish extent of temporary facilities and temporary controls required by authorities.

2. Building Manager: Contact Building Manager to establish extent of temporary facilities and temporary controls required by building management.

1.2 ELECTRICITY AND LIGHTING

A. Provide electrical service required for construction operations, with branch wiring and distribution boxes located to allow service and lighting by means of construction-type power cords.

1. Connection to existing electrical service is permitted.

2. Owner will pay costs of energy used from existing on-site services.

3. Provide separate metering and reimburse Owner for costs of energy used from existing on-site services.

B. Provide lighting for construction operations.

1. Permanent lighting may be used during construction; maintain lighting and make routine repairs.

C. Owner will pay costs of energy used from existing on-site services.

D. Provide separate metering and reimburse Owner for costs of energy used from existing on-site services.

1.3 HEAT AND VENTILATION

A. Provide heat and ventilation as required to maintain specified conditions for construction operation, to protect materials and finishes from damage due to temperature and humidity.

B. Coordinate use of existing facilities with Owner.

1. Supplement with temporary units as required to maintain specified conditions for construction operations, and to protect materials and finishes from damage due to temperature or humidity.

C. Owner will pay costs of energy used from existing on-site services.

1.4 WATER AND SANITARY FACILITIES

A. Provide water service required for construction operations; extend branch piping with outlets located so water is available by use of hoses.

1. Connection to existing facilities is permitted.

2. Owner will pay for water used from existing on-site services.

B. Provide and maintain required sanitary facilities and enclosures.

1. Existing facilities shall not be used.

2. Where existing sanitary facilities are designated to be used during construction operations maintain in sanitary condition. Verify availability with Building Management prior to beginning on-site work.

1.5 CONSTRUCTION AIDS

A. Noise, Dust and Pollution Control: Provide materials and equipment necessary to comply with local requirements for noise, dust and pollution control.

B. Fire Protection: Maintain on-site fire protection facilities as required by applicable authorities and insurance requirements.

C. Security: Protect Site and Work; prevent unauthorized entry, vandalism, and theft.

1. Coordinate with Owner’s security program.

D. Dewatering: Provide and operate drainage and pumping equipment; maintain excavations and site free of standing water.

E. Use of Existing Facilities: Verify availability of existing facilities for construction operations with Owner prior to beginning on-site construction.

1. Existing stairs shall not be used.

2. Designated existing stairs may be used by construction personnel; coordinate with Owner.

3. Existing elevators shall not be used.

4. Designated elevators may be used, coordinate use with Owner; provide protective coverings for finish surfaces of elevator cars and entrances.

1.6 ENCLOSURES

A. Temporary Closures: Provide temporary weather-tight closures for exterior openings for acceptable working conditions, for protection for materials, to protect interior materials from dampness, for temporary heating, and to prevent unauthorized entry.

1. Provide doors with self-closing hardware and locks.

B. Temporary Partitions: Provide temporary partitions as required to separate work areas from occupied areas, to prevent penetration of dust and moisture into occupied areas, and to prevent damage to existing areas and equipment.

1. Construction: Framing and sheet materials with closed joints and sealed edges at intersections with existing surfaces; Flame Spread Rating of 25 in accordance with ASTM E84.

2. Paint surfaces exposed to view in occupied areas.

1.7 BARRIERS

A. Barriers: Provide barriers as required to prevent public entry to construction areas and to protect adjacent properties from damage from construction operations.

1. Fence: Provide minimum 8-foot high commercial grade chain link or painted solid wood fence around construction site; equip with gates with locks.

2. Covered Walkways: Provide lighted covered painted walkways as required by governing authorities for public rights-of-way and for public access to existing building.

B. Barricades: Provide barricades as required by governing authorities.

C. Tree Protection: Provide barriers around trees and plants designated to remain; protect against vehicular traffic, stored materials, dumping, chemically injurious materials, and puddling or continuous running water.

1.8 CLEANING DURING CONSTRUCTION

A. Control accumulation of waste materials and rubbish; recycle or dispose of off-site.

B. Clean interior areas prior to start of finish work, maintain areas free of dust and other contaminants during finishing operations.

1.9 PROJECT IDENTIFICATION

A. Project Sign: Provide minimum 32-square foot Project identification sign of wood frame and exterior grade plywood construction, painted, with computer generated graphics by professional sign maker.

1. Design: As furnished by Architect.

2. Submit to Owner and Architect additional names or changes proposed to Project sign for prior written approval.

3. Erect on site at location established by Architect.

B. Other Signs: Subject to approval of Architect and Owner.

1.10 FIELD OFFICES

A. Field Office: Provide weather-tight field office, with lighting, electrical outlets, data outlets, heating, and ventilating equipment, and equipped with furniture.

1. Meeting Space: In addition, provide space for Project meetings with table and chairs to accommodate minimum six persons.

2. Telephone Service: Provide telephone service to field office.

3. Multi-Purpose Copier: Provide plain paper multi-purpose color and black-and-white copier with enlargement and reduction capability and with built-in printer, scanner, and facsimile capabilities.

1.11 CELLULAR TELEPHONE SERVICE

A. Cellular Telephone Service: Furnish on-site Project Managers with cellular telephone. Ensure Owner and Architect ability to contact site during construction operations.

1. Schedules: Submit schedules of on-site Project Managers with individual cellular telephone numbers to Owner and Architect; maintain schedules and cell phone numbers up to date during Project on-site operations.

1.12 STORAGE

A. Storage for Tools, Materials, and Equipment: Limit on-site storage to Project area; provide weather-tight storage, with heat and ventilation for products requiring controlled conditions.

1. Maintain adequate space for organized storage and access.

2. Provide lighting for inspection of stored materials.

1.13 REMOVAL

A. Remove temporary materials, equipment, services, and construction prior to Substantial Completion Inspection.

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

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

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes basic product requirements governing material and equipment.

1. General product requirements.
2. Product list.
3. Quality assurance.
4. Delivery, storage, and handling.

B. Related Requirements:

1. Section 01 25 00: Substitution procedures.
2. Section 01 30 00: Submittal of manufacturers' certificates.
3. Section 01 77 00: Operation and maintenance data.

1.2 GENERAL PRODUCTS REQUIREMENTS

A. Products include material, equipment, and systems.

B. Comply with Specifications, referenced standards, and applicable codes and regulations as minimum requirements.

C. Provide new materials except as specifically allowed by Contract Documents.

D. Materials to be supplied in quantity within a Specification section shall be by one manufacturer, shall be the same, and shall be interchangeable.

E. Provide equipment and systems composed of materials from a single manufacturer except where otherwise recommended by equipment or systems manufacturer or where otherwise indicated in Contract Documents.

F. Contractor’s Options: Comply with following options; requests for substitutions for named manufacturers and products shall comply with requirements specified in Section 01 25 00 – Substitution Procedures.

1. Products Identified by Reference Standards: Select product meeting referenced standard for products specified only by reference standard.

a. Requests for Substitutions to be limited to products not complying with referenced standards.

1) Submit justification for non-compliance with reference standards as part of Request for Substitutions; if product is foreign made submit rationale why foreign standards and basic materials indicates compliance.

2. Named Manufacturers: Where names of manufacturers are specified select any named manufacturer product meeting Specifications for products specified by naming one or more manufacturers.

    a. Submit Request for Substitution for any manufacturer not named.

3. Named Manufacturers and Named Products: Select any named manufacturer named product meeting Specifications for products specified by naming one or more manufacturers and products.

    a. Where only one manufacturer and product is named together with additional manufacturers without specific products, Requests for Substitutions to be limited to products not comparable to that specified.

        1) Contractors, subcontractors, suppliers, and manufacturers shall take special care to ensure comparable products are being supplied based on design, performance, quality, and longevity.

        2) Substitutions: Submit Request for Substitution for any manufacturer not named and for products not comparable to those specified in design, performance, quality, and longevity.

4. Basis of Design: Where manufacturer or manufacturer and product both are indicated as Basis of Design, submit Request for Substitution for other manufacturers and products.

5. “Or Equal” Clauses: Submit request for substitution for manufacturer or product not specifically named in Specifications where terms "or equal", "or approved equal", or similar references are made.

G. Nameplates: Do not attach or imprint manufacturer or producer nameplates on exposed surfaces in occupied spaces except for required labels and operating data.

1. Equipment Nameplates: Provide permanent nameplate on service connected and power operated equipment located on easily accessible surface inconspicuous in occupied spaces.

    a. Provide name of product and manufacturer, model and serial number, capacity, speed, rating, and similar information.

1.3 SUBMITTALS

A. Product List: Within 35 days after award of Contract, submit to Owner and Architect a complete list of major products proposed for installation, with name of manufacturer, trade name, and model.

B. Product List: Prior to submittal of second Request for Payment, submit to Architect complete list of major products which are proposed for installation, with name of manufacturer, trade name, and model.

1. Tabulate products by Specification number and title.

C. Substitutions: Refer to Section 01 25 00 – Substitution Procedures.

1.4 QUALITY ASSURANCE

A. Comply with industry standards and applicable codes except when more restrictive tolerances or requirements indicate more rigid standards or precise workmanship.

B. Perform work by persons qualified to produce workmanship of specified quality.

C. Install products straight, true-to-line, and in correct relationship to adjacent materials, with hairline joints, free of rough, sharp and potentially hazardous edges.

D. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1. Seismic Anchors: Conform to code requirements.

1.5 DELIVERY, STORAGE, AND HANDLING

A. Transport products by methods to avoid product damage, deliver in undamaged condition in manufacturer's unopened containers or packaging.

B. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible.

C. Store sensitive products in weather-tight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

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

E. Store loose granular materials on solid surfaces in a well-drained area; prevent mixing with foreign matter.

F. Arrange storage to provide access for inspection; periodically inspect to assure products are undamaged and are maintained under required conditions.

G. Provide equipment and personnel to handle products by methods to prevent soiling and prevent damage.

H. Promptly inspect shipments to assure products comply with requirements, quantities are correct, and products are undamaged.

I. Immediately remove from Project products damaged, wet, stained, and products with mold and products with mildew.

1. Take special care to prevent absorbent products such as gypsum board and acoustical ceiling units from becoming wet.

END OF SECTION

SECTION 01 70 00

EXECUTION REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes execution requirements.

1. Installer qualifications.
2. Examination.
3. Manufacturer's instructions.
4. Installation.
5. Cleaning.
6. Protection.

B. Related Requirements:

1. Section 01 50 00: Cleaning during construction.
2. Section 01 77 00: Closeout procedures.
3. Section 01 79 00: Demonstration and training.

1.2 INSTALLER QUALIFICATIONS

A. Experienced Installers: Installers to have minimum five-years successful experience installing items like those required for Project, except for individuals in training under direct supervision of experienced installer.

1.3 EXAMINATION

A. Acceptance of Conditions: Beginning installation of a product signifies installer has examined substrates, areas, and conditions for compliance with manufacturer requirements for tolerances and other conditions affecting performance.

B. Field Measurements: Take field measurements as required to fit Work properly; recheck measurements prior to installing each product.

1. Where portions of Work are to fit to other construction verify dimensions of other construction by field measurements before fabrication; allow for cutting and patching to avoid delaying Work.

C. Space Requirements: Verify space requirements and dimensions of items shown diagrammatically on Drawings.

1.4 MANUFACTURERS' INSTRUCTIONS

A. Manufacturer’s Recommendations: When work is specified to comply with manufacturers' recommendations or instructions, distribute copies to persons involved and maintain one set in field office.

1. Conform to requirements specified in Section 01 30 00 for submittal of recommendations or instructions to Architect; submit to Architect only where specified or where specifically requested; otherwise keep in Field Office.

B. Perform work in accordance with details of recommendations and instructions and specified requirements.

1. Should a conflict exist between Specifications and recommendations or instructions consult with Architect.

C. Where manufacturer's information notes special recommendations in addition to installation instructions, comply with both recommendations and instructions.

1.5 INSTALLATION

A. Pre-Installation Meetings: Installers and suppliers are to attend pre-installation meetings scheduled by Contractor.

B. Comply with manufacturers written recommendations and installation instructions unless more restrictive requirements are specified.

C. Locate Work and components accurately, in correct alignment and elevation.

1. Make vertical work plumb and horizontal work level.

2. Install components to allow space for maintenance and ease of removal for replacement.

D. Install products at time and under conditions to ensure best possible results; maintain conditions required for product performance until Substantial Completion.

E. Conduct operations so no part of Work is subject to damaging operations or excessive loads during normal conditions.

F. Securely anchor permanent construction in place, accurately located and aligned with other portions of Work.

G. Allow for building movement including thermal expansion and contraction.

H. Make joints of uniform width; arrange joints as indicated, for best visual effect where not otherwise indicated; fit exposed connections together to form hairline joints except where otherwise indicated.

1.6 CLEANING

A. Cleaning During Construction: Specified in Section 01 50 00 - Temporary Facilities and Controls.

B. Progress Cleaning: Keep installed areas clean using cleaning materials specifically recommended by manufacturers of product being cleaned; where not otherwise recommended use nontoxic materials that will not damage surfaces.

1. Remove debris from concealed spaces before enclosing space.

2. Supervise construction operations to assure no part of construction, completed or in progress, is subject to harmful, dangerous, damaging, or otherwise deleterious exposure during construction period.

C. Final Cleaning: Execute final cleaning at Substantial Completion.

1. Clean interior and exterior surfaces exposed to view; remove temporary labels, stains and foreign substances; polish transparent and glossy surfaces; vacuum carpeted and soft surfaces.

a. Vacuuming Equipment: Type with high efficiency particulate arrestor (HEPA) type filters; properly maintained.

2. Clean equipment and fixtures to a sanitary condition, clean filters of mechanical equipment, replace filters where cleaning is impractical.

a. Clean ducts.

3. Clean site; sweep paved areas.

4. Remove waste, surplus materials and rubbish from Project and site; recycle to maximum extent feasible.

1.7 PROTECTION

A. Protect products subject to deterioration with impervious cover. Provide ventilation to avoid condensation and trapping water.

B. Take care to use protective covering and blocking materials that do not soil, stain, or damage materials being protected.

C. After installation, provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

D. Protect interior materials from water damage; immediately remove wet materials from site to prevent growth of mold and mildew on site.

END OF SECTION

SECTION 01 73 00

CUTTING AND PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Contractor is responsible for cutting, fitting and patching to complete Work and to:

1. Make its parts fit together properly.
2. Uncover work to provide for installation of ill-timed work.
3. Remove and replace defective work.
4. Remove and replace work not conforming to Contract Documents.
5. Remove samples of installed work as required for testing.
6. Provide routine penetrations of non-structural surfaces for installation of piping.
7. Provide routine penetrations of non-structural surfaces for installation of conduit.

B. Related Requirements:

1. Section 01 50 00: Temporary facilities and controls.
2. Section 02 41 00: Structure demolition.
3. Section 02 41 20: Selective building demolition for remodeling.

1.2 SUBMITTALS

A. Submit written request well in advance of cutting or alteration which affects:

1. Work of Owner or separate contractor.
2. Structural value or integrity of any element of Project.
3. Integrity of weather-exposed or moisture-resistant elements.
4. Efficiency, operational life, maintenance or safety of operational elements.
5. Visual qualities of sight-exposed elements.

B. Request shall include:

1. Identification of Project and description of affected work.
2. Necessity for cutting or alteration.
3. Effect on work of Owner or separate contractor.
4. Effect on structural integrity, or weatherproof integrity of Project.
5. Alternatives to cutting and patching.
6. Cost proposal, when applicable.
7. Written permission of separate contractor whose work will be affected.
8. Description of proposed work including:

a. Scope of cutting, patching, alteration, or excavation.
b. Products proposed to be used.
c. Extent of refinishing to be included.

C. Should conditions of Work or schedule indicate a change of products from original installation, Contractor shall submit request for substitution as specified in Section 01 25 00 – Substitution Procedures.

D. Submit written notice to Architect designating date and time work will be uncovered.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Comply with Specifications and standards for each specific product involved.

B. Where Specifications and standards have not been provided, provide materials and fabrication consistent with quality of Project and intended for commercial construction.

C. Provide new materials for cutting and patching unless otherwise indicated.

PART 3 - EXECUTION

3.1 INSPECTION

A. Inspect existing conditions of Project, including elements subject to damage or to movement during cutting and patching.

B. After uncovering work, inspect conditions affecting installation of products, or performance of work.

C. Report unsatisfactory or questionable conditions to Architect in writing; do not proceed with work until Architect has provided further instructions.

3.2 PREPARATION

A. Provide adequate temporary support as necessary to assure structural value or integrity of affected portion of Work.

1. Provide services of licensed engineer for designing temporary support where required by applicable authorities for temporary supports and for shoring; submit engineering calculations directly to applicable authorities upon request.

B. Protect other portions of Project from damage.

3.3 PERFORMANCE

A. Execute cutting by methods that provide proper surfaces to receive installation of repairs and finishes.

1. Execute excavating and backfilling by methods which will prevent settlement, and which will prevent damage to other work.

B. Employ same installer or fabricator to perform cutting and patching work as employed for new construction for:

1. Weather-exposed or moisture resistant elements.

2. Sight-exposed finished surfaces.

C. Execute fitting and adjustment of products to provide a finished installation to comply with specified products, functions, tolerances and finishes.

D. Restore work that has been cut or removed; install new products to provide completed Work in accordance with requirements of Contract Documents.

E. Fit work tight to pipes, sleeves, ducts, conduit and penetrations through surfaces.

F. Refinish entire surfaces as necessary to provide even finish to match adjacent finishes:

1. For continuous surfaces, refinish to nearest intersection.

2. For an assembly, refinish entire unit.

END OF SECTION

SECTION 01 74 10

WASTE MANAGEMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Project requires special Waste Management Program.

1. LEED Waste Management Goals: As required for level listed in Section 01 35 10.
2. CALGreen Waste Management: As required in Section 01 35 15.
3. Provide itemization of costs related to Waste Management Program.
4. Effect optimum control of solid wastes.
5. Prevent environmental pollution and damage.

B. Related Work:

1. Section 01 35 10: LEED certification requirements.
2. Section 01 35 15: CALGreen environmental requirements.
3. Section 01 50 00: Temporary facilities and controls.

1.2 DEFINITIONS

A. Inert Fill: A permitted facility that accepts inert waste such as asphalt and concrete exclusively.

B. Class III Landfill: A landfill that accepts non-hazardous waste such as household, commercial, and industrial waste, including construction, remodeling, repair, and demolition operations.

C. Construction and Demolition Waste: Includes solid wastes, such as building materials, packaging, rubbish, debris, and rubble resulting from construction, remodeling, repair, and demolition operations.

1. Rubbish: Includes both combustible and noncombustible wastes, such as paper, boxes, glass, crockery, metal and lumber scrap, tin cans, and bones.

2. Debris: Includes both combustible and noncombustible wastes, such as leaves and tree trimmings that result from construction or maintenance and repair work.

D. Chemical Waste: Includes petroleum products, bituminous materials, salts, acids, alkalis, herbicides, pesticides, organic chemicals and inorganic wastes.

E. Sanitary Wastes:

1. Garbage: Refuse and scraps resulting from preparation, cooking, distribution, or consumption of food.

2. Sewage: Domestic sanitary sewage.

1.3 SUBMITTALS

A. Waste Management Program: Comply with Contract Documents and applicable code requirements for salvaging, recycling, and disposing of nonhazardous waste.

1. Prior to commencement of Work, schedule and conduct meeting with Owner and Architect to discuss proposed Waste Management Program.

2. Develop mutual understanding relative to details of recycling, and rebate programs.

3. Prepare and submit a written and graphic Waste Management Program including, but not limited to, the following:

a. Indicate procedures to be implemented.

b. Estimate total Project waste to be generated, and estimated cost of disposing of Project waste in landfills.

c. Estimate total cubic yards of following waste categories to be diverted from landfill.

1) Clean dimensional wood, palette wood.
2) Plywood, oriented strand board, and medium density fiberboard.
3) Cardboard, paper, packaging.
4) Other items as directed by Owner and Architect.

d. Estimate amounts of following waste categories in appropriate units (weight, feet, square yards, gallons).

1) Metals.
2) Gypsum board.
3) Carpet.
4) Paint.
5) Other items as directed by Owner and Architect.

e. Submit permit or license and location of waste disposal areas.

f. Submit procedures for recycling/re-use program.

g. Submit procedures for rebate programs.

h. Revise and resubmit Waste Management Program as required by Owner and Architect.

1) Review of Contractor's Waste Management Program will not relieve Contractor of responsibility for control of pollutants and other environmental protection measures.

B. Submit summary of solid waste generated by Project with each application for progress payment, on form acceptable to Owner and Architect; include manifests, weight tickets, receipts, and invoices identifying Project and waste delivered to following locations.

1. Recycling Centers.
2. Class III landfills.
3. Inert fills.

C. Prepare rebate information and product documentation as required for Owner to qualify for rebate programs; submit with final closeout submittals.

1. Where feasible submit in electronic format, otherwise in 3-ring binder.

1.4 RECYCLING PROGRAM

A. Recycling: Implement recycling program that includes separate collection of waste materials of following types as applicable to Project requirements; recycling program to be applied by Contractors and subcontractors.

1. Land clearing debris.
2. Asphaltic concrete.
3. Concrete.
4. Masonry materials.
5. Ferrous metal.
6. Non-ferrous metal.
7. Clean dimensional wood and palette wood.
8. Plywood, oriented strand board, and medium density fiberboard.
9. Paper - bond.
10. Paper - newsprint.
11. Cardboard and paper packaging materials.
12. Glass.
13. Plastics.
14. Gypsum board (unpainted).
15. Paint.
16. Rigid foam.
17. Carpet and pad.
18. Beverage containers.
19. Porcelain plumbing fixtures.
20. Insulation.
21. Others as appropriate.

B. Handling: Keep materials free of dirt, adhesives, solvents, petroleum contamination, and other substances deleterious to recycling process.

1. Clean materials contaminated prior to placing in collection containers.

2. Arrange for collection by or delivery to appropriate recycling center or transfer station that accepts construction and demolition waste for purpose of recycling.

C. Participate in Re-Use Programs: Rebates, tax credits, and other savings obtained for recycled or re-used materials shall accrue to Contractor.

END OF SECTION

SECTION 01 77 00

CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. This section describes Contract closeout procedures.

1. Substantial Completion.
2. Final Completion.
3. Project record documents.
4. Material and finish data.
5. Operation and maintenance manuals.

B. Related Requirements:

1. Section 01 30 00: Administrative requirements including attic stock.
2. Section 01 78 00: Warranties.
3. Section 01 79 00: Demonstration and training.

1.2 SUBSTANTIAL COMPLETION

A. Immediately prior to Substantial Completion, schedule agency reviews as required for “temporary certificate of occupancy” or for “certificate of occupancy”.

B. When Contractor considers Work, or a designated portion thereof is substantially complete, submit written notice, with list of items to be completed or corrected.

1. List (“Punch List”): Format pre-approved by Owner and Architect; tabular form with each space listed required.

C. Within a reasonable time, Owner and Architect will inspect status of completion and may add to “Punch List”.

1. Contractor shall pay for Architect's time and direct expenses where more than one Substantial Completion inspection is required.

D. Should Owner and Architect determine Work is not substantially complete, Contractor will be promptly notified in writing, giving reasons.

E. Contractor shall remedy deficiencies and send a second written notice of substantial completion; Architect will reinspect Work.

1. Contractor shall pay for Architect's time and direct expenses where more than one Substantial Completion inspection is required.

F. When Work is determined to be substantially complete by Architect, a Certificate of Substantial Completion will be prepared in accordance with General Conditions.

G. DSA Projects: Contractor shall complete DSA 6-C Form and upload electronically to DSAbox within three days of completion of Work.

1.3 FINAL COMPLETION

A. When Work is complete, submit written certification indicating:

1. Work has been inspected for compliance with Contract Documents.

2. Work has been completed in accordance with Contract Documents and deficiencies listed (in 'Punch List") with Certificate of Substantial Completion have been corrected.

3. Equipment and systems have been tested in presence of Owner's representative and are operational.

4. Work is complete and ready for final inspection.

B. Special Submittals: In addition to submittals required by Contract, submit following.

1. Provide submittals required by governing authorities to governing authorities with copies included in Project Record Documents.

2. Submit final statement of accounting giving total adjusted Contract Sum, previous payments, and sum remaining due.

1.4 PROJECT RECORD DOCUMENTS

A. Keep documents current; do not permanently conceal any work until required information has been recorded.

1. Owner will provide Contractor with a separate set of Drawings to maintain for Project Record Documents.

2. Store reproducible Drawings, one set of Project Manual, and one copy of each Change Order separate from documents used for construction, for use as Project Record Documents.

3. Indicate actual work on Drawings; indicate actual products used in Project Manual, including manufacturer, model number and options.

4. Update Project Record Documents daily and allow for Architect inspection at least once a month.

B. At Contract close-out submit documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

C. As-Built Documents: General Contractor shall have electronic "As Built" sets of Contract Documents (Project Drawings and Project Specifications) prepared prior to Final Completion.

1. Contractor shall use one complete electronic set of Contract Documents (Drawings and Specifications) for use for "As-Builts".

2. As-Built Drawings: Revise Drawings based on Record Documents and field measurements made after installation and indicate actual locations of structural elements, ducts, piping, wiring, and equipment.

    a. Professional draftspersons experienced in electronic media used for Contract Documents shall revise original Project Drawings based on information recorded on Project Record Documents.

3. As-Built Specifications: Revise Specifications to indicate manufacturers who provided materials specified along with specifics indicating accessories, options, and finishes used in Project.

    a. Cross referencing Submittal records is acceptable for accessories only.

4. Review Submittal: Submit two copies of electronic media of “As-Built” Documents to Architect for review.

    a. After Architect review, revise where indicated and submit final electronic media to Owner.

D. Final Completion Submittal: At Project Completion submit both Project Record Documents and As-Built Documents with transmittal letter containing date, Project title, Contractor's name and address, list of documents, and signature of Contractor.

1.5 MATERIAL AND FINISH DATA

A. Provide data for primary materials and finishes.

B. Submit two sets prior to final inspection, bound in 8-1/2" by 11" three-ring binders with durable plastic covers, clearly identified regarding extent of contents.

1. Electronic Format: Where available in electronic format, submit USB 3.0 flash drives with information required for material and finish data.

C. Arrange by Specification division and give names, addresses, and telephone numbers of subcontractors and suppliers. List:

1. Trade names, model or type numbers.
2. Cleaning instructions.
3. Product data.
4. Maintenance recommendations.

1.6 OPERATION AND MAINTENANCE MANUALS

A. Provide manuals for:

1. Electrically operated items.
2. Electrical equipment and controls.
3. Maintenance manuals provided as part of Submittals.

B. Submit two sets prior to final inspection, bound in 8-1/2" by 11" three-ring binders with durable plastic covers, clearly identified regarding extent of contents.

C. Provide a separate volume for each system, with a table of contents and index tabs for each volume.

D. Arrange by Specification division and gives names, addresses, and telephone numbers of Subcontractors and suppliers. List:

1. Appropriate design criteria.
2. List of equipment and parts lists.
3. Operating and maintenance instructions.
4. Shop drawings and product data.

E. Electronic Format: Where available in electronic format, submit two USB 3.0 flash drives with information required for operation and maintenance manuals.

END OF SECTION

SECTION 01 78 00

WARRANTIES

PART 1 - GENERAL

1.1 SUMMARY

A. Warranties: Compile required, and incidental warranties required by Contract Documents.

1. Manufacturer Warranties: Provide manufacturer's standard warranties where specified including inspections and services included or required as part of manufacturer's standard warranty.

2. Special Warranties: Provide special warranties as required by Specifications sections.

3. These warranties shall be in addition to and not a limitation of other rights Owner may have against Contractor under Contract Documents and which may be prescribed by law, regardless of wording of warranty.

B. Extended Correction Period: Contractor shall correct failure of materials and systems to perform in a manner consistent with their intended use including but not limited to failure of waterproofing and roofing systems to resist penetration from water.

1. Standard Correction Period: One year after Substantial Completion or Beneficial Occupancy by Owner except where otherwise noted in Contract Documents; coordinate with General Conditions and Supplementary Conditions.

a. Items used by Contractor during construction operations shall not be considered substantially completed.

b. Correction of Work Period begins with Owner occupancy not completion of component.

2. Extended Correction Period: Requirements are same as standard correction period but for an extended period as indicated in Specifications sections.

3. Contractor Responsibilities: Bear cost of correcting failed work and replacing construction damaged by failure of materials and systems to perform in a manner consistent with their intended use during correction period.

a. Requirements for correction period shall apply to Subcontractors, suppliers, installers, and those responsible for failed work.

b. Owner and Design Team shall not be responsible for determining degree of responsibility of those involved.

4. Owner's Rights under Law: Correction period shall be in addition to and not a limitation of other rights Owner may have against Contractor under Contract Documents and which may be prescribed by law.

1.2 FORM OF SUBMITTAL

A. Special Warranty and Extended Correction Period Forms: Provide duplicate copies, notarized or on Contractor and Manufacturer's letterhead without conditions or exceptions to requirements specified.

1. Assemble documents executed by subcontractors, installers, suppliers, and manufacturers.

2. Provide table of contents and assemble in binder with durable plastic cover, clearly identified regarding extent of contents.

3. Electronic Format: Submit USB 3.0 flash drives of warranties, in Microsoft Word.

B. Manufacturer Warranty Forms: Use manufacturer’s standard forms unless otherwise directed in Contract Documents; completed form shall not detract from or confuse interpretations of Contract Documents.

1. Manufacturer’s authorized representative shall sign manufacturer warranties.

2. Subcontractor and installer shall countersign warranty where specified.

a. Provide required warranties for waterproofing and roofing systems countersigned by subcontractor and installer.

C. Submit final warranties prior to final application for payment.

1. For equipment put into use with Owner's permission during construction, submit within ten days after first operation.

2. For items of Work delayed materially beyond Date of Substantial Completion, provide updated submittal within ten days after acceptance, listing date of acceptance as start of warranty period.

D. Provide information for Owner's personnel regarding proper procedure in case of failure and instances that might affect validity of manufacturer warranty.

E. Size: 8-1/2" by 11" for three-ring binder; fold larger sheets to fit.

1.3 WARRANTIES AND CORRECTION OF WORK DOCUMENTS

A. Warranties and Correction of Work Documents are intended to protect Owner against failure of work and against deficient, defective and faulty materials and workmanship, regardless of sources.

B. Limitations: Warranties and correction of work requirements are not intended to cover failures that result from:

1. Unusual or abnormal phenomena of the elements.

2. Owner's misuse, maltreatment or improper maintenance of work.

3. Vandalism after substantial completion.

4. Insurrection or acts of aggression including war.

C. Related Damages and Losses: Remove and replace work which is damaged as result of failure, or which must be removed and replaced to provide access for correction of work.

D. Reinstatement: After correction of work reinstate warranty or extended correction period for corrected work to date of original expiration, but not less than half original period.

1. Correction of Work Period: The general correction of work period specified shall not be extended by corrective work except to extent required to correct failure and repair or replace materials damaged by failure.

E. Replacement Cost: Replace or restore failing items without regard to anticipated useful service lives where part of correction of work period, extended correction of work period, and special warranty period unless otherwise noted.

F. Rejection of Warranties: Owner reserves right to reject unsolicited and coincidental product warranties that detract from or confuse interpretations of Contract Documents.

END OF SECTION

SECTION 01 79 00

DEMONSTRATION AND TRAINING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide equipment and systems demonstration and instruction in accordance with Contract Documents.

1. Video record seminars and system demonstrations.

B. Related Sections:

1. Section 01 31 00: Project management and coordination.
2. Section 01 77 00: Contract closeout procedures.
3. Refer to Facility Services Subgroups for mechanical and electrical requirements.

1.2 DESCRIPTION

A. Seminar Agenda and Outline:

1. Prepare a seminar agenda and outline in consultation and cooperation with Owner. Include following:

a. Equipment and systems that will be included in seminars.
b. Name of companies and representatives presenting at seminars.
c. Outline of each seminar's content.
d. Time and date allocated to each system and item of equipment.

2. Submit preliminary seminar agenda and outline for review and comment by Owner.

a. Revise and resubmit agenda and outline until all seminar requirements have been satisfied and seminar dates and presenters have been finalized.

3. Submit final seminar agenda and outline no later than eight weeks before date of Acceptance of Work.

B. Seminar Organization:

1. Contractor’s presentation leaders shall chair seminars.

a. Coordinate qualification of training personnel, seminar contents, and presentations with Owner.

2. Coordinate individual presentations and ensure manufacturer’s representatives scheduled to be at training seminars are present.

3. Arrange for presentation leaders familiar with design operation, maintenance and troubleshooting of equipment and systems.

    a. Where one person is not familiar with all aspects of equipment or system; arrange for specialists familiar with each aspect.

4. Coordinate proposed seminar dates with Owner and select mutually agreeable dates.

5. Video Recording: Arrange for video recording (audio and video) of training seminars and system demonstrations, including seminar and demonstration questions and answers.

C. Seminar Content:

1. Architect's Consultants will explain design philosophy of primary systems.

2. Include following information in presentations dealing with specific systems.

    a. An overview of how system is intended to operate.
    b. Describe design parameters, constrains and operational requirements.
    c. Describe system operation strategies.
    d. Provide information to help in identifying and troubleshooting problems.

3. Include following information in presentations dealing with equipment.

    a. Explanation of how equipment operates.
    b. Recommended preventative and routine maintenance.

D. System Demonstration:

1. Demonstrate operation of equipment and systems when specified in individual technical sections. Include following in demonstration.

    a. Start-up and shut down.
    c. Operation.
    d. Scheduled and preventative maintenance.
    e. Troubleshooting.

2. Demonstration may be conducted at time of original starting with Owner's prior approval.

E. Seminar and Demonstration Questions:

1. Be prepared to answer questions raised by Owner's personnel at demonstrations and seminars.

2. If unable to satisfactorily answer questions immediately, provide written response within three days.

F. Use manufacturer's operation and maintenance data as basis of instruction.

1.3 SUBMITTALS

A. Video Recording: Submit three copies of each video recording in DVD format acceptable to Owner; include label on each DVD and on each container identifying Project and Seminar content.

END OF SECTION

SECTION 02 41 20

SELECTIVE BUILDING DEMOLITION

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Selectively remove materials, systems, components, fixtures and equipment as designated and as required for completion of Project as indicated.

1. Cap and identify active utilities.

B. Related Sections:

1. Section 01 10 00: Summary of work.
2. Section 01 50 00: Temporary facilities including barriers and waste management.
3. Section 01 73 00: Cutting and patching.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Coordination:

1. Do not interfere with use of adjacent building spaces not in Project; maintain free and safe passage to and from.

2. Prevent movement of structural components, provide and place bracing and be responsible for safety and support of structural components. Assume liability for movement, settlement, damage or injury.

3. Cease operations and notify Architect immediately if safety of structural components appears to be endangered; take precautions to properly support structures. Do not resume operations until safety is restored.

4. Prevent dust from selective demolition from contaminating adjacent occupied building areas; clean construction dust from adjacent occupied area immediately upon direction of Building Manager.

B. Design/Build: Provide special engineering to ensure compliance with applicable codes and Contract Documents for support systems.

C. Scheduling: Do not close or obstruct roadways without permits. Conduct operations with minimum interference to adjacent traffic.

1.3 SUBMITTALS

A. Action Submittals: Submit selective demolition operational sequence to ensure Project sequencing is consistent with Owner needs.

B. Informational Submittals: Submit permits for transport and disposal of debris.

1.4 QUALITY ASSURANCE

A. Sustainability Requirements: Comply with *CAL*Green requirements including those relative to finish material pollution control and for construction waste.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Debris: Maintain possession of materials being demolished except where noted as a material for reinstallation or a material to be retained by Owner. Immediately remove debris from site.

1. Immediately remove from site wet materials and materials with water stains, with mold, and with mildew.

B. Materials for Reinstallation: Carefully remove, store and protect materials indicated to be reinstalled. Contact Owner and Architect prior to beginning demolition to determine extent of other materials that might be suitable for reinstallation.

1. Inventory and record condition of items to be reinstalled.

C. Owner Retained Materials: Contact Owner prior to beginning demolition to determine extent of materials to be retained. Carefully remove materials indicated to be retained by Owner; deliver and store where directed.

1. Inventory and record condition of items to be retained by Owner.

PART 3 - EXECUTION

3.1 EXISTING SERVICES

A. Disconnect or remove utility services as required for completion of Project; disconnect, stub off, and cap utility service lines not required for new construction.

1. Do not remove utilities discovered during demolition but not indicated without first determining purpose for utility; coordinate with Architect and Engineers.

B. Do not disrupt services to adjacent building areas not in Project.

C. Place markers to indicate location of disconnected services; identify service lines and capping locations on Project Record Documents.

3.2 DEMOLITION

A. Demolish indicated appurtenances as indicated and as required for Project completion in an orderly and careful manner.

1. Use methods that do not damage materials indicated to remain.

2. Cut concrete and masonry using masonry saws and hand tools; provide sharp clean cuts requiring minimal patching for new construction.

3. Use impact tools only where specifically approved in advance for areas where operations do not disturb building occupancy.

B. Perform demolition in accordance with authorities having jurisdiction.

C. Remove demolished materials from site, unless otherwise directed.

1. Remove from site, contaminated, vermin infested, and dangerous materials encountered and dispose of by safe means so as not to endanger health of workers or public.

D. Remove tools and equipment upon completion of work; leave area in condition acceptable to Owner and Architect.

3.3 REPAIR

A. Repair damage to adjacent construction caused as result of this work.

B. Repair demolition beyond that required.

END OF SECTION

SECTION 06 10 50

MISCELLANEOUS ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide miscellaneous wood blocking and plywood, including blocking for roofing system and related flashing.

1. Provide plywood panel boards.
2. Preservative treat wood members as indicated.

B. Related Sections:

1. Section 06 20 00: Finish carpentry.

2. Section 07 31 10: Asphalt Shingle

1.2 REFERENCES

A. Forest Products Society (FPS): National Design Specification for Stress Grade Lumber and its Fastening.

1.3 SUBMITTALS

A. Product Data: Submit wood treatment certifications and instructions for proper use of each type of treated material.

B. Wood Product Certification: Furnish certification indicating wood products are from “well-managed” forests.

1.4 QUALITY ASSURANCE

A. Lumber Grades: Provide visible grade stamp of an agency certified by FPS.

B. Lumber Standard: Comply with US Product Standard PS20 for each indicated use, including moisture content and actual sizes related to indicated nominal sizes.

C. Plywood Standard: Comply with PS1 (ANSI A199.1).

D. Certified Wood Products: Wood products to be from forests certified “well-managed” by an agency accredited by Forest Stewardship Council (FSC) including SmartWood Program and Forest Conservation Program.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Requirements: Provide miscellaneous wood blocking and plywood, including blocking for roofing system and related flashing.

B. Regulatory Requirements: Comply with applicable code requirements for miscellaneous rough carpentry.

C. Blocking: Provide dimensional lumber graded in accordance with FPS Grading Rules; Construction Grade, Douglas Fir; minimum S-Dry.

D. Plywood: Provide minimum APA C-D exterior (CDX) plywood; stress rated where spanning between supporting members; fire retardant treated; minimum 3/4" thick unless otherwise indicated.

E. Plywood Panel Boards: Provide panel boards for electrical and communication panel boards; APA C-D plugged, interior type plywood with exterior glue, fire retardant treated; minimum 1/2" thick.

F. Nails, Spikes and Staples: Galvanized; size and type to suit application.

G. Bolts, Nuts, Washers, Lags, Pins and Screws: Medium carbon steel; galvanized; size and type to suit application.

H. Fasteners: Provide fasteners as required for complete, secure installation of miscellaneous rough carpentry.

1. Solid Masonry or Concrete: Expansion shield and lag bolt type.

2. Steel: Bolts or powder activated type.

2.2 FABRICATION

A. Wood Preservation: Treat lumber and plywood to comply with applicable requirements of American Wood Preservers Association and applicable codes.

1. Decay Resistance Treatment: Pressure treat wood in accordance with AWPA U1 using preservative chemicals acceptable to authorities having jurisdiction and containing no arsenic or chromium.

a. Treat wood members based on AWPA U1 Use Categories as appropriate to Project location and exposure.

b. Kiln-dry wood to a maximum moisture content of 19% after treatment with water-borne preservative.

2. Fire Retardant Treatment: Comply with AWPA standards for pressure impregnation with fire-retardant chemicals to achieve flame-spread rating of not more than 25 in accordance with ASTM E84 or UL Test 723.

a. Treat interior wood and plywood complying with applicable code requirements for Interior FRTW.

1) Exterior Type: Where indicated for exterior applications, provide fire treated wood passing ASTM D2898 rain test.

b. Provide UL label on each piece of fire-retardant wood and plywood.

c. Kiln-dry treated items to maximum moisture content of 19%.

3. Complete fabrication of treated items prior to treatment, wherever possible; if cut after treatment, coat cut surfaces with heavy brush coat of same chemical used for treatment.

4. Inspect each piece after drying and discard damaged and defective pieces.

PART 3 - EXECUTION

3.1 PLACEMENT

A. Place miscellaneous rough carpentry true to lines and levels.

B. Correlate location so attached work will comply with design requirements and be properly located.

C. Construct members of continuous pieces of longest possible lengths.

D. Fit carpentry work to other work; scribe and cope as required for accurate fit.

E. Shim with metal or slate for bearing on concrete and masonry.

F. Securely attach carpentry work to substrates by anchoring and fastening as required by recognized standards.

1. Provide washers under bolt heads and nuts in contact with wood.

G. Wood Blocking: Provide blocking of S4S lumber not less than 1-1/2" wide and of thickness required to provide adequate support or to properly locate attached material.

1. Provide attachment to other work; form to shapes shown.

2. Countersink bolts and nuts flush with surfaces.

3. Remove temporary blocking when no longer needed.

4. Anchor to formwork before concrete placement.

5. Build into masonry as work progresses, cutting to fit masonry unit size involved.

H. Plywood: Comply with recommendations of American Plywood Association (APA) for fabrication and installation of plywood work.

END OF SECTION

SECTION 06 20 00

FINISH CARPENTRY

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide finish carpentry with accessories as required for complete installation.
   1. Provide wood trim.

B. Related Sections:

   1. 07 31 10 Asphalt Shingle

1.2 REFERENCES

A. North American Architectural Woodwork Standards 3.1 (NAAWS).

1.3 ADMINISTRATIVE REQUIREMENTS

A. Coordination, Wood Jambs: Coordinate wood door jambs with Section 08 14 00 – Wood Doors for pre-hung wood doors.

1.4 SUBMITTALS

A. Product Data: Submit literature for manufactured items.

B. Shop Drawings: Indicate materials and wood species, component profiles, fastening, and joining details, finishes, and accessories.

C. Samples: Furnish samples of each type of finish carpentry.

D. Assurance Options: NAAWS certification and monitored compliance programs will not be required for finish carpentry.

E. Wood Product Certification: Furnish certification indicating wood products are from FSC “well-managed” forests.

1.5 QUALITY ASSURANCE

A. Sustainability Requirements: Comply with *CAL*Green requirements including those relative to finish material pollution control for adhesives, sealants, and caulks, and for composite wood products formaldehyde limitations.

B. Certified Wood Products: Wood products to be from forests certified “well-managed” by an agency accredited by Forest Stewardship Council (FSC).

1.6 DELIVERY, STORAGE, AND HANDLING

A. Do not deliver materials until site conditions are adequate to receive work; protect items from weather while in transit.

B. Store materials indoors, in ventilated areas with constant but minimum temperature of 60-degrees F and maximum relative humidity of 25% to 55%.

C. Do not begin installation of finish carpentry until space is fully enclosed and mechanical systems are fully operational.

1. Maintain interior installation areas at 70-degrees F and 50% to 55% relative humidity.

D. Immediately remove from site materials with visible mold and materials with mildew.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Description: Provide finish carpentry systems specified complying with North American Architectural Woodwork Standards (NAAWS) and including accessories as required for complete installation.

B. Opaque Painted Exterior Wood Trim and Jambs:

1. Quality: NAAWS/Custom Grade.

2. Wood: Clear Western Red Cedar.

3. Wood: Clear Douglas Fir.

4. Cut: Mixed Grain.

5. Texture: Surfaced.

6. Texture: Rough Sawn.

2.1 FABRICATION

A. Fabricate finish carpentry items in accordance with specified quality standard.

B. Use exposed fastening devices or nails only when approved and unavoidable; arrange neatly.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Field Measurements: Take field measurements prior to preparation of shop drawings and fabrication where possible; do not delay job progress, allow for trimming and fitting.

B. Verify surfaces are ready to receive work and field measurements are as shown on shop drawings.

1. Beginning installation signifies acceptance of conditions.

C. Ensure mechanical and electrical items affecting work are properly placed, complete, and have been inspected by applicable authorities prior to commencement of installation.

D. Inspect each piece of finish carpentry and discard damaged and defective pieces.

3.2 INSTALLATION

A. Install work consistent with specified NAAWS quality grade, plumb, level, true and straight with no distortions; shim as required, using concealed shims.

1. Prime paint surfaces in contact with cementitious materials prior to installation; comply with requirements of Section 09 90 00 – Painting and Coating.

B. Secure work to blocking with countersunk, concealed fasteners and blind nailing as required for a complete installation.

C. Scribe and cut for accurate fit to other finished work.

D. Install finish carpentry in single, unjointed lengths for openings and for runs less than 10'-0".

1. For longer runs, use only one piece less than 10'-0" in any straight run; provide scarf joints between members.

2. Stagger joints in adjacent members.

3. Cope at returns and miter at corners.

E. Accessories: Install accessories in accordance with manufacturer's recommendations in locations indicated or as directed by Architect.

F. Acceptable Tolerances:

1. Variation from True Position: Maximum 1/16" at any position and maximum 1/8" in any 10'-0" length.

2. Adjoining Surfaces of Same Material: No variation permitted.

3. Offset with Abutting Materials: Maximum 1/32".

G. Preparation for Field Finishing:

1. Sand work smooth and set exposed nails and screws.

2. Apply wood filler in exposed nail and screw indentations and leave ready to receive site-applied finishes.

3. Seal concealed and semi-concealed surfaces; brush apply only, using primer consistent with finish coats specified under Section 09 90 00 – Painting and Coating.

END OF SECTION

SECTION 07 28 00

WEATHER BARRIER/UNDERLAYMENT

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide weather barrier/underlayment air and water barrier systems for siding, sloped roofing, flashing and sheet metal, and penetrations with accessories as required for complete watertight installation.

1. Wall Underlayment: Provide No. 15 building paper underlayment and flashing for wall applications, with related concealed metal flashings and accessories as required for complete watertight installation.

2. Wall Underlayment: Provide two layers Grade D building paper underlayment and flashing for wall applications, with related concealed metal flashings and accessories as required for complete watertight installation.

3. Wall Underlayment: Provide vapor permeable fluid applied underlayment and flashing for exterior wall applications, with related concealed metal flashings and accessories as required for complete airtight and watertight installation.

4. Wall Underlayment: Provide vapor permeable self-adhering sheet underlayment and flashing for exterior wall applications, with related concealed metal flashings and accessories as required for complete airtight and watertight installation.

5. Rainscreen Wall Underlayment: Provide combined underlayment and rainscreen system with protection from ultra-violet exposure with accessories as required for complete airtight and watertight installation.

6. Rainscreen Cover: Provide separate material over wall underlayment system designed to increase flow of water back to exterior of wall assembly and, where necessary to protect underlayment from ultra-violet exposure through open joints.

7. Sloped Roofing Underlayment: Provide self-adhering sheet membrane underlayment at sloped roofing systems, with accessories as required for complete watertight installation.

8. Flashings and Sheet Metal Underlayment: Provide self-adhering sheet membrane underlayment at flashings and sheet metal, with accessories as required for complete watertight installation.

9. Self-Adhering Sheet Membrane (SASM) Flashing at Penetrations: Provide SASM flashing for around penetrations through building paper including windows and doors, with accessories as required for complete watertight installation.

B. Related Sections:

1. Section 07 60 00: Exposed metal flashing.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Weather Barriers: Provide weather barrier/underlayment systems which, with other building components, comply with applicable code requirements for air barriers and water barriers.

1. Air Barriers: Air barriers shall be as defined by applicable Energy Code requirements and shall include standard exterior wall components and air seal joint sealants specified in Section 07 90 00 – Joint Sealants.

2. Water Barriers: Water barriers shall be as defined by applicable Building Code requirements and shall include vapor permeable systems with or without rainscreen barriers intended to extend amount of water drained to exterior.

    a. Rainscreen systems can also provide protection from ultra-violet degradation of underlayment where open joint systems are used.

3. Interior Vapor Retarders: Where specifications require foil faced vapor retarders as part of building thermal insulation system, intent is to prevent migration of spores from mold and mildew into interior building spaces.

    a. Intent is to provide air barrier and vapor retarder on interior surface while allowing vapor to move through exterior wall vapor permeable surfaces, while vapor permeable water barriers are maintained at exterior side of wall.

4. Self-Adhering Flexible Flashings: Intent of flexible flashings at window openings, door openings, and other wall penetrations is to ensure water cannot move from exterior surface past water barriers and into building.

B. Pre-Installation Meeting: Convene one week prior to commencing work; require attendance of parties directly affecting underlayment.

1. Review procedures and coordination required with related work.

1.3 SUBMITTALS

A. Product Data: Furnish manufacturer’s literature for each type of underlayment.

B. Samples: Furnish samples of each material.

1.4 QUALITY ASSURANCE

A. Sustainability Requirements: Comply with *CAL*Green requirements including those relative to finish material pollution control for adhesives.

1.5 WARRANTY

A. Extended Correction Period: Provide for correcting failure of system to resist damage from anticipated sources including damage from water penetration. Repair system and pay for or replace damaged materials and surfaces.

1. Period: Two years.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Description: Provide weather barrier/underlayment air and water barrier systems for siding, sloped roofing, flashing and sheet metal, and penetrations with accessories.

B. Regulatory Requirements: Provide materials conforming to applicable air quality management district limitations on volatile organic compound (VOC) emissions.

C. Regulatory Requirements: Provide materials with minimum volatile organic compound (VOC) emissions available.

D. Wall Underlay: Unperforated asphalt saturated organic felt, conforming to ASTM D226, Type I, and ASTM D4869 commonly referred to as No. 15.

E. Wall Underlayment: Provide two layers Grade D water-vapor permeable kraft building paper conforming to Fed Spec UU-B-790a, Type I, Style 2, Grade D with 60-minute water resistance rather than 10 minutes.

1. Manufacturers:

a. Fortifiber Building Systems Group.
b. Davis Wire.
c. Hal Industries.
d. Substitutions: Refer to Section 01 25 00.

F. Wall Underlay: Provide vapor permeable fluid applied air and water barrier underlayment system for complete watertight installation as recommended by manufacturer for substrates and applications indicated.

1. Manufacturers:

a. GCP Applied Technologies (Grace)/Perm-A-Barrier VPO Fluid Applied.
b. Henry Company/Air-Bloc VP.
c. Carlisle Corp./CCW LiquiFiber-W.
d. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane types as recommended by system manufacturers for each type of application.

G. Wall Underlay: Provide vapor permeable water barrier type self-adhering sheet underlayment system for complete watertight installation as recommended by manufacturer for substrates and applications indicated.

1. Manufacturers:

a. GCP Applied Technologies (Grace)/Perm-A-Barrier VPS Self-Adhering Sheet.
b. Henry Company/Blueskin SA and SA HT Air and Weather Barrier.
c. Carlisle Corp./CCW 705 MSDS.
d. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane types as recommended by system manufacturers for each type of application.

H. Wall Underlay, Rainscreen, and UV Protection for Open Joint Exterior Cladding: Provide complete vapor permeable self-adhering water barrier, rainscreen, and UV protection system.

1. Manufacturers:

a. VaproShield USA/VaproShield System.
b. DuPont/Tyvek UV Façade System.
c. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane, rainscreen, UV joint protection, and accessory materials as recommended by system manufacturer.

I. Rainscreen Drainage System: Provide system that allows moisture entering wall from exterior and condensation within wall to travel downward and exit wall area; nominal 1/8” to 1/4” thick.

1. Manufacturers:

a. Benjamin Obdyke/Slicker Rainscreen.
b. Masonry Technology Inc./Sure Cavity Rainscreen Drainage Plane.
c. Spycor Building Products/Mortairvent Rainscreen.
d. Archovations Inc./Rainscreen Drainage Mat.
e. Substitutions: Refer to Section 01 25 00.

2. Insect Protection: Where not integral within rainscreen drainage system include material designed to prevent insect intrusion into wall through rainscreen drainage system such as Spycor Building Products/Delta Bug Screen.

J. Sloped Roofing Underlayment: Self-adhering rubberized sheet membrane with primers and seam sealers as required for complete watertight installation; type as recommended by manufacturer for substrate and for applications indicated.

1. Manufacturers:

a. GCP Applied Technologies (Grace).
b. Henry Company.
c. Carlisle Corp.
d. Protecto Wrap Company.
e. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane types as recommended by system manufacturers for each type of application.

K. High Temperature Metal Roofing Underlayment: Self-adhering sheet membrane with primers and seam sealers as required for complete watertight installation; type as recommended by manufacturer for substrate and for applications indicated.

1. Manufacturers:

a. GCP Applied Technologies (Grace).
b. Henry Company.
c. Substitutions: Refer to Section 01 25 00.

L. Sloped Roofing Underlay: Provide two layers unperforated asphalt saturated organic felt, conforming to ASTM D4869, commonly referred to as No. 30 saturated roof felt.

M. Sheet Metal and Flashing Underlayment: Self-adhering rubberized sheet membrane with primers and seam sealers as required for complete watertight installation; type as recommended by manufacturer for substrate and for applications indicated.

1. Manufacturers:

a. GCP Applied Technologies (Grace).
b. Henry Company.
c. Carlisle Corp.
d. Protecto Wrap Company.
e. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane types as recommended by system manufacturers for each type of application.

N. Self-Adhering Sheet Membrane (SASM) Flashing at Penetrations: SASM with primers and seam sealers as required for complete watertight installation; type as recommended by manufacturer for substrate and for applications indicated.

1. Manufacturers:

a. GCP Applied Techologies (Grace).
b. Henry Company.
c. Carlisle Corp.
d. Protecto Wrap Company.
e. Substitutions: Refer to Section 01 25 00.

2. Provide specific membrane types as recommended by system manufacturers for each type of application.

O. Concealed Metal Flashings Integral with Underlayment: Minimum 26 gage thick steel with minimum 0.90 oz/sf galvanized coating; ASTM A653.

1. Fasteners: Standard round wire type of hot dipped galvanized steel; minimum 19/64" head diameter and 0.104" shank diameter; minimum 7/8" long.

P. Bituminous Paint: Acid and alkali resistant type; black color.

Q. Accessories: Provide as recommended by underlayment manufacturers for specific applications.

1. Plastic Cement: Cutback asphaltic type with mineral fiber components, for sealing and coating flashings; free of toxic solvents and free of asbestos. Capable of setting within 24 hours at temperatures of approximately 75 degrees F and 50% R.H.

2.2 FLASHING FABRICATION

A. Fabricate metal flashings as recommended by Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "Sheet Metal Manual".

B. Form flashings to drain water to exterior at roofing and siding construction for penetrations, sill and header flashings.

C. Form sections square, true and accurate to size, in maximum possible lengths and free from distortion and other defects detrimental to appearance or performance.

D. Hem exposed edges of metal flashings minimum 1/4" on underside.

E. Apply bituminous paint on concealed surfaces of metal flashings.

PART 3 - EXECUTION

3.1 PREPARATION

A. Install underlayment over surfaces that are dry, free of ridges, warps and voids that could damage paper.

B. Coordinate installation with installation of components and items projecting through underlayment.

3.2 FLASHINGS INSTALLATION

A. Install flashings as recommended by Sheet Metal and Air Conditioning Contractors National Association (SMACNA) "Sheet Metal Manual".

B. Weatherlap joints minimum 2" and seal with plastic cement; secure in place.

C. Fastenings: Concealed in completed installation.

3.3 UNDERLAYMENT INSTALLATION

A. Install weather barrier/underlayment in accordance with installation instructions and recommendations of each manufacturer and of manufacturers of products to cover weather barrier/underlayment; comply with applicable code requirements.

1. Wall Underlayment: Provide one-layer No. 15 building paper underlayment.

2. Wall Underlayment: Provide two-layers Grade D building paper underlayment.

3. Wall Underlayment: Provide fluid applied underlayment.

4. Wall Underlayment: Provide one-layer sheet membrane underlayment.

5. Sloped Roofing: Provide one-layer sheet membrane underlayment.

6. Flashing and Sheet Metal: Provide one-layer sheet membrane underlayment.

7. Penetrations: Apply one-layer of self-adhering sheet membrane extending minimum 18" from penetrations, including windows and doors; start at bottom of penetration and weatherlap joints.

    a. Apply top layer over metal flashing to direct water to exterior.

8. Weatherlap joints as recommended by system manufacturer.

    a. Weatherlap joints not less than 2” at building paper.

9. Secure underlayment in place, stagger joints between sheet membrane layers; lap ends minimum 6"; stagger end joints.

B. Building Paper Underlayment: Prime substrates and roll sheet membrane underlayment smooth, firmly and completely to surfaces indicated, with no fish-mouths or bunches of material.

    1. Apply plastic cement to substrate prior to application of underlayment starter strips to prevent capillary movement of water back up beneath underlayment.

    2. Weatherlap items projecting through building paper underlayment and seal with plastic cement.

C. Sheet Membranes: Weatherlap items projecting through sheet membrane underlayment and seal with sealer recommended by sheet membrane underlayment manufacturer.

END OF SECTION

SECTION 07 31 10

ASPHALT SHINGLES

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide asphalt/fiber glass composition shingle roofing system with accessories as required for complete, weathertight installation.

B. Related Sections:

1. Section 07 28 00: Building envelope underlayment.
2. Section 07 60 00: Flashing and sheet metal.

1.2 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Convene pre-construction meeting one week prior to roofing work to coordinate roofing with other trades; require attendance of parties directly affecting roofing work.

1. Review installation and coordination required with related work.

1.3 SUBMITTALS

A. Product Data: Submit manufacturer's literature for roofing and accessories.

B. Samples: Submit samples of composition shingles.

1.4 QUALITY ASSURANCE

1.5 WARRANTY

A. Extended Correction Period: Provide for correcting failure of system to resist damage from anticipated sources including damage from wind and water penetration. Repair system and pay for or replace damaged materials and surfaces.

1. Period: Two years unless three years required by applicable authorities.

B. Manufacturer’s Warranty: Submit manufacturer’s warranty including special manufacturer services as required for manufacturer’s warranty.

1. Period: 20 years unless longer period required by applicable authorities.

2. Manufacturer's warranty shall not detract from requirements of extended correction period nor from Owner’s rights under implied and expressed warranties regardless of wording of manufacturer’s warranty.

PART 2 - PRODUCTS

2.1 SYSTEMS MANUFACTURERS

A. PABCO Roofing Products. Basis of Design.

B. GAF-Elk Corporation.

C. Owens-Corning Fiberglas Corp.

D. CertainTeed.

E. Substitutions: Refer to Section 01 25 00.

2.2 ROOFING MATERIALS

A. System Description: Provide asphalt/fiber glass composition shingle roofing system with accessories.

B. Regulatory Requirements:

1. Cool Roof System: Comply with California Building Standards Code requirements for “Cool Roof” system including three year aged solar reflectance value requirements.

   a. Label: System to have Cool Roof Rating Council (CRRC) label.

2. Fire Resistance: System to be Class A listed by Underwriters Laboratories for roof materials covering.

3. Wind Resistance: Provide system capable of resisting anticipated wind uplift based on slopes indicated.

   a. Provide system with UL "Wind Resistant" label.

C. Shingles: Fiberglass and asphalt composition roofing shingles; conforming to ASTM D3462, and ASTM D3018, Type 1; shingles bearing UL Class A fire and "Wind Resistant" labels.

1. Type: Standard three tab shingles; minimum weight 215 lbs/square.

2. Premier ‘Radiance’ Solar Reflective Shingles.

3. Color: As selected by Architect.

D. Underlayment: Provided in Section 07 28 00 – Weather Envelope Underlayment.

E. Nails: Standard barbed shank round wire shingle type of hot dipped zinc coated steel; minimum 3/8" head diameter, 11 or 12 gage; minimum 1-1/4" long.

F. Accessories: Provide as indicated and as required for complete weathertight installation.

1. Ridge Vents: Provide low profile continuous ridge vents suitable for application indicated; type covered with roof shingles; type as approved by Architect.

a. Manufacturer-DCI Tapered Under Shingle Attic Smart Vent

G. Plastic Cement: Cutback asphaltic type with no asbestos content, for sealing and coating flashings in buildings; free of toxic solvents and free of asbestos.

1. Provide material capable of setting within 24 hours at temperatures of approximately 75 degrees F and 50 percent relative humidity.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Inspect underlayment application; install composition roofing over dry surfaces free of ridges, warps and voids.

1. Take special care not to damage underlayment beyond that required to secure roofing to substrate.

B. Coordinate installation of roofing with installation of roof-mounted components, flashings and items projecting through roofing.

C. Ensure roof openings are properly sized and located prior to roofing installation.

3.2 INSTALLATION

A. Install roofing shingles in accordance with manufacturer's recommendations and installation instructions, as required to meet specified fire and wind requirements.

1. Coursing Pattern: As approved.

2. Conform to requirements of applicable codes.

3. Ridge Vents: Comply with manufacturer recommendations and installation instructions.

B. Conceal fastenings in completed installation of roofing.

C. Flash and seal items projecting through or mounted on roofing with plastic cement.

D. Provide complete weathertight roof installation.

END OF SECTION

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SECTION 07 60 00

FLASHING AND SHEET METAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide metal flashings and sheet metal including accessories as required for complete weathertight installation.

1. Flashing and sheet metal includes copings, fascias, scuppers, gutters, downspouts, rainwater leaders, reglets, and similar fabricated components as applicable to Project.

2. Provide concealed sealants used in conjunction with installation of metal flashing and sheet metal.

3. Provide miscellaneous sheet metal flashing and reglets not provided by other trades or suppliers.

    a. Where reglets are to be installed in conjunction with other work, provide in adequate time for installation.

    b. Where reglets are to be surface applied, provide continuous gasket between reglet and surface.

4. Provide precast concrete splash blocks.

B. Related Sections:

1. Section 06 10 50: Miscellaneous rough carpentry.
2. Section 06 20 00: Wood louvers.
3. Section 07 28 00: Concealed flashing at weather barrier/underlayment.
4. Section 07 41 10: Flashing and sheet metal integral with metal roofing.
5. Section 07 95 00: Expansion joint cover assemblies at roofing.
6. Section 08 91 00: Louvers.

1.2 REFERENCES

A. Sheet Metal and Air Conditioning Contractors National Association (SMACNA): Architectural Sheet Metal Manual.

1.3 SUBMITTALS

A. Product Data: Furnish literature for manufactured products.

B. Shop Drawings: Clearly indicate dimensioning, layout, general construction details including closures, flashings, locations and types of sealants, anchorages, and method of anchorage.

C. Samples: Furnish samples of typical metal flashing fabrication indicating standard soldered joints and edge conditions.

1.4 QUALITY ASSURANCE

A. Sustainability Requirements:

1) two years' successful experience with CAL/Green requirements.

2. *CAL*Green Requirements: Refer to Section 01 35 15 – *CAL*Green Environmental Requirements and comply with applicable *CAL*Green Checklist indicating requirements applicable to Project.

1.5 DELIVERY, STORAGE AND HANDLING

A. Provide strippable film protective covering on shop finished flashing materials to protect materials through shipping, fabrication and installation.

1.6 WARRANTY

A. Extended Correction Period: Provide for correcting failure of system to resist damage from anticipated sources including damage from wind and water penetration. Repair system and pay for or replace damaged materials and surfaces.

1. Period: Two years.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Description: Provide flashing and sheet metal including reglets and accessories as required for complete weathertight installation.

B. Design Criteria: Allow for movement of components without causing buckling, failure of joint seals, undue stress on fasteners or other detrimental effects, when subject to 100-year seasonal temperature ranges.

C. Flashing and Sheet Metal:

1. Galvanized Steel: ASTM A924 and A653 G90 galvanized steel; minimum 24-gage.

a. Mill phosphatized where indicated to be field painted.

b. Location (Concealed): Where indicated, if not otherwise indicated, provide where flashing will not be exposed to view from exterior of building and where not exposed to view from spaces within building.

2. Copper Flashing: ASTM B370, cold rolled copper except where soft temper copper is required for forming; minimum 16-oz. (0.0216" thick).

    a. Location (Exposed): Where indicated, if not otherwise indicated, provide where flashing will be exposed to view from exterior of building, and where exposed to view from spaces within building.

3. Shop Finished Galvanized Steel Flashing and Sheet Metal: ASTM A924 and A653 G90 galvanized steel; minimum 24-gage; with factory applied fluoropolymer coating based on Kynar 500 or Hylar 5000.

    a. Manufacturers:

        1) Ryerson Building Products (800.328.7800)/ColorKlad.
        2) Metal Sales Manuf. Corp.(800.406.7387)/PVDF (Kynar 500).
        3) K&M Sheet Metal (888.567.7778)/Kynar Steel.
        4) Substitutions: Refer to Section 01 25 00.

    b. Location (Exposed): Where indicated, if not otherwise indicated, provide where flashing will be exposed to view from exterior of building, and where exposed to view from spaces within building.

    c. Colors: Where color is not indicated on Drawings or Finish Schedule, provide custom color as directed by Architect.

    d. Touch-up Paint for Prefinished Sheet Metal: Type recommended by fluoropolymer manufacturer for field touch-up.

4. Stainless Steel Flashing and Sheet Metal: Stainless steel, ASTM A666, Type 304, soft annealed, 2B finish, minimum 26-gage.

    a. Location (Exposed): Where indicated, if not otherwise indicated, provide where flashing will be exposed to view from exterior of building, and where exposed to view from spaces within building.

5. Aluminum and Zinc Alloy Coated Steel Flashing and Sheet Metal: Aluminum-zinc coated steel, ASTM A792, AZ55 coating; minimum 24 gage steel; coating to contain 55% aluminum, 43.5% zinc, and 1.5% silicon, or 55% aluminum and 45% zinc.

    a. Trade Names: Galvalume and Zincalume.

    b. Location (Exposed): Where indicated, if not otherwise indicated, provide where flashing will be exposed to view from exterior of building, and where exposed to view from spaces within building.

6. Zinc Alloy: Zinc/copper/titanium alloy conforming to DIN EN 988; not less than 0.025” thick.

    a. Manufacturers:

        1) Rheinzink America, Inc./Rheinzink.
        2) VM Building Solutions/VM Quartz Zinc.

3) Substitutions: Refer to Section 01 25 00.

b. Color: As selected by Architect from manufacturer's full range of colors including bright, bluegray, and graphite gray.

7. Mill Finished Aluminum: ASTM B209, 3003-H14, minimum thickness 0.040" unless otherwise indicated.

8. Anodized Aluminum Sheet: ASTM B209, 5005-H14, with minimum thickness of 0.050" unless otherwise indicated.

a. Clear Anodized Coating: AAMA 607.1 clear anodized, Architectural Class I 0.018mm or thicker coating.

b. Color Anodized Coating: AAMA 608.1, Architectural Class I 0.018mm or thicker coating; color as indicated on Drawings.

9. Extruded Aluminum: ASTM B221, alloy 6063-T52, with minimum thickness of primary legs 0.080" unless otherwise indicated; clear anodized unless otherwise indicated.

10. Prefinished High-Performance Coated Aluminum: Manufacturer's standard two coat thermocured fluoropolymer system containing not less than 70-percent polyvinylidene fluoride resin by weight; AAMA 2605 and AA-C12C42R1x.

a. Manufacturers:

1) Ryerson Building Products (800.328.7800)/AlumaKlad.
2) Merchant & Evans Industries, Inc.(800.257.6215)/Custom.
3) Substitutions: Refer to Section 01 25 00.

b. Colors: Where color is not indicated on Drawings or Finish Schedule, provide custom color as directed by Architect.

c. Touch-up Paint for Prefinished Sheet Metal: Type recommended by fluoropolymer manufacturer for field touch-up.

11. Lead Flashing: ASTM B749, type L51121, copper-bearing sheet lead, minimum four pound per square foot (1/16" thick) lead with 6% to 7% antimony content.

12. Accessories: Provide strainers, outlet tubes, screens, baffles, hangers and gutter ends as required for a complete system and complying with SMACNA Manual.

13. Provide heavier gage metal where recommended by SMACNA Manual for size of component.

D. Manufactured Reglets: Snap-on type, for two-piece flashing; metal to match flashing and sheet metal.

1. Manufacturers:

a. Fry Reglet Corp./Springlok System.

b. W.P. Hickman Co./The Leading-Edge Drive Lock System.
c. Substitutions: Refer to Section 01 25 00.

E. Rain Chains: Galvanized steel linked chain with links consisting of nominal 1/4" wire formed into nominal 1-1/4" welded links; chain size as required to allow secure installation with chain fixed at gutter and as indicated at grade.

F. Solder and Fasteners: As recommended by SMACNA and complying with applicable codes and regulations; hot dipped galvanized minimum coating comparable to G90.

G. Concealed Sealant: Butyl type for use in conjunction with sheet metal; non-staining; non-corrosive; non-shrinking and non-sagging; ultra-violet and ozone resistant for exterior concealed applications.

H. Bituminous Paint: Acid and alkali resistant type; black color; asbestos free.

I. Plastic Cement: Cutback asphaltic type; asbestos free.

J. Sealing Compound: Type recommended by roofing manufacturer; asbestos free.

K. Gaskets: Type suitable for use in conjunction with sheet metal; non-staining, non-corrosive, non-shrinking, non-sagging, ultra-violet resistant, and ozone resistant; for exterior concealed applications.

1. Manufacturers:

a. Emseal USA, Inc./Emseal MST Multi-Use Sealant Tape.
b. Substitutions: Refer to Section 01 25 00.

L. Splash Blocks: Precast concrete of size and profile as approved by Architect; minimum 2000 psi at 28 days with minimum 5% air entrainment.

2.2 FABRICATION

A. Fabricate sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.

B. Form sections square, true and accurate to size, free from distortion and other defects detrimental to appearance or performance.

1. Fabricate corners and intersections in shop with solder joints; watertight fabrication.

C. Form sections in maximum 10'-0" lengths; make allowance for expansion at joints.

D. Hem exposed edges on underside 1/2".

E. Back-paint flashings with heavy bodied bituminous paint where in contact with cementitious materials or dissimilar metals.

F. Form pitch pans watertight, with minimum 4" upstand and 4" flanges; form pans minimum 6" wider than item passing through roof membrane.

G. Form umbrella flashings with minimum 2" overhang, to shed water away from pitch pans.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Install metal flashing and sheet metal in accordance with SMACNA Architectural Sheet Metal Manual.

1. Install tight in place, with corners square, surfaces true and straight in planes, and lines accurate to profiles as indicated on Drawings.

2. Lap joints in direction of water flow.

3. Hold downspouts in position, clear of wall, by hangers spaced not more than 10'-0" on center; securely fasten hangers to wall without exposed damage to wall surface.

B. Exercise care when cutting materials on site, to ensure cuttings do not remain on finished surfaces.

C. Provide expansion joints concealed within system.

D. Use concealed fasteners, continuous cleat type, except where specifically approved by Architect.

1. Exposed fasteners may be used, where clearly indicated on shop drawings and approved by Architect, at areas not exposed at exterior walls nor in sight of interior spaces.

E. Apply sealing compound at junction of metal flashing and felt flashing.

F. Lock seams and end joints; fit flashing tight in place; make corners square, surfaces true and straight in planes, and lines accurate to profiles.

G. Counter-flash mechanical and electrical items projecting through roof membrane.

H. Install sealants where required to prevent direct weather penetration.

1. Install continuous gasket behind surface applied reglets.

I. Completed installation shall be free of rattles, noise due to thermal and air movement, and wind whistles.

J. Install pitch pans and fill with plastic cement.

K. Install umbrella flashing with draw band collars with sheet metal sealant between penetrating item and flashing; use wood blocking at angle type penetrations and cover blocking with sealant.

L. Install splash blocks at locations to interrupt fall of water and direct water flow as indicated on Drawings.

3.2 CLEANING

A. Remove protective coating from shop finished sheet metal when no longer required to protect roofing and flashing from construction.

B. Touch-up scratched and damaged finish to match new; remove and replace sheet metal units that cannot be repaired to look identical to adjacent sheet metal when viewed from 15'-0" away.

END OF SECTION

SECTION 07 90 00

JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide joint sealants, for interior and exterior joints not specified elsewhere, with backing rods and accessories as required for complete installation.

1. Joint sealants include joint sealers and calking as indicated.

B. Related Sections:

1. Section 07 60 00: Flashing and sheet metal concealed sealants.

1.2 SUBMITTALS

A. Product Data: Furnish manufacturer's descriptive literature.

B. Samples: Furnish samples of each type of exposed joint sealer in required colors.

C. Certifications:

1. Furnish manufacturer's certification joint sealers comply with Contract Documents and are suitable for Project applications.

2. Furnish certification indicating installers are trained in proper use of specified products, qualified, and familiar with proper installation techniques.

1.3 QUALITY ASSURANCE

A. Sustainability Requirements: Comply with *CAL*Green requirements including those relative to finish material pollution control for adhesives, sealants, and caulks.

1. Provide joint sealants as required by applicable codes and regulations to fill joints and openings in building envelope separating conditioned space from unconditioned space.

B. Installer Qualifications: Firm with minimum five years successful experience on projects of similar type and size, using specified products.

C. Installers shall be familiar with proper application procedures to ensure maximum joint sealer expansion and contraction capabilities.

D. Mock-Up: Provide exterior joint sealers where required for mock-ups of other systems.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to site in original unopened containers or bundles with labels indicating manufacturer, product name and designation, color, expiration period for use, cure time, and mixing instructions.

1.5 SITE CONDITIONS

A. Do not proceed with installation of joint sealers under unfavorable weather conditions.

B. Install elastomeric sealants when temperature is in lower third of temperature range recommended by manufacturer.

1.6 WARRANTY

A. Extended Correction Period: Extend correction period to two years.

1. Repair or replace joint sealers which fail to perform as intended, because of leaking, crumbling, hardening, shrinkage, bleeding, sagging, staining, loss of adhesion, and loss of cohesion.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Description: Provide joint sealants with backing rods and accessories.

B. Performance Requirements:

1. Select materials for compatibility with joint surfaces and indicated exposures.

2. Where not indicated, select modulus of elasticity and hardness or grade recommended by manufacturer for each application indicated.

3. Comply with applicable limitations on volatile organic compound (VOC) emissions.

C. Regulatory Requirements: Comply with applicable regulatory requirements regarding limitations on volatile organic compound (VOC) emissions limitations.

D. Elastomeric Sealants:

1. Single Component Low Modulus Silicone Sealant: ASTM C920 Type S, Class 25, Grade NS; minimum 50% expansion and compaction capability.

a. Provide at exterior locations not exposed to traffic.

b. Manufacturers:

1) GE (Momentive Performance Materials)/Silpruf, Silglaz or GESIL.
2) Dow Corning Corp./790 or 795.
3) Pecora Corp./864 Architectural Silicone.
4) Tremco/Spectrem 3.
5) Substitutions: Refer to Section 01 25 00.

2. Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade NS, Class 25, non-sag; minimum 25% expansion and compaction capability.

    a. Provide at exterior locations not exposed to traffic.

    b. Manufacturers:

        1) Pecora Corp./Dynatrol II.
        2) Tremco/Dymeric 240.
        3) BASF/MasterSEal NP 2.
        4) Substitutions: Refer to Section 01 25 00.

3. Single Component Low Modulus Sealant: ASTM C920 Type S, Class 35, Grade NS; minimum 50% expansion and compaction capability.

    a. Provide at exterior locations not exposed to traffic.

    b. Manufacturers:

        1) Fortifiber Building Systems Group/Moistop Sealant.
        2) Sika Group/SikaFlex 1A+.
        3) Substitutions: Refer to Section 01 25 00.

4. Multi-Component Polyurethane Sealant: ASTM C920, Type M, Grade P, Class 25, self-leveling; minimum 25% expansion and compaction capability.

    a. Provide at traffic bearing locations.

    b. Manufacturers:

        1) Pecora Corp./Urexpan NR-200, or Dynatrol II-SG.
        2) Tremco/THC 900-901, or Vulkem 445 SSL.
        3) BASF/MasterSeal SL 2
        4) Substitutions: Refer to Section 01 25 00.

5. Mildew-Resistant Silicone Rubber Sealant: ASTM C920, Type S, Grade NS, Class 25, compounded with fungicide, specifically for mildew resistance and recommended for interior joints in wet areas.

    a. Provide at interior joints in wet areas.

    b. Manufacturers:

        1) GE (Momentive Performance Materials)/SCS 1702 Sanitary Sealant.
        2) Dow Corning Corp./786 Bathtub Caulk.
        3) Pecora Corp./898 Sanitary Mildew Resistant Sealant.
        4) Tremco/Tremsil 200.
        5) Substitutions: Refer to Section 01 25 00.

E. Non-Elastomeric Sealants:

1. Acrylic-Emulsion Sealant: ASTM C834 acrylic or latex-rubber-modified acrylic sealant, permanently flexible, non-staining and non-bleeding; recommended for general interior exposure; compatible with paints specified in Section 09 90 00.

    a. Provide at general interior applications.

    b. Manufacturers:

        1) Pecora Corp./AC-20.
        2) Tremco/Tremflex 834.
        3) Substitutions: Refer to Section 01 25 00.

2. Air Seals: Provide non-staining and non-bleeding sealers, calks, or foams appropriate to specific applications for filling openings between conditioned and unconditioned spaces.

    a. Type: As recommended by manufacturer for each specific application; compatible with adjacent materials.

    b. Manufacturers:

        1) Dow/Great Stuff.
        2) Owens Corning/EnergyComplete Air Sealant.
        3) Hilti/Foam Filler CF 812.
        4) Substitutions: Refer to Section 01 25 00.

    c. Pest Control Mesh: Openings subject to pest infiltration to have 304 stainless steel wool, material stuffed in joint before application of air seals using methods to ensure blocking of gap from pests.

    d. Exception: Annular spaces around pipes, electric cables, conduits and other openings in exterior walls shall be protected against passage of rodents by closing with cementitious grout.

        1) Cementitious Grout: ASTM C1107 non-shrink, non-metallic, pre-mixed, factory-packaged, non-staining, non-corrosive; type specifically recommended by manufacturer as applicable to job condition.

F. Miscellaneous Materials:

1. Primers/Sealers: Non-staining types recommended by joint sealer manufacturer for joint surfaces to be primed or sealed.

2. Joint Cleaners: Non-corrosive types recommended by joint sealer manufacturer; compatible with joint forming materials.

3. Bond Breaker Tape: Polyethylene tape as recommended by joint sealer manufacturer where bond to substrate or joint filler must be avoided for proper performance of joint sealer.

4. Sealant Backer Rod: Compressible polyethylene foam rod or other flexible, permanent, durable non-absorptive material as recommended by joint sealer manufacturer for compatibility with joint sealer.

    a. Oversize backer rod minimum 30% to 50% of joint opening.

G. Colors: As indicated, as selected by Architect from manufacturer's full range of colors where not indicated.

1. Colors: Where color is not indicated on Drawings or Finish Schedule, provide custom color as directed by Architect.

PART 3 - EXECUTION

3.1 PREPARATION

A. Prepare joint surfaces in accordance with ASTM C1193 and as recommended by joint sealer manufacturer.

B. Clean joint surfaces immediately before installation of joint sealer; remove dirt, insecure materials, moisture and other substances which could interfere with bond of joint sealer.

C. Prime or seal joint surfaces where recommended by joint sealer manufacturer; do not allow primer/sealer to spill or migrate onto adjoining surfaces.

D. Ensure protective coatings on surfaces in contact with joint sealers have been completely stripped.

3.2 INSTALLATION

A. Comply with manufacturer's printed instructions and ASTM C1193, except where more stringent requirements are shown or specified.

B. Pest Control: Install stainless steel wool prior to application of backer rods and bond breakers at air seal and as required to ensure complete pest blockage at joints where pest intrusion is a potential.

C. Set sealant backer rods at proper depth or position in joint to coordinate with other work, including installation of bond breakers and sealant; do not leave voids or gaps between ends of backer rods.

1. Do not stretch, twist, puncture or tear backer rods.

D. Install bond breaker tape as required to avoid three-sided bond of sealant to substrate and where required by manufacturer's recommendations to ensure joint sealers will perform properly.

E. Size materials to achieve required width/depth ratios.

F. Employ installation techniques that will ensure joint sealers are deposited in uniform, continuous ribbons without gaps or air pockets, with complete "wetting" of bond surfaces equally on opposite sides.

G. Joint Configuration: Fill sealant joint to a slightly concave surface, slightly below adjoining surfaces, unless otherwise indicated.

H. Where horizontal joints are between a horizontal surface and vertical surface, fill joint to form a slight cove, so that joint will not trap moisture or dirt.

I. Install joint sealers to depths recommended by joint sealer manufacturer but within the following general limitations, measured at center (thin) section of bead.

1. Horizontal Joints: 75% width with minimum depth of 3/8".
2. Elastomeric Joints: 50% width with minimum depth of 1/4".
3. Non-Elastomeric Joints: 75% to 125% of joint width.

J. Spillage: Do not allow sealants or compounds to overflow or spill onto adjoining surfaces, or to migrate into voids of adjoining surfaces.

1. Clean adjoining surfaces by whatever means may be necessary to eliminate evidence of spillage.

K. Cure joint sealers in compliance with manufacturer's instructions and recommendations to obtain high early bond strength, internal cohesive strength and surface durability.

L. Maintain finished joints free of embedded matter, ridges and sags.

END OF SECTION

SECTION 09 01 20

PLASTER PATCHING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Patch exterior Portland cement plaster to match existing.

2. Patch interior gypsum plaster to match existing.

3. Patch existing lath where deteriorated and where damaged during construction operations.

1.2 REFERENCES

A. ASTM C841: Installation of Interior Lathing and Furring.

B. ASTM C842: Application of Interior Gypsum Plaster.

C. ASTM C926: Application of Portland Cement Based Plaster.

D. ASTM C1063: Installation of Lathing and Furring For Portland Cement Plaster.

1.3 ADMINISTRATIVE REQUIREMENTS

A. Pre-Installation Meeting: Convene not less than one week prior to commencing work of this Section. Require attendance of those directly affecting work of this Section.

1. Review installation procedures and coordination required with related work.

1.4 SUBMITTALS

A. Product Data: Submit manufacturer's product specifications for each lathing material and accessory.

B. Mock-Up: Provide mock-up of each type of plaster patching.

1.5 PROJECT CONDITIONS

A. Take precautionary measures to ensure excessive temperature changes do not occur.

B. Cold-Weather Requirements: Do not apply plaster unless minimum ambient temperature of 50 degrees F has been and continues to be maintained for minimum 48 hours prior to application and until plaster is cured.

C. Hot-Weather Requirements: Protect plaster from uneven and excessive evaporation during hot, dry weather.

D. Interior Plaster: Provide heat and ventilation in interior areas where plaster work is being performed, so as to allow plaster to properly cure.

PART 2 - PRODUCTS

2.1 MATERIALS

A. System Description: Provide materials for patching existing plaster systems including lath and accessories which are deteriorated, and which are damaged by construction operations including plaster patching.

B. Regulatory Requirements: Where assemblies are fire rated, provide materials acceptable to applicable authorities for required fire ratings.

1. Provide materials required for systems listed by Underwriters Laboratory, Gypsum Association (GA) File No's in GA-600 Fire Resistance Design Manual, or other listing approved by applicable authorities.

C. Portland Cement Plaster: Provide either neat or ready-mixed (where applicable) materials, at Contractor's option, complying with ASTM C926.

1. Basecoat Materials:

a. Cement: Normal Type 1 or 1A Portland cement, ASTM C150.
b. Lime: Special finishing hydrated lime, Type S, ASTM C206.
c. Aggregate: Natural sand, conforming to ASTM C897 or C144.

2. Brown Coat Water Acrylic Admix: Acrylic latex admix specifically manufactured for use in Portland Cement Plaster applications and which will not detrimentally effect finish.

a. Manufacturers:

1) Larsen Products Corp./Acrylic Admix 101.
2) Thoro System Products, Inc./Acryl 60.
3) Chem-Masters Corp./Cretelox.
4) Substitutions: Refer to Section 01 25 00.

3. Finishing Materials: Same as basecoat with acrylic admix. Factory premix finish coat is acceptable.

a. Provide white cement from a single manufacturer and clear silica sand at applications indicated to have integral color.

4. Portland Cement Plaster Bonding Agents: ASTM C932 bonding agent as recommended by manufacturer for Portland cement exterior applications.

    a. Manufacturers:

        1) Larsen Product Corp./Weld-Crete.
        2) Thoro System Products, Inc./Thorobond.
        3) Chem-Masters Corp./Polyweld.
        4) Substitutions: Refer to Section 01 25 00.

D. Gypsum Plaster: Provide materials which result in surfaces matching adjacent existing surfaces, but no less than following.

1. Basecoat Materials: Provide either neat or ready-mixed (where applicable) materials, complying with ASTM C28.

    a. Cement: Provide either ready-mixed or neat gypsum plaster conforming to ASTM C28.

    b. Lime: Normal finishing hydrated lime, ASTM C6.

    c. Aggregate: Natural sand, conforming to ASTM C35; clean, washed, free from substances detrimental to plaster.

2. Finishing Materials:

    a. Cement: Keene's cement conforming to ASTM C61.

    b. Lime: Special finishing hydrated lime, Type S, ASTM C206.

    c. Aggregate: Clean white natural sand, conforming to ASTM C35; clean, washed, free from substances detrimental to plaster and capable of providing specified finish.

3. Gypsum Plaster Bonding Agent: ASTM C631 bonding agent as recommended by manufacturer for gypsum cement applications.

    a. Manufacturers:

        1) Larsen Product Corp./Plaster-Weld.
        2) H.B. Fuller/Ful-O-Mite BC-316.
        3) Substitutions: Refer to Section 01 25 00.

E. Molding Plaster: ASTM C59, plaster of Paris.

1. Moldings and Decorations: Replicate, repair and restore or move existing decorative moldings, applied panels, grooving and cast decorations.

2. Cast decorative elements from molds prepared from existing decorations; strip and clean existing decorations to produce clean, sharp molds.

F. Water: Clean, fresh and free from injurious amounts of oil, acid, alkali, salts, minerals, organic matter or other deleterious substances.

G. Integral Color: Pure, non-fading, mineral oxide color conforming to ASTM C979 and designed and mixed to provide uniform color finish coat.

1. Color: As selected by Architect and as required to produce final color of plaster to match existing plaster; custom color may be required.

H. Lathing Materials and Accessories: Comply with requirements of referenced ASTM standards and applicable code requirements.

1. Manufacturers:

a. ClarkDietrich Building Systems.
b. Phillips Manufacturing Co.
c. Alabama Metal Industries Corp. (AMICO).
d. Keene Products from Metalex, a Division of The Koller Group.
e. Delta Star, Inc., Superior Metal Trim.
f. Substitutions: Refer to Section 01 25 00.

2. Metal Components:

a. Exterior Concealed Components: Hot-dipped galvanized, ASTM A653 minimum G90 for 18 gage and lighter formed metal products, ASTM A123 galvanized after fabrication for 16 gage and heavier products.

b. Exterior Exposed Components: Zinc accessories unless fully concealed in plaster.

c. Interior Components: Rust-inhibitive paint may be used in lieu of galvanizing other than in areas of potential high humidity.

3. Metal Lath: Self-furring type where over solid substrate.

a. Typical: Expanded diamond mesh, minimum 2.5 lbs. per square yard.

b. Soffits: Expanded diamond mesh, minimum 3.4 lbs per square yard; provide ribbed lath where spanning between supports.

c. Tie Wire: ASTM A641, soft temper, Class 1 zinc coated; minimum 16 gage for tying metal lath to furring channels and metal lath to metal lath.

4. Gypsum Lath: ASTM C37, Type X with core having increased fire-retardant properties; 1/2" thick unless otherwise indicated.

5. Inside Corner Mesh: Minimum 26 gage steel; perforated or expanded flanges or clips shaped to permit complete embedding in plaster; minimum 3" x 3" size.

6. Anchorages: Tie wire, nails, screws and other approved metal supports, of type and size to suit application.

7. Accessories: Provide as required for complete plaster patching, replace components which are damaged; match existing; conform to recommendations of referenced standards.

    a. Casing Beads and Base Screeds: Minimum 26 gage, square edges at casing beads; provide with expanded flanges.

    b. Expansion and Control Joints: Match existing.

2.2 PLASTER MIXES

A. Provide Portland cement plaster mixes in accordance with ASTM C926 as appropriate to substrate indicated and approved samples.

B. Provide gypsum plaster in accordance with ASTM C842 as appropriate for patching existing interior plaster.

C. Mix only as much plaster as can be used in one hour.

D. Mix materials dry, to uniform color and consistency, before adding water.

E. Protect mixes from frost, dust and evaporation.

F. Do not retemper mixes after initial set has occurred.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Verify climatic and surface conditions are satisfactory.

B. Do not commence installation until unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Preparation of Existing Plaster: Remove deteriorated plaster, cut back to sound plaster and back bevel remaining plaster edges, route cracks to scratch coat and bevel plaster edges.

1. Apply bonding agent to existing plaster in accordance with bonding agent manufacturer's recommendations.

    a. Gypsum Plaster: Prepare surfaces for direct bonding of gypsum plaster; conform to ASTM C843 for preparation and application of bonding agent and application of plaster over bonding agent.

2. Remove and replace lathing which is rusted or damaged; remove sufficient plaster to allow firm wire tie bond of new lathing to existing undamaged lathing.

    a. Metal Lath: Apply metal lath taut, with long dimension perpendicular to supports; secure end laps with tie wire where they occur between supports; lap sides minimum 1-1/2"; secure with tie wires.

    b. Gypsum Lath: Attach gypsum lath to framing with screws; attach with resilient clips where plaster is part of sound rated partitions.

3. Where efflorescence or stains are evident, ensure cause of moisture in back-up materials has been eliminated.

B. Installation of New Metal Accessories: Fasten in place true to line and in correct relation to adjacent materials and as to prevent dislodging and misalignment by subsequent operations. Fasten at both ends and at maximum 12" on center.

1. Bring grounding edge of accessories to true lines, plumb, level, and straight.

2. Install accessories to provide required depth of plaster and to bring plaster surface to required plane.

3. Install continuous corner reinforcement for full length of external corners.

4. Beads: Use single length of metal beads wherever length of run does not exceed longest standard stock length available; miter or cope corners.

    a. Provide casing beads where plaster abuts dissimilar construction and at perimeter of openings where edges of plaster will not be concealed by other work.

3.3 PATCHING PORTLAND CEMENT PLASTER

A. Remove surface deposits on plaster with dry brush and wipe affected areas with damp cloth.

B. General: At major repair areas conform to ASTM C926.

1. Apply cement plaster using three coats unless otherwise required to match existing.

2. Apply each base coat to minimum thickness of 3/8"; allow each coat to slowly dry for minimum period of 48 hours;

    a. Moist cure first base coat (scratch coat) during 48 hour period.

3. Allow base coats to cure for minimum 7 days prior to application of finish coat.

4. Evenly dampen base coat, to ensure uniform suction, and apply finish coat; apply thickness sufficient to secure required texture but in no case less than 1/8".

    a. Apply pre-mixed finish coat in accordance with manufacturer's recommendations.

5. Maintain surface flatness, with maximum variation of 1/8" in 10'-0".

6. Avoid excessive working of surface, delay trowelling as long as possible to avoid drawing excess fines to surface.

7. Finish: Provide surfaces with finish to match existing.

C. Repairing Portland Cement Plaster: Repair major and minor damage to cement plaster (stucco).

1. For sound cement plaster, having small cracks or other cosmetic blemishes, clean entire surface of existing plaster with detergent, and rinse with clear water.

   a. If surface has been painted, remove paint.

   b. Over one or two coats of sound condition paint, after washing and rinsing surface apply one coat of bonding agent tested and compatible with paint.

   c. Apply finish coat of Portland cement stucco to thickness of approximately 1/8", and texture as required to match adjacent plaster finish.

   d. Take special precautions to ensure temperature of material is maintained at 50 degrees F. during, and for not less than, 48 hours after application.

2. For unsound cement plaster, where segments have become detached from back-up base, remove unsound areas, and verify condition of back-up or base.

   a. Replace damaged lath or lath without sufficient mechanical bond with new self-furring galvanized metal lath.

   b. If back-up is concrete or masonry, clean it completely of old cement plaster and apply one coat of bonding agent.

   c. Apply scratch coat to back-up or base; scratch horizontally for proper bond with brown coat; cure for minimum 48 hours.

   d. Apply brown and finish coats as required for general Portland cement plaster.

   e. Texture finish coat as required to match existing.

3. For large cracks in cement plaster, undercut edges on both sides of cracks to back-up material or base; dry brush cracks clean.

   a. Apply coat of bonding agent to surfaces of damaged area; mix and apply scratch, brown and finish coats as specified.

3.4 PATCHING GYPSUM PLASTER

A. Remove surface deposits on plaster with dry brush and wipe affected areas with damp cloth.

B. General: Apply gypsum plaster in accordance with ASTM C842 and referenced standard; match existing system; apply each base coat to minimum thickness specified in ASTM C842.

1. Allow each coat to slowly dry for minimum period of 48 hours.

2. Allow base coats to cure for minimum 7 days prior to application of finish coat.

3. Evenly dampen base coat, to ensure uniform suction, and apply finish coat; apply thickness sufficient to secure required texture but in no case less than 1/8".

4. Apply finish coat in accordance with ASTM C842.

5. At level areas maintain surface flatness, with maximum variation of 1/8" in 10'-0".

    a. At curved surfaces maintain true to line within 1/4" in 10'-0".

6. Finish: Provide surfaces with smooth-surface finish to match adjacent surfaces.

    a. Avoid excessive working of surface, delay trowelling as long as possible to avoid drawing excess fines to surface.

C. Patching Check-Cracks:

1. Flake out chips from each check-cracked area in severe cases, where finish has broken its bond with basecoats and can be removed easily in dry chips.

2. Bevel edges of sound finish plaster around perimeter of each area and dry brush surfaces to receive new finish plaster patch.

3. Apply bonding agent to existing base-coat plaster, including edges of cut areas, and permit agent to dry in accordance with manufacturer's recommendations.

4. Mix and apply finish coat of patching plaster, press tightly against back-up coat to establish bond.

    a. Immediately apply additional layer of patching plaster, from same batch, following same procedure, to fill crack to level of undisturbed surround finish coat.

5. When patching plaster has stiffened, remove trowel marks and other surface imperfections with light trowel pressure.

6. In cases where finish is bonded tightly to basecoat, lightly sand affected area with No. 000 cloth, removing raised edges. Wash, rinse and permit to dry.

D. Patching Large Cracks: Before beginning corrective measures, cut plaster in area of one crack through its entire thickness to backing material.

1. Verify backing material and its general condition.

2. Establish type and thickness of original plaster.

3. Rake and undercut plaster for full thickness making cut sufficiently wide (generally double width of crack) to properly receive patching plaster.

    a. Drybrush loose plaster from cut.

    b. Mix and apply basecoats of patching plaster as required to match existing.

4. Apply finish coats to partially dry basecoat or to thoroughly dry basecoat which has been evenly wetted by brushing or spraying with water.

    a. Apply finish coat as required to match existing finish and as specified for general plaster.

E. Minor Repairing to Ornamental Plaster Work: Repair small nicks, gouges, and chips.

1. Dry brush damaged area to remove loose plaster particles; if shape of damaged area is not conducive to good mechanical bond, trim cut edges of area to slight reverse bevel.

2. Apply bonding agent to damaged area, and permit to dry.

3. Prepare plaster and apply to damaged area in one operation.

    a. Shape mixture to surrounding profile, using moistened paper or cloth, to obtain smooth dense finish.

    b. When plaster is thoroughly dry and cured, perform final shaping with No. 000 grit damp emery cloth.

F. Major Repairing to Ornamental Plaster Work: Repair major damage to ornamental plaster.

1. Undercut edges of damaged area to back-up material or base.

2. Apply bonding agent to solid back-up and permit to dry.

3. Mix and apply scratch and brown coats.

4. Prepare running and casting molds, as required for condition.

    a. Use casting molds for additional ornamentation that cannot be run in place.

    b. Erect supports for molds as each segment of work is performed.

5. Mix and place plaster to match surrounding ornamental plaster work, over partially dry brown coat or thoroughly dry brown coat which has been dampened by brushing or spraying with water.

6. Leave molds in position until plaster has cured fully; remove molds carefully to prevent damaging newly molded areas; perform final shaping, if required, with No. 000 grit emery cloth.

3.5 CLEANING

A. Promptly remove plaster from surfaces not indicated to be plastered.

B. Repair other surfaces damaged by plaster patching operations to original undamaged condition as approved by Architect.

3.6 PROTECTION

A. Protect surfaces from stains, marring, and other damage; repair stained, marred and damaged surfaces prior to Substantial Completion.

END OF SECTION

SECTION 09 90 00

PAINTING AND COATING

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes: Provide painting and finishing of exposed items and surfaces requiring field painting and finishing including shop primed items.

1. Specified surface preparation, priming and coats of paint are in addition to shop-priming and surface treatment specified under other sections of work.

2. Painting and finishing include field finishing of exterior and interior items not listed as "Surfaces not to be Painted" unless clearly indicated otherwise.

3. Painting and finishing include field finishing of select shop finished items such as mechanical grilles and registers and shop primed items such as access panels and louvers in doors, to match adjacent surfaces.

a. Match adjacent surfaces in color and sheen unless otherwise indicated.

4. Field paint exposed bare and covered pipes, ducts, and hangers, exposed steel and iron work, and primed metal surfaces of equipment installed under mechanical and electrical work in occupied spaces.

5. Wood Doors: Contractor option to factory finish or field finish, coordinate with Section 08 14 00 - Wood Doors.

B. Surfaces Not to be Painted:

1. Finished items including finished metal surfaces.
2. Walls and ceilings in concealed areas and generally inaccessible areas.
3. Moving parts of operating mechanical and electrical units.
4. Labels: Keep equipment identification and fire rating labels free of paint.
5. Plastic smoke stops and weather-stripping at doors.

C. Related Sections: Shop priming of ferrous metal items is included under various Specification sections.

1.2 SUBMITTALS

A. Product Data: Submit manufacturer's technical information, including paint label analysis and application instructions for each material.

B. Samples: Submit samples for review of color and texture; provide list of material and application for each coat of each finish sample.

1. Brush-Outs: Submit samples of each color and material with texture to simulate actual conditions, on hardboard.

a. Submit 8" by 10" samples of wood finishes on actual wood surfaces; label and identify each as to location and application.

b. Submit samples of concrete masonry (maximum 4" square) defining filler, prime and finish coats.

2. Field Samples: Duplicate painted finishes of approved samples on actual wall surfaces and components for approval prior to commencing work.

a. Size: Minimum 100 sf located where approved.
b. Components: One full component as directed.
c. Simulate finished lighting conditions for review.

C. Manufacturer Certificates: Furnish certificates from each manufacturer stating materials are top quality lines and suitable for intended use on this Project.

1.3 QUALITY ASSURANCE

A. Sustainability Requirements: Comply with *CAL*Green requirements including those relative to finish material pollution control for paints and coatings.

1.4 DELIVERY, STORAGE, AND HANDLING

A. Deliver materials to job site in original, new and unopened packages and containers bearing manufacturer's name and label, with:

1. Name of material, color and sheen.
2. Manufacturer's name, stock number and date of manufacture.
3. Contents by volume, for major pigment and vehicle constituents.
4. Thinning and application instructions.

1.5 SITE CONDITIONS

A. Apply water-base paints when temperature of surfaces and surrounding air are between 50 and 90-degrees F.

B. Do not apply paint in rain, fog or mist; or when relative humidity exceeds 85 percent; or to damp or wet surfaces.

C. Painting may be continued during inclement weather if areas to be painted are enclosed and heated within temperature limits specified.

D. Provide additional temporary ventilation during interior application of paints to eliminate volatile organic compound (VOC) emissions from interior spaces as quickly as possible.

PART 2 - PRODUCTS

2.1 SYSTEMS MANUFACTURERS

A. Benjamin Moore & Co.

B. Sherwin-Williams Co.

C. Pittsburgh Paints, PPG Pittsburgh Paints, including Glidden Professional.

D. Dunn-Edwards Corp.

E. Kelly Moore Paint Co.

F. Vista Paint Co.

G. Frazee Paint Co.

H. Substitutions: Refer to Section 01 25 00.

2.2 MATERIALS

A. System Description: Provide painting and finishing of exposed items and surfaces requiring field painting and finishing including shop primed items.

1. Definition: "Painting" and “coating” as used herein means systems including primers, emulsions, enamels, stains, sealers and fillers, whether used as prime, intermediate or finish coats.

B. Regulatory Requirements:

1. Volatile Organic Compound (VOC) Emissions: Furnish materials approved for use by applicable air quality management district for limitations of volatile organic compounds for architectural or special coatings as applicable.

C. Material Quality: Provide top line quality commercial grade (professional painter) paints; materials not bearing manufacturer's identification as their top line product shall not be acceptable.

1. Primers: Provide premium grade primers recommended by paint manufacturer for substrates indicated and for finish systems specified.

2. Undercoats and Barrier Coats: Provide undercoat paints produced by same manufacturer as finish coats; use only thinners approved by paint manufacturer and use only within recommended limits.

3. Finish Coats: Provide finish coats capable of being washed with mild detergent without loss of color, sheen, or pigments.

a. Color pigments: Pure, non-fading, applicable types to suit substrates and service indicated; no lead content permitted.

4. Finish Coat Coordination: Provide finish coats which are compatible with prime paints, undercoats, and barrier coats used.

a. Review other Specification sections in which prime paints are provided; ensure compatibility of total coatings systems.

b. Upon request from other trades furnish information on characteristics of finish materials proposed for use.

c. Provide barrier coats over incompatible primers or remove and prime as required.

d. Notify Architect in writing of any anticipated problems in use of specified coating systems with substrates primed by others.

D. Colors and Finishes: Prior to commencement of painting work, Architect will furnish color chips for surfaces to be painted.

1. Use of proprietary names in color selection is not intended to imply exclusion of equivalent products of other manufacturers.

2. Final acceptance of colors will be from samples applied on site.

3. Colors: Where color is not indicated on Drawings or Finish Schedule, provide custom color as directed by Architect.

PART 3 - EXECUTION

3.1 PREPARATION

A. Inspection: Examine areas and conditions under which painting work is to be applied.

1. Start of painting work indicates acceptance of surfaces and conditions of surfaces and conditions within any area.

2. Where exposed items or surfaces are not specifically mentioned in Schedules, paint same as adjacent similar materials or areas.

3. Do not paint over dirt, rust, scale, grease, moisture, scuffed surfaces, or conditions detrimental to a durable paint film.

B. Perform preparation and cleaning procedures in accordance with paint manufacturer's instructions and as specified for substrate condition.

1. Existing Painted Finishes:

a. Clean existing painted surfaces and remove oil, grease, dust, stains, scale, efflorescence, mildew, mold, algae, blisters, and non-adhering paint.

b. Measure adhesion of existing paints using ASTM D3359 tape test; remove existing coatings where poor adhesion is indicated.

c. Feather edges of severely deteriorated paint where several coats are removed as part of cleaning, to provide smooth transition for new paint.

d. Fill holes, cracks, and defects and fill and sand smooth, ready for new paint finish.

C. Remove hardware, accessories, and items in place and not to be painted, or provide protection prior to surface preparation and painting; after painting reinstall removed items.

D. Clean surfaces before applying paint; remove oil and grease prior to mechanical cleaning; program cleaning so contaminants from cleaning process do not fall onto wet, newly painted surfaces.

E. Cementitious Materials: Prepare by removing efflorescence, chalk, dirt, grease, oils, and by roughening as required to remove glaze.

1. Determine alkalinity and moisture content of surfaces to be painted.

2. If surfaces are found to be sufficiently alkaline to cause blistering and burning of finish paint, neutralize before application of paint.

3. Do not paint over surfaces where moisture content exceeds manufacturer's printed directions.

F. Wood: Clean wood surfaces of dirt, oil, and other foreign substances; sandpaper smooth surfaces exposed to view and dust off.

1. Scrape and clean seasoned knots and apply thin coat of recommended knot sealer, before application of priming coat.

2. Prime, stain, or seal wood required to be job-painted immediately upon delivery to job; prime edges, ends, faces, undersides, and backsides of wood.

3. After priming, fill holes and imperfections in finish surfaces with putty or plastic wood-filler; sandpaper smooth when dry.

G. Ferrous Metals: Touch up shop-applied prime coats wherever damaged using same type of primer as applied in shop or barrier coat compatible with finish paint.

1. Bare Surfaces: Clean surfaces that are not galvanized or shop-coated, of oil, dirt, loose mill scale and other foreign substances by solvent or mechanical cleaning.

2. Galvanized Surfaces: Clean free of oil and surface contaminants, using non-petroleum-based solvent; primer and touch-up primer to be zinc-rich primer.

H. Mix painting materials in accordance with manufacturer's directions.

I. Store materials in tightly covered containers; maintain containers used in storage, mixing and application of paint in a clean condition, free of foreign materials and residue.

J. Stir materials before application to produce mixture of uniform density and stir as required during application; do not stir surface film into material, if necessary, strain material before using.

3.2 APPLICATION

A. Apply paint in accordance with manufacturer's directions; use applicators and techniques best suited for substrate and type of material being applied.

1. Apply additional coats when stains or blemishes show through final coat, until paint is a uniform finish, color and appearance.

2. Provide extra attention during application to assure dry film thickness at corners and crevices is equivalent to that of flat surfaces.

3. Paint surfaces behind movable equipment and furniture same as similar exposed surfaces; paint surfaces behind permanently fixed equipment and furniture with prime coat only.

4. Finish doors on tops, bottoms and side edges same as faces.

5. Paint back sides of access panels and removable or hinged covers to match exposed surfaces.

6. Paint interior surfaces of ducts, where visible through registers or grilles, with a flat, non-specular black paint.

7. Sand lightly between coats when recommended by system manufacturer.

B. Scheduling Painting: Apply first coat to surfaces that have been cleaned, pretreated or prepared for painting as soon as practicable after preparation.

1. Allow time between successive coatings to permit proper drying.

2. Do not recoat until paint feels firm and does not deform or feel sticky under moderate thumb pressure.

C. Minimum Coating Thickness: Apply materials at not less than manufacturer's recommended spreading rate, to establish a total dry film thickness as recommended by coating manufacturer.

D. Prime Coats: Apply to items not previously primed; recoat primed and sealed surfaces where there is evidence of suction spots or unsealed areas in first coat.

E. Finish Coats: Provide even texture; leave no laps, irregularity in texture, skid marks, or other surface imperfections.

1. Opaque Finishes: Provide opaque, uniform finish, color and coverage; cloudiness, spotting, holidays, brush marks, runs, sags, ropiness, and other surface imperfections are not acceptable.

2. Transparent and Stained Finishes: Produce glass smooth surface film of even luster; provide with no cloudiness, color irregularity, runs, brush marks, orange peel, nail holes, and other surface imperfections.

F. Completed Work: Match approved samples for color, texture and coverage; remove, refinish or repaint work not accepted.

3.3 PAINTING SCHEDULE

A. Exterior Work: Provide following paint systems and sheens unless otherwise indicated.

1. Metal: Semigloss sheen.

a. 1st Coat: Touch-up primer, prime if none.

b. 2nd and 3rd Coat: Exterior 100% acrylic enamel.

2. Metal: High-performance coating specified in Section 09 96 70.

3. Plaster: Flat sheen.

a. 1st and 2nd Coat: Heavy body vapor permeable waterproof elastomeric acrylic coating.

4. Plaster: Flat sheen.

a. Refer to Section 09 96 80 – Elastomeric Coating.

5. Opaque Finished Wood: Semigloss sheen.

a. 1st Coat: Primer undercoat.
b. 2nd and 3rd Coat: Exterior 100% acrylic enamel.

6. Stained Wood: Flat sheen.

a. 1st Coat: Exterior semi-transparent penetrating stain.

7. Natural Finish Wood: Flat sheen.

a. 1st Coat: Exterior clear penetrating wood sealer and preservative.

A. Sheens: Comply with ASTM D523, reflectance of paint.

1. Flat: 1-10.
2. Satin: 15-30.
3. Eggshell: 30-45.
4. Semigloss: 45-75.
5. Gloss: 75-100.

3.2 CLEAN-UP, PROTECTION, AND REPAIR

A. Clean-Up: During progress of work, remove discarded paint materials, rubbish, cans and rags from site at end of each workday.

1. Clean glass and paint-spattered surfaces immediately by proper methods of washing and scraping, using care not to scratch or damage finished surfaces.

B. Protection: Protect work of other trades, whether to be painted or not; correct damage by cleaning, repairing or replacing, and repainting, as acceptable to Architect.

1. Provide "Wet Paint" signs to protect newly painted finishes.

2. Remove temporary protective wrappings provided by others for protection of their work, after completion of painting operations.

C. Repair: At completion of work of other trades, touch-up and restore damaged surfaces or defaced painted surfaces.

END OF SECTION