Parkview Terrace
Exterior Paint & Seal
Eugene, Oregon

Project Manual
OCTOBER 09, 2025
ISSUE FOR BID

OWNER
Homes for Good Housing Agency
100 W. 13th Avenue
Eugene, OR 97401

ARCHITECT
BDA Architecture & Planning, P. C.
1369 Olive Street
Eugene, OR 97401

PROJECT MANUAL
PARKVIEW TERRACE PAINT & SEAL

SPECIFICATIONS GROUP

General Requirements Subgroup

DIVISION 01 - GENERAL REQUIREMENTS

Facility Construction Subgroup

DIVISION 07 - THERMAL AND MOISTURE PROTECTION

DIVISION 09 - FINISHES

DIVISION 10 - SPECIALTIES

SECTION 011000 – SUMMARY

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes:

1. Project information.
2. Work covered by Contract Documents.
3. Access to site.
4. Work restrictions.
5. Specification and drawing conventions.

1.2 PROJECT INFORMATION

A. Project Identification: Parkview Terrace Exterior Paint, Eugene, Oregon 97401.

B. Owner: Homes for Good Housing Agency
100 W. 13th Avenue
Eugene, OR 97401
Contact: Teresa Hashagen, 541-852-6044

C. Architect: BDA Architecture and Planning, PC.
1369 Olive Street
Eugene, OR 97401
Contact: Amanda Donofrio, AIA 541-683-8661 x 4

1.3 WORK COVERED BY CONTRACT DOCUMENTS

A. The Work of the Project is defined by the Contract Documents and consists of the following work located at one site:

1. **Parkview Terrace Exterior Paint and Seal**: Paint previously painted concrete and metal surfaces at building exterior, at street facing and courtyard sides. Surfaces include, but are not limited to, exterior walls and previously painted objects penetration or attched to painted walls, landscape walls, hollow metal window and door frames, exterior soffits, walkway/deck curbs and undersides, gates, and guardrails. Aggregate wall surfaces to receive a clear seal coat.

B. Type of Contract.

1. Project will be constructed under a single prime contract.
   a. The Construction Contract will be the Homes for Good contract as amended by the Owner and Contractor.

1.4 ACCESS TO SITE

A. General: Contractor shall have full use of Project site for construction operations during construction period. Contractor's use of Project site is limited only by Owner's right to perform work or to retain other contractors on portions of Project.

B. Use of Site: Limit use of Project site to areas within the site property lines. Do not disturb portions of Project site beyond areas in which the Work is indicated, except as needed to construct site utilities and sidewalks within the public right-of-way.
   1. Driveways, Sidewalks and Alleys: Keep driveways, sidewalks and entrances serving adjacent premises clear and available to emergency vehicles at all times. Do not use these areas for parking or storage of materials.
      a. Schedule deliveries to minimize use of alleys by construction operations.
      b. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on-site.

1.5 WORK RESTRICTIONS

A. Work Restrictions, General: Comply with restrictions on construction operations.
   1. Comply with limitations on use of public streets and alleys and other requirements of authorities having jurisdiction. If contractor requires temporary use streets or alleys adjacent to site, Contractor to obtain all permits and approval from jurisdictions having authority.

B. On-Site Work Hours: Limit work on the Project to normal business working hours of 8:00 a.m. to 5:00 p.m., Monday through Friday.

C. Existing Utility Interruptions: Do not interrupt utilities serving facilities occupied by others unless permitted under the following conditions and then only after providing temporary utility services according to requirements indicated:
   1. Notify Owner not less than seven days in advance of proposed utility interruptions.
   2. Obtain Owner's written permission before proceeding with utility interruptions.

D. Controlled Substances: Use of tobacco products and other controlled substances on the Project site is not permitted.

1.6 SPECIFICATION AND DRAWING CONVENTIONS

A. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
   1. Imperative mood and streamlined language are generally used in the Specifications. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.
   2. Specification requirements are to be performed by Contractor unless specifically stated otherwise.

B. Division 01 General Requirements: Requirements of Sections in Division 01 apply to the Work of all Sections in the Specifications.

C. Drawing Coordination: Requirements for materials and products identified on the Drawings are described in detail in the Specifications. One or more of the following are used on the Drawings to identify materials and products:
   1. Terminology: Materials and products are identified by the typical generic terms used in the individual Specifications Sections.
   2. Abbreviations: Materials and products are identified by abbreviations published as part of the U.S. National CAD Standard and scheduled on Drawings.
   3. Keynoting: Materials and products are identified by reference keynotes referencing Specification Section numbers found in this Project Manual.

1.7 INSURANCE AND BONDING

A. All bidders must verify insurance and bonding requirements with the General Contractor.

END OF SECTION 011000

SECTION 011416 – COORDINATION WITH RESIDENTS

PART 1 - GENERAL

1.1 CONTRACT CONDITIONS and RELATED DOCUMENTS

A. Drawings and general provisions of Contract, including General and Special Conditions, Division-1 Specification Sections, and any issued Addendum, apply to work of this Section.

1.2 SECTION INCLUDES

A. Coordination of Work Schedule.

1. Review Work Schedule with Contract Administrator.
2. Contract Administrator shall approve Work Schedule which allows maximum access to dwellings for residents and minimal disruption for residents.

B. Contract Administrator shall coordinate with Residents.

1. Contract Administrator shall develop and provide Resident Notices based upon approved Contractor's Work Schedule.
2. Resident Notices shall be distributed by Owner's Representative and Contract Administrator.
3. Contract Administrator shall coordinate removal of resident furniture and personal items from work areas. Removal of furniture and resident items by Owner.

C. Coordination of apartment window closing with Contract Administrator.

1. Coordinate Work Schedule with Contract Administrator to allow notices to residents to close windows during application and to allow drying of materials.

END OF SECTION 011416

SECTION 012500 - SUBSTITUTION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for substitutions during bidding, prior to the award of the Construction Contract.

B. Related Section:

1. Division 01 Section "Product Requirements" for requirements for submitting comparable product submittals for products by listed manufacturers.

1.2 DEFINITIONS

A. Substitutions: Changes in products, materials, equipment, and methods of construction from those required by the Contract Documents and proposed by Contractor.

1.3 SUBMITTALS

A. Substitution Requests: Submit electronic copy of request for consideration. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.

1. Substitution Request Form: Use Substitution Request form in Homes for Good Project Manual.
2. Documentation: Show compliance with requirements for substitutions and the following, as applicable:

a. Statement indicating why specified product or fabrication or installation cannot be provided, if applicable.
b. Coordination information, including a list of changes or modifications needed to other parts of the Work and to construction performed by Owner and separate contractors, that will be necessary to accommodate proposed substitution.
c. Detailed comparison of significant qualities of proposed substitution with those of the Work specified. Include annotated copy of applicable specification section. Significant qualities may include attributes such as performance, weight, size, durability, visual effect, sustainable design characteristics, warranties, and specific features and requirements indicated. Indicate deviations, if any, from the Work specified.
d. Product Data, including drawings and descriptions of products and fabrication and installation procedures.
e. Samples, where applicable or requested.
f. Certificates and qualification data, where applicable or requested.
g. Material test reports from a qualified testing agency indicating and interpreting test results for compliance with requirements indicated.

h. Cost information, including a proposal of change, if any, in the Contract Sum.
i. Contractor's certification that proposed substitution complies with requirements in the Contract Documents except as indicated in substitution request, is compatible with related materials, and is appropriate for applications indicated.
j. Contractor's waiver of rights to additional payment or time that may subsequently become necessary because of failure of proposed substitution to produce indicated results.

3. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within seven days of receipt of a request for substitution. Architect will notify Contractor of acceptance or rejection of proposed substitution within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Forms of Acceptance: Change Order, Construction Change Directive, or Architect's Supplemental Instructions for minor changes in the Work.
b. Use product specified if Architect does not issue a decision on use of a proposed substitution within time allocated.

1.4 QUALITY ASSURANCE

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

PART 2 - PRODUCTS

2.1 SUBSTITUTIONS

A. Substitutions for Cause: Submit requests for substitution immediately upon discovery of need for change during bidding, prior to award of contract.

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

a. Requested substitution is consistent with the Contract Documents and will produce indicated results.
b. Requested substitution will not adversely affect Contractor's construction schedule.
c. Requested substitution has received necessary approvals of authorities having jurisdiction.
d. Requested substitution is compatible with other portions of the Work.
e. Requested substitution has been coordinated with other portions of the Work.
f. Requested substitution provides specified warranty.
g. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

B. Substitutions for Convenience: Architect will consider requests for substitution if received during bidding, prior to award of the contract.

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

a. Requested substitution offers Owner a substantial advantage in cost, time, energy conservation, or other considerations, after deducting additional responsibilities Owner must assume. Owner's additional responsibilities may include compensation to Architect for redesign and evaluation services, increased cost of other construction by Owner, and similar considerations.
b. Requested substitution does not require extensive revisions to the Contract Documents.
c. Requested substitution is consistent with the Contract Documents and will produce indicated results.
d. Requested substitution will not adversely affect Contractor's construction schedule.
e. Requested substitution has received necessary approvals of authorities having jurisdiction.
f. Requested substitution is compatible with other portions of the Work.
g. Requested substitution has been coordinated with other portions of the Work.
h. Requested substitution provides specified warranty.
i. If requested substitution involves more than one contractor, requested substitution has been coordinated with other portions of the Work, is uniform and consistent, is compatible with other products, and is acceptable to all contractors involved.

PART 3 - EXECUTION (Not Used)

END OF SECTION 012500

SECTION 012600 - CONTRACT MODIFICATION PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for handling and processing Contract modifications.

1.2 MINOR CHANGES IN THE WORK & PROPOSAL REQUESTS

A. Architect will issue supplemental instructions authorizing minor changes in the Work, not involving adjustment to the Contract Sum or the Contract Time, on Architect's IOC "Item of Change" form.

B. Owner-Initiated Proposal Requests: Architect will issue a detailed description of proposed changes in the Work that may require adjustment to the Contract Sum or the Contract Time, on Architect's IOC "Item of Change" form. If necessary, the description will include supplemental or revised Drawings and Specifications.

1. Proposal Requests issued by Architect are not instructions either to stop work in progress or to execute the proposed change.
2. Within 15 days after receipt of Proposal Request, submit a quotation estimating cost adjustments to the Contract Sum and the Contract Time necessary to execute the change.
    a. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
    b. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
    c. Include costs of labor and supervision directly attributable to the change.
    d. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
    e. Quotation Form: Use forms acceptable to Architect.

C. Contractor-Initiated Proposals: If latent or changed conditions require modifications to the Contract, Contractor may initiate a claim by submitting a request for a change to Architect.
1. Include a statement outlining reasons for the change and the effect of the change on the Work. Provide a complete description of the proposed change. Indicate the effect of the proposed change on the Contract Sum and the Contract Time.
2. Include a list of quantities of products required or eliminated and unit costs, with total amount of purchases and credits to be made. If requested, furnish survey data to substantiate quantities.
3. Indicate applicable taxes, delivery charges, equipment rental, and amounts of trade discounts.
4. Include costs of labor and supervision directly attributable to the change.

5. Include an updated Contractor's construction schedule that indicates the effect of the change, including, but not limited to, changes in activity duration, start and finish times, and activity relationship. Use available total float before requesting an extension of the Contract Time.
6. Comply with requirements in Division 01 Section "Substitution Procedures" if the proposed change requires substitution of one product or system for product or system specified.
7. Proposal Request Form: Use form acceptable to Architect.

1.3 CHANGE ORDER PROCEDURES

A. On Owner's approval of a Proposal Request, Contractor will issue a Change Order for signatures of Owner and Contractor on Homes for Good contract documents.

1.4 CONSTRUCTION CHANGE DIRECTIVE

A. Construction Change Directive: Architect may issue a Construction Change Directive on Architect's IOC "Item of Change" form.

B. Construction Change Directive instructs Contractor to proceed with a change in the Work, for subsequent inclusion in a Change Order.
1. Construction Change Directive contains a complete description of change in the Work. It also designates method to be followed to determine change in the Contract Sum or the Contract Time.

C. Documentation: Maintain detailed records on a time and material basis of work required by the Construction Change Directive.
1. After completion of change, submit an itemized account and supporting data necessary to substantiate cost and time adjustments to the Contract.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 012600

SECTION 013100 - PROJECT MANAGEMENT AND COORDINATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative provisions for coordinating construction operations on Project including, but not limited to, the following:
   1. Coordination drawings.
   2. Requests for Information (RFIs).
   3. Project meetings.

B. Related Sections:
   1. Division 01 Section "Execution" for procedures for coordinating general installation and field-engineering services, including establishment of benchmarks and control points.

1.2 DEFINITIONS

A. RFI: Request from Owner, Architect, or Contractor seeking information from each other during construction.

1.3 COORDINATION

A. Coordination: Coordinate construction operations included in different Sections of the Specifications to ensure efficient and orderly installation of each part of the Work. Coordinate construction operations, included in different Sections, that depend on each other for proper installation, connection, and operation.
   1. Schedule construction operations in sequence required to obtain the best results where installation of one part of the Work depends on installation of other components, before or after its own installation.
   2. Coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair.
   3. Make adequate provisions to accommodate items scheduled for later installation.

B. If necessary, prepare memoranda for distribution to each party involved, outlining special procedures required for coordination. Include such items as required notices, reports, and list of attendees at meetings.

C. Preparation of Administrative Procedures: Coordinate scheduling and timing of required administrative procedures with other construction activities and activities of other contractors to avoid conflicts and to ensure orderly progress of the Work. Such administrative activities include, but are not limited to, the following:
   1. Contractor's construction schedule.
   2. Preparation of the schedule of values.
   3. Installation and removal of temporary facilities and controls.
   4. Delivery and processing of submittals.

5. Progress meetings.
6. Pre-installation conferences.
7. Project Closeout Activities.
8. Startup and adjustment of systems.
9. Project closeout activities.

1.4 COORDINATION DRAWINGS

A. Coordination Drawings, General: Prepare coordination drawings in accordance with requirements in individual Sections, where installation is not completely shown on Shop Drawings, where limited space availability necessitates coordination, or if coordination is required to facilitate integration of products and materials fabricated or installed by more than one entity.
   1. Content: Project-specific information, drawn accurately to a scale large enough to indicate and resolve conflicts. Do not base coordination drawings on standard printed data. Include the following information, as applicable:
      a. Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems.
      b. Indicate dimensions shown on the Drawings. Specifically note dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to Architect indicating proposed resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the Contract.

1.5 REQUESTS FOR INFORMATION (RFIs)

A. General: Immediately on discovery of the need for additional information or interpretation of the Contract Documents, Contractor shall prepare and submit an RFI in the form specified.
   1. Architect will return RFIs submitted to Architect by other entities controlled by Contractor with no response.
   2. Coordinate and submit RFIs in a prompt manner so as to avoid delays in Contractor's work or work of subcontractors.

B. Content of the RFI: Include a detailed, legible description of item needing information or interpretation and the following:
   1. Project name.
   2. Project number.
   3. Date.
   4. Name of Contractor.
   5. Name of Architect.
   6. RFI number, numbered sequentially.
   7. RFI subject.
   8. Specification Section number and title and related paragraphs, as appropriate.
   9. Drawing number and detail references, as appropriate.
   10. Field dimensions and conditions, as appropriate.
   11. Contractor's suggested resolution. If Contractor's solution(s) impacts the Contract Time or the Contract Sum, Contractor shall state impact in the RFI.
   12. Contractor's signature.

13. Attachments: Include sketches, descriptions, measurements, photos, Product Data, Shop Drawings, coordination drawings, and other information necessary to fully describe items needing interpretation.

C. RFI Forms: Software-generated form with substantially the same content as indicated above, acceptable to Architect.

D. Architect's Action: Architect will review each RFI, determine action required, and respond. Allow ten (10) working days for Architect's response for each RFI. RFIs received by Architect after 1:00 p.m. will be considered as received the following working day.
1. The following RFIs will be returned without action:
   a. Requests for approval of submittals.
   b. Requests for approval of substitutions.
   c. Requests for coordination information already indicated in the Contract Documents.
   d. Requests for adjustments in the Contract Time or the Contract Sum.
   e. Requests for interpretation of Architect's actions on submittals.
   f. Incomplete RFIs or inaccurately prepared RFIs.
2. Architect's action may include a request for additional information, in which case Architect's time for response will be five (5) days from receipt of additional information.
3. Architect's action on RFIs that may result in a change to the Contract Time or the Contract Sum may be eligible for Contractor to submit Change Proposal according to Division 01 Section "Contract Modification Procedures."
   a. If Contractor believes the RFI response warrants change in the Contract Time or the Contract Sum, notify Architect in writing within ten (10) days of receipt of the RFI response.

E. On receipt of Architect's action, update the RFI log and immediately distribute the RFI response to affected parties. Review response and notify Architect within seven (7) days if Contractor disagrees with response.

F. RFI Log: Prepare, maintain, and submit a tabular log of RFIs organized by the RFI number. Submit log weekly. Use software log that is part of Project Web site. Include the following:
1. Project name.
2. Name and address of Contractor.
3. Name and address of Architect.
4. RFI number including RFIs that were dropped and not submitted.
5. RFI description.
6. Date the RFI was submitted.
7. Date Architect's response was received.
8. Identification of related Minor Change in the Work, Construction Change Directive, and Proposal Request, as appropriate.

1.6 PROJECT MEETINGS

A. General: Schedule and conduct meetings and conferences at Project site, unless otherwise indicated.

1. Attendees: Inform participants and others involved, and individuals whose presence is required, of date and time of each meeting. Notify Owner and Architect of scheduled meeting dates and times.
2. Agenda: Prepare the meeting agenda. Distribute the agenda to all invited attendees.
3. Minutes: General Contractor responsible for conducting meeting will record significant discussions and agreements achieved. Distribute the meeting minutes to everyone concerned, including Owner and Architect, within five (5) days of the meeting.

B. Preconstruction Conference: Schedule and conduct a preconstruction conference before starting construction, at a time convenient to Owner and Architect.
1. Attendees: Authorized representatives of Owner, Architect, and their consultants; Contractor and its superintendent; major subcontractors; suppliers; and other concerned parties shall attend the conference. Participants at the conference shall be familiar with Project and authorized to conclude matters relating to the Work.
2. Agenda: Discuss items of significance that could affect progress, including the following:
    a. Tentative construction schedule.
    b. Phasing.
    c. Critical work sequencing and long-lead items.
    d. Designation of key personnel and their duties.
    e. Procedures for processing field decisions and Change Orders.
    f. Procedures for RFIs.
    g. Procedures for testing and inspecting.
    h. Procedures for processing Applications for Payment.
    i. Distribution of the Contract Documents.
    j. Submittal procedures.
    k. Sustainable design requirements.
    l. Preparation of record documents.
    m. Use of the premises.
    n. Work restrictions.
    o. Working hours.
    p. Owner's occupancy requirements.
    q. Responsibility for temporary facilities and controls.
    r. Procedures for moisture and mold control.
    s. Procedures for disruptions and shutdowns.
    t. Construction waste management and recycling.
    u. Parking availability.
    v. Office, work, and storage areas.
    w. Equipment deliveries and priorities.
    x. First aid.
    y. Security.
    z. Progress cleaning.
3. Minutes: General Contractor responsible for conducting meeting will record and distribute meeting minutes.

C. Pre-installation Conferences: Conduct a pre-installation conference at Project site before each construction activity that requires coordination with other construction.
1. Attendees: Installer and representatives of manufacturers and fabricators involved in or affected by the installation and its coordination or integration with other materials and installations that have preceded or will follow, shall attend the meeting. Advise Architect and Owner of scheduled meeting dates.

2. Agenda: Review progress of other construction activities and preparations for the particular activity under consideration, including requirements for the following:
   a. Contract Documents.
   b. Related RFIs.
   c. Related Change Orders.
   d. Submittals.
   e. Review of mockups.
   f. Possible conflicts.
   g. Compatibility problems.
   h. Time schedules.
   i. Weather limitations.
   j. Manufacturer's written recommendations.
   k. Warranty requirements.
   l. Compatibility of materials.
   m. Acceptability of substrates.
   n. Space and access limitations.
   o. Regulations of authorities having jurisdiction.
   p. Testing and inspecting requirements.
   q. Installation procedures.
   r. Coordination with other work.
   s. Required performance results.
   t. Protection of adjacent work.
   u. Protection of construction and personnel.
3. Record significant conference discussions, agreements, and disagreements, including required corrective measures and actions.
4. Reporting: Distribute minutes of the meeting to each party present and to other parties requiring information.
5. Do not proceed with installation if the conference cannot be successfully concluded. Initiate whatever actions are necessary to resolve impediments to performance of the Work and reconvene the conference at earliest feasible date.

D. Progress Meetings: Conduct progress meetings at weekly intervals.
   1. Attendees: In addition to representatives of Owner and Architect, each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the meeting shall be familiar with Project and authorized to conclude matters relating to the Work.
   2. Agenda: Review and correct or approve minutes of previous progress meeting. Review other items of significance that could affect progress. Include topics for discussion as appropriate to status of Project.
      a. Contractor's Construction Schedule: Review progress since the last meeting. Determine whether each activity is on time, ahead of schedule, or behind schedule, in relation to Contractor's construction schedule. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the Contract Time.
         1) Review schedule for next period.
      b. Review present and future needs of each entity present, including the following:
         1) Interface requirements.
         2) Sequence of operations.

3) Status of submittals.
4) Off-site fabrication.
5) Temporary facilities and controls.
6) Progress cleaning.
7) Quality and work standards.
8) Status of correction of deficient items.
9) Field observations.
10) Status of RFIs.
11) Status of proposal requests.
12) Pending changes.
13) Status of Change Orders.
14) Documentation of information for payment requests.

3. Minutes: General Contractor responsible for conducting the meeting will record and distribute the meeting minutes to each party present and to parties requiring information.
   a. Schedule Updating: Revise Contractor's construction schedule after each progress meeting where revisions to the schedule have been made or recognized. Issue revised schedule concurrently with the report of each meeting.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION (Not Used)

END OF SECTION 013100

SECTION 013200 - CONSTRUCTION PROGRESS DOCUMENTATION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for documenting the progress of construction during performance of the Work, including the following:
   1. Contractor's construction schedule.
   2. Field condition reports.

1.2 DEFINITIONS

A. Activity: A discrete part of a project that can be identified for planning, scheduling, monitoring, and controlling the construction project. Activities included in a construction schedule consume time and resources.
   1. Critical Activity: An activity on the critical path that must start and finish on the planned early start and finish times.
   2. Predecessor Activity: An activity that precedes another activity in the network.
   3. Successor Activity: An activity that follows another activity in the network.

B. CPM: Critical path method, which is a method of planning and scheduling a construction project where activities are arranged based on activity relationships. Network calculations determine when activities can be performed and the critical path of the Project.

C. Critical Path: The longest connected chain of interdependent activities through the network schedule that establishes the minimum overall Project duration and contains no float.

D. Float: The measure of leeway in starting and completing an activity.
   1. Float time is not for the exclusive use or benefit of either Owner or Contractor, but is a jointly owned, expiring Project resource available to both parties as needed to meet schedule milestones and Contract completion date.

1.3 INFORMATIONAL SUBMITTALS

A. Format for Submittals: Submit required submittals in the following format:
   1. Electronic copies.

B. Contractor's Construction Schedule: Initial schedule, of size required to display entire schedule for entire construction period.

C. Field Condition Reports: Submit at time of discovery of differing conditions.

1.4 COORDINATION

A. Coordinate preparation and processing of schedules and reports with performance of construction activities and with scheduling and reporting of separate contractors.

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

PART 2 - PRODUCTS

2.1 CONTRACTOR'S CONSTRUCTION SCHEDULE, GENERAL

A. Time Frame: Extend schedule from date established for the Notice to Proceed to date of final completion.
   1. Contract completion date shall not be changed by submission of a schedule that shows an early completion date, unless specifically authorized by Change Order.

B. Milestones: Include milestones indicated in the Contract Documents in schedule, including, but not limited to, the Notice to Proceed, Substantial Completion, and final completion.

C. Computer Scheduling Software: Prepare schedules using current version of a program that has been developed specifically to manage construction schedules.

2.2 CONTRACTOR'S CONSTRUCTION SCHEDULE (GANTT CHART)

A. Gantt-Chart Schedule: Submit a comprehensive, fully developed, horizontal Gantt-chart-type, Contractor's construction schedule within 30 days of date established for commencement of the Work.

B. Preparation: Indicate each significant construction activity separately. Identify first workday of each week with a continuous vertical line.
   1. For construction activities that require three months or longer to complete, indicate an estimated completion percentage in 10 percent increments within time bar.

2.3 REPORTS

A. Field Condition Reports: Immediately on discovery of a difference between field conditions and the Contract Documents, prepare and submit a detailed report. Submit with a Request for Information. Include a detailed description of the differing conditions, together with recommendations for changing the Contract Documents.

PART 3 - EXECUTION

3.1 CONTRACTOR'S CONSTRUCTION SCHEDULE

A. Contractor's Construction Schedule Updating: At monthly intervals, update schedule to reflect actual construction progress and activities. Issue schedule with monthly pay request.

B. Distribution: Distribute copies of approved schedule to Architect Owner, and other parties identified by Contractor with a need-to-know schedule responsibility.
   1. Post copies in Project meeting rooms and temporary field offices.
   2. When revisions are made, distribute updated schedules to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in performance of construction activities.

END OF SECTION 013200

SECTION 013300 - SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for the submittal schedule and administrative and procedural requirements for submitting Shop Drawings, Product Data, Samples, and other submittals.

B. Related Sections:
1. Division 01 Section 013200 "Construction Progress Documentation" for submitting schedules and reports, including Contractor's construction schedule.
2. Division 01 Section 017823 "Operation and Maintenance Data" for submitting operation and maintenance manuals.
3. Division 01 Section 017839 "Project Record Documents" for submitting record Drawings, record Specifications, and record Product Data.

1.2 DEFINITIONS

A. Action Submittals: Written and graphic information and physical samples that require Architect's responsive action.

B. Informational Submittals: Written and graphic information and physical samples that do not require Architect's responsive action. Submittals may be rejected for not complying with requirements.

1.3 ACTION SUBMITTALS

A. Submittal Schedule: Submit a schedule of submittals, arranged in chronological order by dates required by construction schedule. Include time required for review, ordering, manufacturing, fabrication, and delivery when establishing dates. Include additional time required for making corrections or modifications to submittals noted by the Architect and additional time for handling and reviewing submittals required by those corrections.

1.4 SUBMITTAL ADMINISTRATIVE REQUIREMENTS

A. Architect's Digital Data Files: Electronic copies of CAD Drawings of the Contract Drawings will be provided by Architect for Contractor's use in preparing submittals on a case by case basis.
1. Architect will furnish Contractor digital data drawing files of the Contract Drawings for use in preparing Shop Drawings and Project record drawings upon request.
   a. Architect makes no representations as to the accuracy or completeness of digital data drawing files as they relate to the Contract Drawings.
   b. Contractor shall execute a data licensing agreement in the form of an Agreement form acceptable to the Owner and Architect.

B. Coordination: Coordinate preparation and processing of submittals with performance of construction activities.
   1. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that require sequential activity.
   2. Coordinate transmittal of different types of submittals for related parts of the Work so processing will not be delayed because of need to review submittals concurrently for coordination.
   3. Architect reserves the right to withhold action on a submittal requiring coordination with other submittals until related submittals are received.

C. Processing Time: Allow time for submittal review, including time for resubmittals, as follows. Time for review shall commence on Architect's receipt of submittal. No extension of the Contract Time will be authorized because of failure to transmit submittals enough in advance of the Work to permit processing, including resubmittals.
   1. Initial Review: Allow 15 days for initial review of each submittal. Allow additional time if coordination with subsequent submittals is required. Architect will advise Contractor when a submittal being processed must be delayed for coordination.
   2. Intermediate Review: If intermediate submittal is necessary, process it in same manner as initial submittal.
   3. Resubmittal Review: Allow 10 days for review of each resubmittal.

D. Identification and Information: Place a permanent label or title block on each paper copy submittal item for identification.
   1. Indicate name of firm or entity that prepared each submittal on label or title block.
   2. Provide a space approximately 4x4 on label or beside title block to record Contractor's review and approval markings and action taken by Architect.
   3. Include the following information for processing and recording action taken:
      a. Project name.
      b. Date.
      c. Name of Architect.
      d. Name of Contractor.
      e. Name of subcontractor.
      f. Name of supplier.
      g. Submittal number or other unique identifier, including revision identifier.
         1) Submittal number shall use Specification Section number followed by a decimal point and then a sequential number (e.g., 061000.01). Resubmittals shall include an alphabetic suffix after another decimal point (e.g., 061000.01.A).
      h. Number and title of appropriate Specification Section.
      i. Drawing number and detail references, as appropriate.
      j. Location(s) where product is to be installed, as appropriate.
      k. Other necessary identification.

E. Options: Identify options requiring selection by the Architect.

F. Deviations: Identify deviations from the Contract Documents on submittals.

G. Additional Copies: Unless additional copies are required for final submittal, and unless Architect observes noncompliance with provisions in the Contract Documents, initial submittal may serve as final submittal.

H. Transmittal: Assemble each submittal individually and appropriately for transmittal and handling. Transmit each submittal using a transmittal form. Architect will return submittals, without review, received from sources other than Contractor.
1. Transmittal Form: Use as approved by Architect.
2. On an attached separate sheet, prepared on Contractor's letterhead, record relevant information, requests for data, revisions other than those requested by Architect on previous submittals, and deviations from requirements in the Contract Documents, including minor variations and limitations. Include same identification information as related submittal.

I. Resubmittals: Make resubmittals in same form as initial submittal.
1. Note date and content of previous submittal.
2. Note date and content of revision in label or title block and clearly indicate extent of revision.
3. Resubmit submittals until they are marked with approval notation from Architect's action stamp.

J. Distribution: Furnish copies of final submittals to manufacturers, subcontractors, suppliers, fabricators, installers, authorities having jurisdiction, and others as necessary for performance of construction activities. Show distribution on transmittal forms.

K. Use for Construction: Use only final submittals that are marked with approval notation from Architect's action stamp.

PART 2 - PRODUCTS

2.1 SUBMITTAL PROCEDURES

A. General Submittal Procedure Requirements:
1. Action Submittals: **Submit electronic submittals in lieu of hard copies**. See below for information about Samples. Where paper copies are referenced in subsequent sections, electronic is still the preferred alternative.
a. Contractor to hold one copy of each submittal until the completion of the job for the Owner’s records or coordinate with Owner regarding electronic submittals.
2. Closeout Submittals and Maintenance Material Submittals: Comply with requirements specified in Division 01 Section "Closeout Procedures."
3. Certificates and Certifications Submittals: Provide a statement that includes signature of entity responsible for preparing certification. Certificates and certifications shall be signed by an officer or other individual authorized to sign documents on behalf of that entity.
4. Test and Inspection Reports Submittals: Comply with requirements specified in Division 01 Section "Quality Requirements."

B. **Product Data**: Collect information into a single submittal for each element of construction and type of product or equipment.
1. If information must be specially prepared for submittal because standard published data are not suitable for use, submit as Shop Drawings, not as Product Data.
2. Mark each copy of each submittal to show which products and options are applicable.
3. Include the following information, as applicable:

a. Manufacturer's catalog cuts.
b. Manufacturer's product specifications.
c. Standard color charts.
d. Statement of compliance with specified referenced standards, if not part of manufacturer's standard specifications
e. Testing by recognized testing agency, if not part of manufacturer's standard specifications.
f. Application of testing agency labels and seals.
g. Notation of coordination requirements.

4. For equipment, include the following in addition to the above, as applicable:
   a. Wiring diagrams showing factory-installed wiring.
   b. Printed performance curves.
   c. Operational range diagrams.
   d. Clearances required to other construction, if not indicated on accompanying Shop Drawings.

5. Submit Product Data before or concurrent with Samples.

C. **Samples**: Submit two (2) sets of physical Samples for review of kind, color, pattern, and texture for a check of these characteristics with other elements and for a comparison of these characteristics between submittal and actual component as delivered and installed. Architect will retain two (2) sets of samples. One for Architect's record, and one for Owner's use.
1. Transmit Samples that contain multiple, related components such as accessories together in one submittal package.
2. Identification: Attach label on unexposed side of Samples that includes the following:
   a. Generic description of Sample.
   b. Product name and name of manufacturer.
   c. Sample source.
   d. Number and title of applicable Specification Section.

3. Disposition: Maintain sets of approved Samples at Project site, available for quality-control comparisons throughout the course of construction activity. Sample sets may be used to determine final acceptance of construction associated with each set.
   a. Samples that may be incorporated into the Work are indicated in individual Specification Sections. Such Samples must be in an undamaged condition at time of use.
   b. Samples not incorporated into the Work, or otherwise designated as Owner's property, are the property of Contractor.

4. Samples for Initial Selection: Submit manufacturer's color charts consisting of units or sections of units showing the full range of colors, textures, and patterns available.
   a. Number of Samples: Submit two full set(s) of available choices where color, pattern, texture, or similar characteristics are required to be selected from manufacturer's product line. Architect will reta submittal with options selected. Architect will retain samples.

5. Samples for Verification: Submit full-size units or Samples of size indicated, prepared from same material to be used for the Work, cured and finished in manner specified, and physically identical with material or product proposed for use, and that show full range of color and texture variations expected. Samples include, but are not limited to, the

following: partial sections of manufactured or fabricated components; small cuts or containers of materials; complete units of repetitively used materials; swatches showing color, texture, and pattern; color range sets; and components used for independent testing and inspection.

a. Number of Samples: Submit two sets of Samples. Architect will retain one Sample sets; remainder will be returned. Mark up and retain one returned Sample set as a Project record sample.

1) If variation in color, pattern, texture, or other characteristic is inherent in material or product represented by a Sample, submit at least three sets of paired units that show approximate limits of variations.

6. Product Schedule: As required in individual Specification Sections, prepare a written summary indicating types of products required for the Work and their intended location.

a. Two paper copies of product schedule or list, unless otherwise indicated. Architect will return one copy.

D. Contractor's Construction Schedule: Comply with requirements specified in Division 01 Section "Construction Progress Documentation."

E. Application for Payment: Comply with requirements specified in Division 01 Section "Payment Procedures."

F. Schedule of Values: Comply with requirements specified in Division 01 Section "Payment Procedures."

G. Subcontract List: Prepare a written summary identifying individuals or firms proposed for each portion of the Work, including those who are to furnish products or equipment fabricated to a special design.

1. Submit subcontract list in the following format:

a. Number of Copies: Three paper copies of subcontractor list, unless otherwise indicated. Architect will return two copies.

H. Coordination Drawings: Comply with requirements specified in Division 01 Section "Project Management and Coordination."

I. Maintenance Data: Comply with requirements specified in Division 01 Section "Operation and Maintenance Data."

PART 3 - EXECUTION

3.1 CONTRACTOR'S REVIEW

A. Action and Informational Submittals: Review each submittal and check for coordination with other Work of the Contract and for compliance with the Contract Documents. Note corrections and field dimensions. Mark with approval stamp before submitting to Architect.

B. Project Closeout and Maintenance/Material Submittals: Refer to requirements in Division 01 Section "Closeout Procedures."

C. Approval Stamp: Stamp each submittal with a uniform, approval stamp. Include Project name and location, submittal number, Specification Section title and number, name of reviewer, date of Contractor's approval, and statement certifying that submittal has been reviewed, checked, and approved for compliance with the Contract Documents.

3.2 ARCHITECT'S ACTION

A. General: Architect will not review submittals that do not bear Contractor's approval stamp and will return them without action.

B. Action Submittals: Architect will review each submittal, make marks to indicate corrections or modifications required, and return it. Architect will stamp each submittal with an action stamp and will mark stamp appropriately to indicate action, as follows:

1. Final Unrestricted Release: Where the submittal is marked "Reviewed," the Work covered by the submittal may proceed provided it complies with the Contract Documents. Final acceptance will depend on that compliance

2. Final-but-Restricted Release: Where the submittal is marked "Reviewed and Noted," the Work covered by the submittal may proceed provided it complies both with Architect's notations and corrections on the submittal and the Contract Documents. Final acceptance will depend on that compliance.

3. Resubmit: Where the submittal is marked "Resubmit,", do not proceed with the Work covered by the submittal, including purchasing, fabrication, delivery, or other activity for the product submitted. Revise or prepare a new submittal according to Architect's notations and corrections

4. Rejected: Where the submittal is marked "Rejected," do not proceed with the Work covered by the submittal. Prepare a new submittal for a product that complies with the Contract Documents

5. Incomplete - Resubmit: Where the submittal is marked "Submit Additional Information," do not proceed with the Work covered by the submittal. Prepare additional information requested, or required by the Contract Documents, that indicates compliance with requirements, and resubmit.

6. Other Action: If the submittal is primarily for information purposes, record purposes, special processing, or other contractor activity, the submittal will be returned marked "Action Not Required."

C. Incomplete submittals are not acceptable, will be considered nonresponsive, and will be returned without review.

D. Submittals not required by the Contract Documents may not be reviewed and may be discarded.

END OF SECTION 013300

SECTION 014000 - QUALITY REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for quality assurance and quality control.

B. Testing and inspecting services are required to verify compliance with requirements specified or indicated. These services do not relieve Contractor of responsibility for compliance with the Contract Document requirements.
   1. Specified tests, inspections, and related actions do not limit Contractor's other quality-assurance and -control procedures that facilitate compliance with the Contract Document requirements.
   2. Requirements for Contractor to provide quality-assurance and -control services required by Architect, Owner, or authorities having jurisdiction are not limited by provisions of this Section.

C. Related Sections:
   1. Divisions 02 through 49 Sections for specific test and inspection requirements.

1.2 DEFINITIONS

A. Quality-Assurance Services: Activities, actions, and procedures performed before and during execution of the Work to guard against defects and deficiencies and substantiate that proposed construction will comply with requirements.

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

C. Mockups: Full size physical assemblies that are constructed on-site. Mockups are constructed to verify selections made under sample submittals; to demonstrate aesthetic effects and, where indicated, qualities of materials and execution; to review coordination, testing, or operation; to show interface between dissimilar materials; and to demonstrate compliance with specified installation tolerances. Mockups are not Samples. Unless otherwise indicated, approved mockups establish the standard by which the Work will be judged.

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

E. Testing Agency: An entity engaged to perform specific tests, inspections, or both. Testing laboratory shall mean the same as testing agency.

F. Installer/Applicator/Erector: Contractor or another entity engaged by Contractor as an employee, Subcontractor, or Sub-subcontractor, to perform a particular construction operation, including installation, erection, application, and similar operations.

G. Experienced: When used with an entity or individual, "experienced" means having successfully completed a minimum of previous projects similar in nature, size, and extent to this Project; being familiar with special requirements indicated; and having complied with requirements of authorities having jurisdiction.

1.3 CONFLICTING REQUIREMENTS

A. Referenced Standards: If compliance with two or more standards is specified and the standards establish different or conflicting requirements for minimum quantities or quality levels, comply with the most stringent requirement. Refer conflicting requirements that are different, but apparently equal, to Architect for a decision before proceeding.

B. Minimum Quantity or Quality Levels: The quantity or quality level shown or specified shall be the minimum provided or performed. The actual installation may comply exactly with the minimum quantity or quality specified, or it may exceed the minimum within reasonable limits. To comply with these requirements, indicated numeric values are minimum or maximum, as appropriate, for the context of requirements. Refer uncertainties to Architect for a decision before proceeding.

1.4 INFORMATIONAL SUBMITTALS

A. Contractor's Statement of Responsibility: When required by authorities having jurisdiction, submit copy of written statement of responsibility sent to authorities having jurisdiction before starting work on the following systems.
1. Seismic-force resisting system, designated seismic system, or component listed in the designated seismic system quality assurance plan prepared by the Structural Engineer.
2. Main wind-force resisting system or a wind-resisting component listed in the wind-force-resisting system quality assurance plan prepared by the Structural engineer.

B. Testing Agency Qualifications: For testing agencies specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include proof of qualifications in the form of a recent report on the inspection of the testing agency by a recognized authority.

1.5 REPORTS AND DOCUMENTS

A. Test and Inspection Reports: Prepare and submit certified written reports specified in other Sections. Include the following:
1. Date of issue.
2. Project title and number.
3. Name, address, and telephone number of testing agency.
4. Dates and locations of samples and tests or inspections.
5. Names of individuals making tests and inspections.
6. Description of the Work and test and inspection method.
7. Identification of product and Specification Section.

8. Complete test or inspection data.
9. Test and inspection results and an interpretation of test results.
10. Record of temperature and weather conditions at time of sample taking and testing and inspecting.
11. Comments or professional opinion on whether tested or inspected Work complies with the Contract Document requirements.
12. Name and signature of laboratory inspector.
13. Recommendations on retesting and reinspecting.

B. Manufacturer's and Installer's Field Reports: Prepare written information documenting tests and inspections specified in other Sections. Include the following:
1. Name, address, and telephone number of representative making report.
2. Statement on condition of substrates and their acceptability for installation of product.
3. Summary of installation procedures being followed, whether they comply with requirements and, if not, what corrective action was taken.
4. Results of operational and other tests and a statement of whether observed performance complies with requirements.
5. Other required items indicated in individual Specification Sections.

C. Permits, Licenses, and Certificates: For Owner's records, submit copies of permits, licenses, certifications, inspection reports, releases, jurisdictional settlements, notices, receipts for fee payments, judgments, correspondence, records, and similar documents, established for compliance with standards and regulations bearing on performance of the Work.

1.6 QUALITY ASSURANCE

A. General: Qualifications paragraphs in this article establish the minimum qualification levels required; individual Specification Sections specify additional requirements.

B. Manufacturer Qualifications: A firm experienced in manufacturing products or systems similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

C. Fabricator Qualifications: A firm experienced in producing products similar to those indicated for this Project and with a record of successful in-service performance, as well as sufficient production capacity to produce required units.

D. Installer Qualifications: A firm or individual experienced in installing, erecting, or assembling work similar in material, design, and extent to that indicated for this Project, whose work has resulted in construction with a record of successful in-service performance.

E. Professional Engineer Qualifications: A professional engineer who is legally qualified to practice in jurisdiction where Project is located and who is experienced in providing engineering services of the kind indicated. Engineering services are defined as those performed for installations of the system, assembly, or product that are similar to those indicated for this Project in material, design, and extent.

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

1. Requirements of authorities having jurisdiction shall supersede requirements for specialists.

G. Testing Agency Qualifications: An independent agency with the experience and capability to conduct testing and inspecting indicated, as documented according to ASTM E 329; and with additional qualifications specified in individual Sections; and where required by authorities having jurisdiction, that is acceptable to authorities.

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

I. Mockups: Before installing portions of the Work requiring mockups, build mockups for each form of construction and finish required to comply with the following requirements, using materials indicated for the completed Work:
1. Build mockups in location and of size indicated or, if not indicated, as directed by Architect.
2. Notify Architect seven days in advance of dates and times when mockups will be constructed.
3. Demonstrate the proposed range of aesthetic effects and workmanship.
4. Obtain Architect's approval of mockups before starting work, fabrication, or construction.
   a. Allow five (5) days for initial review and each re-review of each mockup.
5. Maintain mockups during construction in an undisturbed condition as a standard for judging the completed Work.

1.7 QUALITY CONTROL

A. Contractor Responsibilities: Tests and inspections not explicitly assigned to Owner are Contractor's responsibility. Perform additional quality-control activities required to verify that the Work complies with requirements, whether specified or not.
1. Where services are indicated as Contractor's responsibility, engage a qualified testing agency to perform these quality-control services.
   a. Contractor shall not employ same entity engaged by Owner, unless agreed to in writing by Owner.
2. Notify testing agencies at least 24 hours in advance of time when Work that requires testing or inspecting will be performed.
3. Where quality-control services are indicated as Contractor's responsibility, submit a certified written report, in duplicate, of each quality-control service.
4. Testing and inspecting requested by Contractor and not required by the Contract Documents are Contractor's responsibility.
5. Submit additional copies of each written report directly to authorities having jurisdiction, when they so direct.

B. Manufacturer's Field Services: Where indicated, engage a manufacturer's representative to observe and inspect the Work. Manufacturer's representative's services include examination of substrates and conditions, verification of materials, inspection of completed portions of the Work, and submittal of written reports.

C. Retesting/Reinspecting: Regardless of whether original tests or inspections were Contractor's responsibility, provide quality-control services, including retesting and reinspecting, for construction that replaced Work that failed to comply with the Contract Documents.

D. Testing Agency Responsibilities: Cooperate with Architect and Contractor in performance of duties. Provide qualified personnel to perform required tests and inspections.
1. Notify Architect and Contractor promptly of irregularities or deficiencies observed in the Work during performance of its services.
2. Determine the location from which test samples will be taken and in which in-situ tests are conducted.
3. Conduct and interpret tests and inspections and state in each report whether tested and inspected work complies with or deviates from requirements.
4. Submit a certified written report, in duplicate, of each test, inspection, and similar quality-control service through Contractor.
5. Do not release, revoke, alter, or increase the Contract Document requirements or approve or accept any portion of the Work.
6. Do not perform any duties of Contractor.

E. Associated Services: Cooperate with agencies performing required tests, inspections, and similar quality-control services, and provide reasonable auxiliary services as requested. Notify agency sufficiently in advance of operations to permit assignment of personnel. Provide the following:
1. Access to the Work.
2. Incidental labor and facilities necessary to facilitate tests and inspections.
3. Adequate quantities of representative samples of materials that require testing and inspecting. Assist agency in obtaining samples.
4. Facilities for storage and field curing of test samples.
5. Delivery of samples to testing agencies.
6. Preliminary design mix proposed for use for material mixes that require control by testing agency.
7. Security and protection for samples and for testing and inspecting equipment at Project site.

F. Coordination: Coordinate sequence of activities to accommodate required quality-assurance and -control services with a minimum of delay and to avoid necessity of removing and replacing construction to accommodate testing and inspecting.
1. Schedule times for tests, inspections, obtaining samples, and similar activities.

1.8 SPECIAL TESTS AND INSPECTIONS

A. Special Tests and Inspections: Owner will engage a qualified testing agency to conduct special tests and inspections required by authorities having jurisdiction as the responsibility of Owner, and as follows:
1. Verifying that manufacturer maintains detailed fabrication and quality-control procedures and reviewing the completeness and adequacy of those procedures to perform the Work.
2. Notifying Architect and Contractor promptly of irregularities and deficiencies observed in the Work during performance of its services.
3. Submitting a certified written report of each test, inspection, and similar quality-control service to Architect with copy to Contractor and to authorities having jurisdiction.

4. Submitting a final report of special tests and inspections at Substantial Completion, which includes a list of unresolved deficiencies.
5. Interpreting tests and inspections and stating in each report whether tested and inspected work complies with or deviates from the Contract Documents.
6. Retesting and re-inspecting corrected work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 REPAIR AND PROTECTION

A. General: On completion of testing, inspecting, sample taking, and similar services, repair damaged construction and restore substrates and finishes.
   1. Provide materials and comply with installation requirements specified in other Specification Sections or matching existing substrates and finishes. Restore patched areas and extend restoration into adjoining areas with durable seams that are as invisible as possible. Comply with the Contract Document requirements for cutting and patching in Division 01 Section "Execution."

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

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

END OF SECTION 014000

SECTION 015000 - TEMPORARY FACILITIES AND CONTROLS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes requirements for temporary utilities, support facilities, and security and protection facilities.

B. Related Section:
   1. Division 01 Section "Summary" for work restrictions and limitations on utility interruptions.

1.2 USE CHARGES

A. General: Installation and removal of and use charges for temporary facilities shall be included in the Contract Sum unless otherwise indicated. Allow other entities to use temporary services and facilities without cost, including, but not limited to, Owner and Architect, testing agencies, and authorities having jurisdiction.

1.3 QUALITY ASSURANCE

A. Electric Service: Comply with NECA, NEMA, and UL standards and regulations for temporary electric service. Install service to comply with NFPA 70.

B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use. Obtain required certifications and permits.

1.4 PROJECT CONDITIONS

A. Temporary Use of Permanent Facilities: Engage installer of each permanent service to assume responsibility for operation, maintenance, and protection of each permanent service during its use as a construction facility before Owner's acceptance, regardless of previously assigned responsibilities.

PART 2 - PRODUCTS

2.1 EQUIPMENT

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

B. HVAC Equipment: Unless Owner authorizes use of permanent HVAC system, provide vented, self-contained, liquid-propane-gas or fuel-oil heaters with individual space thermostatic control.

1. Use of gasoline-burning space heaters, open-flame heaters, or salamander-type heating units is prohibited.
2. Permanent HVAC System: If Owner authorizes use of permanent HVAC system for temporary use during construction, provide filter with MERV of 8 at each return air grille in system and remove at end of construction and clean HVAC system as required in Division 01 Section "Closeout Procedures."

PART 3 - EXECUTION

3.1 INSTALLATION, GENERAL

A. Locate facilities where they will serve Project adequately and result in minimum interference with performance of the Work. Relocate and modify facilities as required by progress of the Work.

B. Provide each facility ready for use when needed to avoid delay. Do not remove until facilities are no longer needed or are replaced by authorized use of completed permanent facilities.

3.2 TEMPORARY UTILITY INSTALLATION

A. General: Install temporary service or connect to existing service.
1. Arrange with utility company, Owner, and existing users for time when service can be interrupted, if necessary, to make connections for temporary services.

B. Sewers and Drainage: Provide temporary utilities to remove effluent lawfully.
1. Connect temporary sewers to municipal system as directed by authorities having jurisdiction.

C. Water Service: Install water service and distribution piping in sizes and pressures adequate for construction.

D. Sanitary Facilities: Provide temporary toilets, wash facilities, and drinking water for use of construction personnel. Comply with requirements of authorities having jurisdiction for type, number, location, operation, and maintenance of fixtures and facilities.

E. Heating and Cooling: Provide temporary heating and cooling required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of low temperatures or high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed.

F. Ventilation and Humidity Control: Provide temporary ventilation required by construction activities for curing or drying of completed installations or for protecting installed construction from adverse effects of high humidity. Select equipment that will not have a harmful effect on completed installations or elements being installed. Coordinate ventilation requirements to produce ambient condition required and minimize energy consumption.

G. Electric Power Service: Provide electric power service and distribution system of sufficient size, capacity, and power characteristics required for construction operations.

H. Lighting: Provide temporary lighting with local switching that provides adequate illumination for construction operations, observations, inspections, and traffic conditions. Install and operate temporary lighting that fulfills security and protection requirements without operating entire system.

3.3 SUPPORT FACILITIES INSTALLATION

A. Temporary Use of New Roads and Paved Areas: Locate temporary roads and paved areas in same location as permanent roads and paved areas. Construct and maintain temporary roads and paved areas adequate for construction operations. Extend temporary roads and paved areas, within construction limits indicated, as necessary for construction operations.
   1. Provide dust-control treatment that is nonpolluting and nontracking. Reapply treatment as required to minimize dust.
   2. Recondition base after temporary use, including removing contaminated material, regrading, proofrolling, compacting, and testing.
   3. Delay installation of final course of permanent hot-mix asphalt pavement until immediately before Substantial Completion. Repair hot-mix asphalt base-course pavement before installation of final course according to Division 32 Section "Asphalt Paving."

B. Traffic Controls: Comply with requirements of authorities having jurisdiction.
   1. Protect existing site improvements to remain including curbs, pavement, and utilities.
   2. Maintain access for fire-fighting equipment and access to fire hydrants.

C. Parking: Provide temporary parking areas for construction personnel.

D. Dewatering Facilities and Drains: Comply with requirements of authorities having jurisdiction. Maintain Project site, excavations, and construction free of water.
   1. Dispose of rainwater in a lawful manner that will not result in flooding Project or adjoining properties nor endanger permanent Work or temporary facilities.

E. Project Signs: Provide Temporary Project signs as directed by Client. Unauthorized signs are not permitted.

F. Waste Disposal Facilities: Comply with requirements specified in Division 01 Section "Construction Waste Management and Disposal."

G. Temporary Use of Permanent Stairs: Use of new stairs for construction traffic will be permitted, provided stairs are protected and finishes restored to new condition at time of Substantial Completion.

3.4 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection: Provide protection, operate temporary facilities, and conduct construction as required to comply with environmental regulations and that minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.

B. Stormwater Control: Comply with requirements of authorities having jurisdiction. Provide barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

C. Pest Control: Engage pest-control service to recommend practices to minimize attraction and harboring of pigeons and other pests. Perform control operations lawfully, using environmentally safe methods and materials.

D. Security Enclosure and Lockup: Install temporary enclosure around partially completed areas of construction. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar violations of security. Lock entrances at end of each work day.

E. Barricades, Warning Signs, and Lights: Comply with requirements of authorities having jurisdiction for erecting structurally adequate barricades, including warning signs and lighting.

F. Temporary Egress: Maintain temporary egress from existing occupied facilities as indicated and as required by authorities having jurisdiction.

G. Temporary Enclosures: Provide temporary enclosures for protection of construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
   1. Where heating or cooling is needed and permanent enclosure is not complete, insulate temporary enclosures.

H. Temporary Fire Protection: Install and maintain temporary fire-protection facilities of types needed to protect against reasonably predictable and controllable fire losses. Comply with NFPA 241.
   1. Prohibit smoking in construction areas.
   2. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition according to requirements of authorities having jurisdiction.
   3. Develop and supervise an overall fire-prevention and -protection program for personnel at Project site. Review needs with local fire department and establish procedures to be followed. Instruct personnel in methods and procedures. Post warnings and information.
   4. Provide temporary standpipes and hoses for fire protection. Hang hoses with a warning sign stating that hoses are for fire-protection purposes only and are not to be removed. Match hose size with outlet size and equip with suitable nozzles.

3.5 MOISTURE AND MOLD CONTROL

A. Contractor's Moisture Protection Plan: Avoid trapping water in finished work. Document visible signs of mold that may appear during construction.

B. Exposed Construction Phase: Before installation of weather barriers, when materials are subject to wetting and exposure and to airborne mold spores, protect materials from water damage and keep porous and organic materials from coming into prolonged contact with concrete.

C. Partially Enclosed Construction Phase: After installation of weather barriers but before full enclosure and conditioning of building, when installed materials are still subject to infiltration of moisture and ambient mold spores, protect as follows:

1. Do not load or install drywall or other porous materials or components, or items with high organic content, into partially enclosed building.
2. Keep interior spaces reasonably clean and protected from water damage.
3. Discard or replace water-damaged and wet material.
4. Discard, replace or clean stored or installed material that begins to grow mold.
5. Perform work in a sequence that allows any wet materials adequate time to dry before enclosing the material in drywall or other interior finishes.

D. Controlled Construction Phase of Construction: After completing and sealing of the building enclosure but prior to the full operation of permanent HVAC systems, maintain as follows:
1. Control moisture and humidity inside building by maintaining effective dry-in conditions.
2. Remove materials that can not be completely restored to their manufactured moisture level within 48 hours.

3.6 OPERATION, TERMINATION, AND REMOVAL

A. Supervision: Enforce strict discipline in use of temporary facilities. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance: Maintain facilities in good operating condition until removal.
1. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on a 24-hour basis where required to achieve indicated results and to avoid possibility of damage.

C. Temporary Facility Changeover: Do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal: Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of a permanent facility, or no later than Substantial Completion. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility. Repair damaged Work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
1. Materials and facilities that constitute temporary facilities are property of Contractor. Owner reserves right to take possession of Project identification signs.
2. At Substantial Completion, repair, renovate, and clean permanent facilities used during construction period. Comply with final cleaning requirements specified in Division 01 Section "Closeout Procedures."

END OF SECTION 015000

SECTION 016000 - PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for selection of products for use in Project; product delivery, storage, and handling; manufacturers' standard warranties on products; special warranties; and comparable products.

B. Related Section:
   1. Division 01 Section "Substitution Procedures" for requests for substitutions.

1.2 DEFINITIONS

A. Products: Items obtained for incorporating into the Work, whether purchased for Project or taken from previously purchased stock. The term "product" includes the terms "material," "equipment," "system," and terms of similar intent.
   1. Named Products: Items identified by manufacturer's product name, including make or model number or other designation shown or listed in manufacturer's published product literature, that is current as of date of the Contract Documents.
   2. New Products: Items that have not previously been incorporated into another project or facility. Products salvaged or recycled from other projects are not considered new products.
   3. Comparable Product: Product that is demonstrated and approved through submittal process to have the indicated qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics that equal or exceed those of specified product.

B. Basis-of-Design Product Specification: A specification in which a specific manufacturer's product is named and accompanied by the words "basis-of-design product," including make or model number or other designation, to establish the significant qualities related to type, function, dimension, in-service performance, physical properties, appearance, and other characteristics for purposes of evaluating comparable products of additional manufacturers named in the specification.

1.3 ACTION SUBMITTALS

A. Comparable Product Requests: Submit a request for consideration of each comparable product. Identify product or fabrication or installation method to be replaced. Include Specification Section number and title and Drawing numbers and titles.
   1. Architect's Action: If necessary, Architect will request additional information or documentation for evaluation within one week of receipt of a comparable product request. Architect will notify Contractor of approval or rejection of proposed comparable product request within 15 days of receipt of request, or seven days of receipt of additional information or documentation, whichever is later.

a. Form of Approval: As specified in Division 01 Section "Submittal Procedures."
b. Use product specified if Architect does not issue a decision on use of a comparable product request within time allocated.

B. Basis-of-Design Product Specification Submittal: Comply with requirements in Division 01 Section "Submittal Procedures." Show compliance with requirements.

1.4 QUALITY ASSURANCE

A. Compatibility of Options: If Contractor is given option of selecting between two or more products for use on Project, select product compatible with products previously selected, even if previously selected products were also options.

1.5 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Deliver, store, and handle products using means and methods that will prevent damage, deterioration, and loss, including theft and vandalism. Comply with manufacturer's written instructions.

B. Delivery and Handling:
1. Schedule delivery to minimize long-term storage at Project site and to prevent overcrowding of construction spaces.
2. Coordinate delivery with installation time to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to Project site in an undamaged condition in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to determine compliance with the Contract Documents and to determine that products are undamaged and properly protected.

C. Storage:
1. Store products to allow for inspection and measurement of quantity or counting of units.
2. Store materials in a manner that will not endanger Project structure.
3. Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.
4. Store foam plastic from exposure to sunlight, except to extent necessary for period of installation and concealment.
5. Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.
6. Protect stored products from damage and liquids from freezing.

1.6 PRODUCT WARRANTIES

A. Warranties specified in other Sections shall be in addition to, and run concurrent with, other warranties required by the Contract Documents. Manufacturer's disclaimers and limitations on product warranties do not relieve Contractor of obligations under requirements of the Contract Documents.

1. Manufacturer's Warranty: Written warranty furnished by individual manufacturer for a particular product and specifically endorsed by manufacturer to Owner.
2. Special Warranty: Written warranty required by the Contract Documents to provide specific rights for Owner.
3. In addition to the manufacturers Warranties, additional warranties are required by the Contract Documents for one (1) year following the Date of Substantial Completion.
    a. If, during the one year warranty period, there is any substantive replacement of any part of the project, especially that related to, but not limited to, mechanical equipment, fittings, and fixtures; the one(1) year warranty starts anew for items and systems affected by the replacement.

B. Special Warranties: Prepare a written document that contains appropriate terms and identification, ready for execution.
1. Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.
2. Specified Form: When specified forms are included with the Specifications, prepare a written document using indicated form properly executed.
3. Refer to Divisions 02 through 49. Sections for specific content requirements and particular requirements for submitting special warranties.

C. Submittal Time: Comply with requirements in Division 01 Section "Closeout Procedures."

PART 2 - PRODUCTS

2.1 PRODUCT SELECTION PROCEDURES

A. General Product Requirements: Provide products that comply with the Contract Documents, are undamaged and, unless otherwise indicated, are new at time of installation.
1. Provide products complete with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.
2. Standard Products: If available, and unless custom products or nonstandard options are specified, provide standard products of types that have been produced and used successfully in similar situations on other projects.
3. Owner reserves the right to limit selection to products with warranties not in conflict with requirements of the Contract Documents.
4. Where products are accompanied by the term "as selected," Architect will make selection.
5. Descriptive, performance, and reference standard requirements in the Specifications establish salient characteristics of products.

B. Product Selection Procedures:
1. Product: Where Specifications name a single manufacturer and product, provide the named product that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
2. Manufacturer/Source: Where Specifications name a single manufacturer or source, provide a product by the named manufacturer or source that complies with requirements. Comparable products or substitutions for Contractor's convenience will not be considered.
3. Products:

a. Where Specifications include a list of names of both available manufacturers and products, provide one of the products listed, or an unnamed product, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product.

4. Manufacturers:
   a. Where Specifications include a list of available manufacturers, provide a product by one of the manufacturers listed, or a product by an unnamed manufacturer, that complies with requirements. Comply with requirements in "Comparable Products" Article for consideration of an unnamed manufacturer's product.
5. Basis-of-Design Product: Where Specifications name a product, or refer to a product indicated on Drawings, and include a list of manufacturers, provide the specified or indicated product or a comparable product by one of the other named manufacturers. Drawings and Specifications indicate sizes, profiles, dimensions, and other characteristics that are based on the product named. Comply with requirements in "Comparable Products" Article for consideration of an unnamed product by one of the other named manufacturers.

C. Visual Matching Specification: Where Specifications require "match Architect's sample", provide a product that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches.
   1. If no product available within specified category matches and complies with other specified requirements, comply with requirements in Division 01 Section "Substitution Procedures" for proposal of product.

D. Visual Selection Specification: Where Specifications include the phrase "as selected by Architect from manufacturer's full range" or similar phrase, select a product that complies with requirements. Architect will select color, gloss, pattern, density, or texture from manufacturer's product line that includes both standard and premium items.

2.2 COMPARABLE PRODUCTS

A. Conditions for Consideration: Architect will consider Contractor's request for comparable product when the following conditions are satisfied. If the following conditions are not satisfied, Architect may return requests without action, except to record noncompliance with these requirements:
   1. Evidence that the proposed product does not require revisions to the Contract Documents, that it is consistent with the Contract Documents and will produce the indicated results, and that it is compatible with other portions of the Work.
   2. Detailed comparison of significant qualities of proposed product with those named in the Specifications. Significant qualities include attributes such as performance, weight, size, durability, visual effect, and specific features and requirements indicated.
   3. Evidence that proposed product provides specified warranty.
   4. List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.
   5. Samples, if requested.

END OF SECTION 016000

SECTION 017300 - EXECUTION

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes general administrative and procedural requirements governing execution of the Work including, but not limited to, the following:
   1. Construction layout.
   2. Field engineering and surveying.
   3. Installation of the Work.
   4. Cutting and patching.
   5. Coordination of Owner-installed products.
   6. Progress cleaning.
   7. Starting and adjusting.
   8. Protection of installed construction.
   9. Correction of the Work.

B. Related Sections:
   1. Division 01 Section "Closeout Procedures" for submitting final Project Record Documents, recording of Owner-accepted deviations from indicated lines and levels, and final cleaning.

1.2 QUALITY ASSURANCE

A. Cutting and Patching: Comply with requirements for and limitations on cutting and patching of construction elements.
   1. Structural Elements: When cutting and patching structural elements, notify Architect of locations and details of cutting and await directions from the Architect before proceeding. Shore, brace, and support structural element during cutting and patching. Do not cut and patch structural elements in a manner that could change their load-carrying capacity or increase deflection
   2. Operational Elements: Do not cut and patch operating elements and related components in a manner that results in reducing their capacity to perform as intended or that results in increased maintenance or decreased operational life or safety.
   3. Other Construction Elements: Do not cut and patch other construction elements or components in a manner that could change their load-carrying capacity, that results in reducing their capacity to perform as intended, or that results in increased maintenance or decreased operational life or safety
   4. Visual Elements: Do not cut and patch construction in a manner that results in visual evidence of cutting and patching. Do not cut and patch exposed construction in a manner that would, in Architect's opinion, reduce the building's aesthetic qualities. Remove and replace construction that has been cut and patched in a visually unsatisfactory manner.

1.3 WARRANTY

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

PART 2 - PRODUCTS

2.1 MATERIALS

A. General: Comply with requirements specified in other Sections.

B. For projects requiring compliance with sustainable design and construction practices and procedures, utilize products for patching that comply with requirements of Division 01 Section "Sustainable Design Requirements."

C. In-Place Materials: Use materials for patching identical to in-place materials. For exposed surfaces, use materials that visually match in-place adjacent surfaces to the fullest extent possible.
   1. If identical materials are unavailable or cannot be used, use materials that, when installed, will provide a match acceptable to the Architect for the visual and functional performance of in-place materials.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Existing Conditions: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities, mechanical and electrical systems, and other construction affecting the Work.
   1. Furnish location data for work related to Project that must be performed by public utilities serving Project site.

B. Examination and Acceptance of Conditions: Before proceeding with each component of the Work, examine substrates, areas, and conditions, with Installer or Applicator present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.
   1. Verify compatibility with and suitability of substrates, including compatibility with existing finishes or primers.
   2. Examine roughing-in for mechanical and electrical systems to verify actual locations of connections before equipment and fixture installation.
   3. Examine walls, floors, and roofs for suitable conditions where products and systems are to be installed.
   4. Proceed with installation only after unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

3.2 PREPARATION

A. Existing Utility Information: Furnish information to local utility that is necessary to adjust, move, or relocate existing utility structures, utility poles, lines, services, or other utility appurtenances located in or affected by construction. Coordinate with authorities having jurisdiction.

B. Field Measurements: Take field measurements as required to fit the Work properly. Recheck measurements before installing each product. Where portions of the Work are indicated to fit to other construction, verify dimensions of other construction by field measurements before fabrication. Coordinate fabrication schedule with construction progress to avoid delaying the Work.

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

D. Review of Contract Documents and Field Conditions: Immediately on discovery of the need for clarification of the Contract Documents caused by differing field conditions outside the control of the Contractor, submit a request for information to Architect according to requirements in Division 01 Section "Project Management and Coordination."

3.3 FIELD ENGINEERING

A. Reference Points: Locate existing permanent benchmarks, control points, and similar reference points before beginning the Work. Preserve and protect permanent benchmarks and control points during construction operations.

B. Benchmarks: Establish and maintain a minimum of two permanent benchmarks on Project site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark.
   1. Record benchmark locations, with horizontal and vertical data, on Project Record Documents.

3.4 INSTALLATION

A. General: Locate the Work and components of the Work accurately, in correct alignment and elevation, as indicated.
   1. Make vertical work plumb and make horizontal work level.
   2. Where space is limited, install components to maximize space available for maintenance and ease of removal for replacement.
   3. Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

B. Comply with manufacturer's written instructions and recommendations for installing products in applications indicated.

C. Install products at the time and under conditions that will ensure the best possible results. Maintain conditions required for product performance until Substantial Completion.

D. Conduct construction operations so no part of the Work is subjected to damaging operations or loading in excess of that expected during normal conditions of occupancy.

E. Tools and Equipment: Do not use tools or equipment that produce harmful noise levels.

F. Templates: Obtain and distribute to the parties involved templates for work specified to be factory prepared and field installed. Check Shop Drawings of other work to confirm that adequate provisions are made for locating and installing products to comply with indicated requirements.

G. Attachment: Provide blocking and attachment plates and fasteners of adequate size and number to securely anchor each component in place, accurately located and aligned with other portions of the Work. Where size and type of attachments are not indicated, verify size and type required for load conditions.
   1. Mounting Heights: Where mounting heights are not indicated, mount components at heights directed by Architect.
   2. Allow for building movement, including thermal expansion and contraction.

H. Joints: Make joints of uniform width. Where joint locations in exposed work are not indicated, arrange joints for the best visual effect. Fit exposed connections together to form hairline joints.

I. Hazardous Materials: Use products, cleaners, and installation materials that are not considered hazardous.

3.5 CUTTING AND PATCHING

A. Cutting and Patching, General: Employ skilled workers to perform cutting and patching. Proceed with cutting and patching at the earliest feasible time, and complete without delay.
   1. Cut in-place construction to provide for installation of other components or performance of other construction, and subsequently patch as required to restore surfaces to their original condition.

B. Temporary Support: Provide temporary support of work to be cut.

C. Protection: Protect in-place construction during cutting and patching to prevent damage. Provide protection from adverse weather conditions for portions of Project that might be exposed during cutting and patching operations.

D. Cutting: Cut in-place construction by sawing, drilling, breaking, chipping, grinding, and similar operations, including excavation, using methods least likely to damage elements retained or adjoining construction. If possible, review proposed procedures with original Installer; comply with original Installer's written recommendations.
   1. In general, use hand or small power tools designed for sawing and grinding, not hammering and chopping. Cut holes and slots neatly to minimum size required, and with minimum disturbance of adjacent surfaces. Temporarily cover openings when not in use.
   2. Finished Surfaces: Cut or drill from the exposed or finished side into concealed surfaces.
   3. Concrete and Masonry: Cut using a cutting machine, such as an abrasive saw or a diamond-core drill.

E. Patching: Patch construction by filling, repairing, refinishing, closing up, and similar operations following performance of other work. Patch with durable seams that are as invisible as practicable. Provide materials and comply with installation requirements specified in other Sections, where applicable.
   1. Inspection: Where feasible, test and inspect patched areas after completion to demonstrate physical integrity of installation.
   2. Exposed Finishes: Restore exposed finishes of patched areas and extend finish restoration into retained adjoining construction in a manner that will minimize evidence of patching and refinishing.
   3. Exterior Building Enclosure: Patch components in a manner that restores enclosure to a weathertight condition.

F. Cleaning: Clean areas and spaces where cutting and patching are performed. Remove paint, mortar, oils, putty, and similar materials from adjacent finished surfaces.

3.6 PROGRESS CLEANING

A. General: Clean Project site and work areas daily, including common areas. Enforce requirements strictly. Dispose of materials lawfully.
   1. Comply with requirements in NFPA 241 for removal of combustible waste materials and debris.
   2. Do not hold waste materials more than seven days during normal weather or three days if the temperature is expected to rise above 80 deg F (27 deg C).
   3. Containerize hazardous and unsanitary waste materials separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

B. Site: Maintain Project site free of waste materials and debris.

C. Work Areas: Clean areas where work is in progress to the level of cleanliness necessary for proper execution of the Work.
   1. Remove liquid spills promptly.
   2. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

D. Installed Work: Keep installed work clean. Clean installed surfaces according to written instructions of manufacturer or fabricator of product installed, using only cleaning materials specifically recommended. If specific cleaning materials are not recommended, use cleaning materials that are not hazardous to health or property and that will not damage exposed surfaces.

E. Concealed Spaces: Remove debris from concealed spaces before enclosing the space.

F. Exposed Surfaces in Finished Areas: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

G. Waste Disposal: Do not bury or burn waste materials on-site. Do not wash waste materials down sewers or into waterways.

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

I. Clean and provide maintenance on completed construction as frequently as necessary through the remainder of the construction period. Adjust and lubricate operable components to ensure operability without damaging effects.

3.7 STARTING AND ADJUSTING

A. Start equipment and operating components to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

B. Adjust equipment for proper operation. Adjust operating components for proper operation without binding.

C. Test each piece of equipment to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

D. Manufacturer's Field Service: Comply with qualification requirements in Division 01 Section "Quality Requirements."

3.8 PROTECTION OF INSTALLED CONSTRUCTION

A. Provide final protection and maintain conditions that ensure installed Work is without damage or deterioration at time of Substantial Completion.

B. Comply with manufacturer's written instructions for temperature and relative humidity.

3.9 CORRECTION OF THE WORK

A. Repair or remove and replace defective construction. Restore damaged substrates and finishes.
   1. Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

B. Restore permanent facilities used during construction to their specified condition.

C. Remove and replace damaged surfaces that are exposed to view if surfaces cannot be repaired without visible evidence of repair.

D. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired.

E. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 017300

SECTION 017400 – PROGRESS AND FINAL CLEANING

PART 1 GENERAL

1.1 CONTRACT CONDITIONS and RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Restrictions on cleaning products.

B. Progress cleaning.

1. Daily cleaning requirements.

C. Final cleaning.

D. Protection of work and finishes.

PART 2 PRODUCTS

2.1 PRODUCTS

A. Cleaning agents to be recommended or approved by Owner to prevent health problems, or affect existing health problems, for residents of occupied apartments.

B. Cleaning agents to be as recommended by Manufacturer of item being cleaned, with review and approval of recommended products by Owner.

PART 3 EXECUTION

3.1 PROGRESS CLEANING

A. All Owner, staff, and residential areas outside of designated Contractor work areas, shall be cleaned daily.

B. Maintain clean and safe work site; sweep paved areas.

C. Remove all solvents, grease, and oils in all areas daily.

D. Prevent tracking of dust, and other effects of construction activity, outside of work area.

E. Place rubbish, debris, and demolished materials in Contractor provided dumpster, or remove from site daily.

F. Contractor may not use any Resident or Agency dumpsters, waste receptacles, or other non-Contractor provided waste disposal equipment.

G. Required cleaning not completed by Contractor shall be back-charged to Contractor, including administration and travel time.

3.2 FINAL CLEANING

A. Execute final cleaning prior to final inspection.

1. Areas that are not clean shall not be inspected for final review.

B. Clean all new work and clean all existing surfaces within and around new work. Remove temporary labels, stains and foreign substances.

C. Clean all splatters on exterior glass surfaces and other surfaces in work area.

1. Clean interior and exterior of re-installed glass**.**

D. Clean handrails, and items subject to touch, to a sanitary condition.

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

F. Power wash paved areas and exterior hard surfaces if soiled by work.

G. Remove waste, rubbish, surplus materials, and construction facilities from the building work area and site.

3.3 PROTECTION OF FINISHED WORK

A. Protect finished work during remainder of Contract period or until accepted in writing by Owner.

END OF SECTION 017400

SECTION 017419 - CONSTRUCTION WASTE MANAGEMENT AND DISPOSAL

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes procedural requirements for the following:

1. Salvaging, recycling, and disposing of nonhazardous demolition and construction waste.

1.2 DEFINITIONS

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

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

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

D. Recycle: Recovery of demolition or construction waste for subsequent processing in preparation for reuse.

E. Salvage: Recovery of demolition or construction waste and subsequent sale or reuse in another facility.

F. Salvage and Reuse: Recovery of demolition or construction waste and subsequent incorporation into the Work.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

3.1 IMPLEMENTATION

A. General: Provide handling, containers, storage, signage, transportation, and other items as required to implement waste management plan during the entire duration of the Contract.

B. Training: Train workers, subcontractors, and suppliers on proper waste management procedures, as appropriate for the Work occurring at Project site.

C. Site Access and Temporary Controls: Conduct waste management operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.

D. Procedures: Separate recyclable waste from other waste materials, trash, and debris. Separate recyclable waste by type at Project site to the maximum extent practical.

1. Provide appropriately marked containers or bins for controlling recyclable waste until they are removed from Project site. Include list of acceptable and unacceptable materials at each container and bin.

    a. Inspect containers and bins for contamination and remove contaminated materials if found.

2. Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.
3. Stockpile materials away from construction area. Do not store within drip line of remaining trees.
4. Store components off the ground and protect from the weather.
5. Remove recyclable waste off Owner's property and transport to recycling receiver or processor.

3.2 DISPOSAL OF WASTE

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

B. Burning: Do not burn waste materials.

C. Disposal: Transport waste materials off Owner's property and legally dispose of them.

END OF SECTION 017419

SECTION 017700 - CLOSEOUT PROCEDURES

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for contract closeout, including, but not limited to, the following:
   1. Substantial Completion procedures.
   2. Final completion procedures.
   3. Warranties.
   4. Final cleaning.

B. Related Sections:
   1. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
   2. Division 01 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.
   3. Divisions 02 through 49 Sections for specific closeout and special cleaning requirements for the Work in those Sections.

1.2 SUBSTANTIAL COMPLETION

A. Preliminary Procedures: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete with request.
   1. Prepare a list of items to be completed and corrected (punch list).
   2. Advise Owner of pending insurance changeover requirements.
   3. Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.
   4. Obtain and submit releases permitting Owner unrestricted use of the Work and access to services and utilities. Include occupancy permits, operating certificates, and similar releases.
   5. Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.
   6. Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.
   7. Complete startup testing of systems.
   8. Submit test/adjust/balance records.
   9. Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.
   10. Advise Owner of changeover in heat and other utilities.
   11. Submit changeover information related to Owner's occupancy, use, operation, and maintenance.
   12. Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

B. Inspection: Submit a written request for inspection for Substantial Completion. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare the Certificate of Substantial Completion after inspection or will notify Contractor of items, either on Contractor's list or additional items identified by Architect, that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.
   2. Results of completed inspection will form the basis of requirements for final completion.

1.3 FINAL COMPLETION

A. Prepare and submit Project Record Documents, operation and maintenance manuals, final completion construction photographic documentation, damage or settlement surveys, property surveys, and similar final record information.

B. Preliminary Procedures: Before requesting final inspection for determining final completion, complete the following:
   1. Submit a final Application for Payment according to Division 01 Section "Payment Procedures."
   2. Submit certified copy of Architect's Substantial Completion inspection list of items to be completed or corrected (punch list), endorsed and dated by Architect. The certified copy of the list shall state that each item has been completed or otherwise resolved for acceptance.
   3. Submit evidence of final, continuing insurance coverage complying with insurance requirements.
   4. Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

C. Inspection: Submit a written request for final inspection for acceptance. On receipt of request, Architect will either proceed with inspection or notify Contractor of unfulfilled requirements. Architect will prepare a final Certificate for Payment after inspection or will notify Contractor of construction that must be completed or corrected before certificate will be issued.
   1. Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

1.4 LIST OF INCOMPLETE ITEMS (PUNCH LIST)

A. Organization of List: Include name and identification of each space and area affected by construction operations for incomplete items and items needing correction including, if necessary, areas disturbed by Contractor that are outside the limits of construction.
   1. Organize list of spaces in sequential order.
   2. Organize items applying to each space by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.
   3. Submit list of incomplete items.

1.5 WARRANTIES

A. Submittal Time: Submit written warranties on request of Architect for designated portions of the Work where commencement of warranties other than date of Substantial Completion is indicated.

B. Organize warranty documents into an orderly sequence based on the table of contents of the Project Manual.
   1. Bind warranties and bonds in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents.
   2. Provide heavy paper dividers with plastic-covered tabs for each separate warranty. Mark tab to identify the product or installation. Provide a typed description of the product or installation, including the name of the product and the name, address, and telephone number of Installer.
   3. Identify each binder on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

PART 2 - PRODUCTS

2.1 MATERIALS

A. Cleaning Agents: Use cleaning materials and agents recommended by manufacturer or fabricator of the surface to be cleaned. Do not use cleaning agents that are potentially hazardous to health or property or that might damage finished surfaces.
   1. Use cleaning products that meet Green Seal GS-37, or if GS-37 is not applicable, use products that comply with the California Code of Regulations maximum allowable VOC levels.

PART 3 - EXECUTION

3.1 FINAL CLEANING

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

B. Cleaning: Employ experienced workers or professional cleaners for final cleaning. Clean each surface or unit to condition expected in an average commercial building cleaning and maintenance program. Comply with manufacturer's written instructions.
   1. Complete the following cleaning operations before requesting inspection for Final Completion for entire Project.
      a. Clean Project site, yard, and grounds, in areas disturbed by construction activities, including landscape development areas, of rubbish, waste material, litter, and other foreign substances.
      b. Sweep paved areas broom clean. Remove petrochemical spills, stains, and other foreign deposits.

c. Rake grounds that are neither planted nor paved to a smooth, even-textured surface.
d. Remove tools, construction equipment, machinery, and surplus material from Project site.
e. Clean exposed exterior and interior hard-surfaced finishes to a dirt-free condition, free of stains, films, and similar foreign substances. Avoid disturbing natural weathering of exterior surfaces. Restore reflective surfaces to their original condition.
f. Remove debris and surface dust from limited access spaces, including roofs, plenums, shafts, trenches, equipment vaults, manholes, attics, and similar spaces.
g. Sweep concrete floors broom clean in unoccupied spaces.
h. Vacuum carpet and similar soft surfaces, removing debris and excess nap; shampoo if visible soil or stains remain.
i. Clean transparent materials, including mirrors and glass in doors and windows. Remove glazing compounds and other noticeable, vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials. Polish mirrors and glass, taking care not to scratch surfaces.
j. Remove labels that are not permanent.
k. Touch up and otherwise repair and restore marred, exposed finishes and surfaces. Replace finishes and surfaces that cannot be satisfactorily repaired or restored or that already show evidence of repair or restoration.

    1) Do not paint over "UL" and other required labels and identification, including mechanical and electrical nameplates.

l. Wipe surfaces of mechanical and electrical equipment, (elevator equipment), and similar equipment. Remove excess lubrication, paint and mortar droppings, and other foreign substances.
m. Replace parts subject to operating conditions during construction that may impede operation or reduce longevity.
n. Clean plumbing fixtures to a sanitary condition, free of stains, including stains resulting from water exposure.
o. Replace disposable air filters and clean permanent air filters. Clean exposed surfaces of diffusers, registers, and grills.
p. Clean light fixtures, lamps, globes, and reflectors to function with full efficiency. Replace burned-out bulbs, and those noticeably dimmed by hours of use, and defective and noisy starters in fluorescent and mercury vapor fixtures to comply with requirements for new fixtures.
q. Leave Project clean and ready for occupancy.

END OF SECTION 017700

SECTION 017823 - OPERATION AND MAINTENANCE DATA

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for preparing operation and maintenance manuals, including the following:
   1. Operation and maintenance documentation directory.
   2. Operation manuals for systems, subsystems, and equipment.
   3. Product maintenance manuals.
   4. Systems and equipment maintenance manuals.

B. Related Sections:
   1. Divisions 02 through 49 Sections for specific operation and maintenance manual requirements for the Work in those Sections.

1.2 CLOSEOUT SUBMITTALS

A. Format: Submit operations and maintenance manuals in the following format:
   1. Three paper copies. Include a complete operation and maintenance directory. Enclose title pages and directories in clear plastic sleeves. ***Electronic submission is acceptable for review by Architect. Assume paper copies in binder for final distribution to owner unless otherwise approved by Owner. Architect's record copy to be electronic.***
   2. Manual Submittal: Submit each manual in final form prior to requesting inspection for Substantial Completion and at least 15 days before commencing demonstration and training. Architect will return copy with comments.
   3. Correct or modify each manual to comply with Architect's comments. Submit copies of each corrected manual within 15 days of receipt of Architect's comments and prior to commencing demonstration and training.

PART 2 - PRODUCTS

2.1 REQUIREMENTS FOR OPERATION AND MAINTENANCE MANUALS

A. Organization: Unless otherwise indicated, organize each manual into a separate section for each system and subsystem, and a separate section for each piece of equipment not part of a system. Each manual shall contain the following materials, in the order listed:
   1. Title page.
   2. Table of contents.
   3. Manual contents.

B. Title Page: Include the following information:
   1. Subject matter included in manual.
   2. Name and address of Project.
   3. Name and address of Owner.

4. Date of submittal.
5. Name and contact information for Contractor.
6. Name and contact information for Construction Manager.
7. Name and contact information for Architect.
8. Names and contact information for major consultants to the Architect that designed the systems contained in the manuals.
9. Names and contact information for Design-Build Subcontractors the designed and installed the systems contained in the manuals.
10. Cross-reference to related systems in other operation and maintenance manuals.

C. Table of Contents: List each product included in manual, identified by product name, indexed to the content of the volume, and cross-referenced to Specification Section number in Project Manual.

D. Manual Contents: Organize into sets of manageable size. Arrange contents alphabetically by system, subsystem, and equipment. If possible, assemble instructions for subsystems, equipment, and components of one system into a single binder.

E. Submit manuals in the form of hard copy, bound and labeled volumes. ***Electronic review by Architect. Final manual as hard copy in binders unless otherwise directed by Owner. Electronic file to Architect for record.***

1. Binders: Heavy-duty, three-ring, vinyl-covered, binders, in thickness necessary to accommodate contents, sized to hold 8.5 x 11paper; with clear plastic sleeve on spine to hold label describing contents and with pockets inside covers to hold folded oversize sheets.
    a. Identify each binder on front and spine, with printed title "OPERATION AND MAINTENANCE MANUAL," Project title or name, subject matter of contents. Indicate volume number for multiple-volume sets.
2. Dividers: Heavy-paper dividers with plastic-covered tabs for each section of the manual. Mark each tab to indicate contents. Include typed list of products and major components of equipment included in the section on each divider, cross-referenced to Specification Section number and title of Project Manual.
3. Protective Plastic Sleeves: Transparent plastic sleeves designed to enclose diagnostic software storage media for computerized electronic equipment.
4. Drawings: Attach reinforced, punched binder tabs on drawings and bind with text.
5. If oversize drawings are necessary, fold drawings to same size as text pages and use as foldouts.
    a. If drawings are too large to be used as foldouts, fold and place drawings in labeled envelopes and bind envelopes in rear of manual. At appropriate locations in manual, insert typewritten pages indicating drawing titles, descriptions of contents, and drawing locations.

2.2 OPERATION MANUALS

A. Content: In addition to requirements in this Section, include operation data required in individual Specification Sections and the following information:
1. System, subsystem, and equipment descriptions. Use designations for systems and equipment indicated on Contract Documents.
2. Performance and design criteria if Contractor is delegated design responsibility.
3. Operating standards.

4. Operating procedures.
5. Operating logs.
6. Wiring diagrams.
7. Control diagrams.
8. Piped system diagrams.
9. Precautions against improper use.
10. License requirements including inspection and renewal dates.

B. Descriptions: Include the following:
1. Product name and model number. Use designations for products indicated on Contract Documents.
2. Manufacturer's name.
3. Equipment identification with serial number of each component.
4. Equipment function.
5. Operating characteristics.
6. Limiting conditions.
7. Performance curves.
8. Engineering data and tests.
9. Complete nomenclature and number of replacement parts.

C. Operating Procedures: Include the following, as applicable:
1. Startup procedures.
2. Equipment or system break-in procedures.
3. Routine and normal operating instructions.
4. Regulation and control procedures.
5. Instructions on stopping.
6. Normal shutdown instructions.
7. Seasonal and weekend operating instructions.
8. Required sequences for electric or electronic systems.
9. Special operating instructions and procedures.

D. Systems and Equipment Controls: Describe the sequence of operation, and diagram controls as installed.

E. Piped Systems: Diagram piping as installed, and identify color-coding where required for identification.

2.3 PRODUCT MAINTENANCE MANUALS

A. Content: Organize manual into a separate section for each product, material, and finish. Include source information, product information, maintenance procedures, repair materials and sources, and warranties and bonds, as described below.

B. Source Information: List each product included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Product Information: Include the following, as applicable:
1. Product name and model number.

2. Manufacturer's name.
3. Color, pattern, and texture.
4. Material and chemical composition.
5. Reordering information for specially manufactured products.

D. Maintenance Procedures: Include manufacturer's written recommendations and the following:
1. Inspection procedures.
2. Types of cleaning agents to be used and methods of cleaning.
3. List of cleaning agents and methods of cleaning detrimental to product.
4. Schedule for routine cleaning and maintenance.
5. Repair instructions.

E. Repair Materials and Sources: Include lists of materials and local sources of materials and related services.

F. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

2.4 SYSTEMS AND EQUIPMENT MAINTENANCE MANUALS

A. Content: For each system, subsystem, and piece of equipment not part of a system, include source information, manufacturers' maintenance documentation, maintenance procedures, maintenance and service schedules, spare parts list and source information, maintenance service contracts, and warranty and bond information, as described below.

B. Source Information: List each system, subsystem, and piece of equipment included in manual, identified by product name and arranged to match manual's table of contents. For each product, list name, address, and telephone number of Installer or supplier and maintenance service agent, and cross-reference Specification Section number and title in Project Manual.

C. Manufacturers' Maintenance Documentation: Manufacturers' maintenance documentation including the following information for each component part or piece of equipment:
1. Standard maintenance instructions and bulletins.
2. Drawings, diagrams, and instructions required for maintenance, including disassembly and component removal, replacement, and assembly.
3. Identification and nomenclature of parts and components.
4. List of items recommended to be stocked as spare parts.

D. Maintenance Procedures: Include the following information and items that detail essential maintenance procedures:
1. Test and inspection instructions.
2. Troubleshooting guide.
3. Precautions against improper maintenance.
4. Disassembly; component removal, repair, and replacement; and reassembly instructions.
5. Aligning, adjusting, and checking instructions.
6. Demonstration and training video recording, if available.

E. Maintenance and Service Schedules: Include service and lubrication requirements, list of required lubricants for equipment, and separate schedules for preventive and routine maintenance and service with standard time allotment.

F. Spare Parts List and Source Information: Include lists of replacement and repair parts, with parts identified and cross-referenced to manufacturers' maintenance documentation and local sources of maintenance materials and related services.

G. Maintenance Service Contracts: Include copies of maintenance agreements with name and telephone number of service agent.

H. Warranties and Bonds: Include copies of warranties and bonds and lists of circumstances and conditions that would affect validity of warranties or bonds.

PART 3 - EXECUTION

3.1 MANUAL PREPARATION

A. Emergency Manual: Assemble a complete set of emergency information indicating procedures for use by emergency personnel and by Owner's operating personnel for types of emergencies indicated.

B. Product Maintenance Manual: Assemble a complete set of maintenance data indicating care and maintenance of each product, material, and finish incorporated into the Work.

C. Operation and Maintenance Manuals: Assemble a complete set of operation and maintenance data indicating operation and maintenance of each system, subsystem, and piece of equipment not part of a system.

D. Manufacturers' Data: Where manuals contain manufacturers' standard printed data, include only sheets pertinent to product or component installed. Mark each sheet to identify each product or component incorporated into the Work. If data include more than one item in a tabular format, identify each item using appropriate references from the Contract Documents. Identify data applicable to the Work and delete references to information not applicable.

E. Drawings: Prepare drawings supplementing manufacturers' printed data to illustrate the relationship of component parts of equipment and systems and to illustrate control sequence and flow diagrams. Coordinate these drawings with information contained in record Drawings to ensure correct illustration of completed installation.

1. Do not use original project record documents as part of operation and maintenance manuals.

F. Comply with Division 01 Section "Closeout Procedures" for schedule for submitting operation and maintenance documentation.

END OF SECTION 017823

SECTION 017839 - PROJECT RECORD DOCUMENTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section includes administrative and procedural requirements for project record documents, including the following:

1. Record Drawings.
2. Record Specifications.
3. Record Product Data.

B. Related Sections:

1. Division 01 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.
2. Divisions 02 through 49 Sections for specific requirements for project record documents of the Work in those Sections.

1.2 CLOSEOUT SUBMITTALS

A. Record Drawings: Comply with the following:

1. Number of Copies: Submit set of marked-up record prints:
   a. Final Submittal: Submit one (1) paper copy set and a PDF electronic file of marked-up record prints. Print each Drawing, whether or not changes and additional information were recorded.

B. Record Specifications: Submit one (1) paper copy and a PDF electronic file of Project's Specifications, including addenda and contract modifications.

C. Record Product Data: Submit one (1) paper copy in a binder organized by CSI Divisions of each submittal and a PDF electronic file.

D. Additional Record Documentation to include Homes for Good Contractor Final Certification.

E. Architect's review documents will be electronic. G.C. to confirm Owner's preference for final record documents between paper copies and/or electronic.

PART 2 - PRODUCTS

2.1 RECORD DRAWINGS

A. Record Prints: Maintain one set of marked-up paper copies of the Contract Drawings and Shop Drawings.

1. Preparation: Mark record prints to show the actual installation where installation varies from that shown originally. Require individual or entity who obtained record data, whether individual or entity is Installer, subcontractor, or similar entity, to provide information for preparation of corresponding marked-up record prints.

    a. Give particular attention to information on concealed elements that would be difficult to identify or measure and record later.
    b. Record data as soon as possible after obtaining it.
    c. Record and check the markup before enclosing concealed installations.

2. Mark the Contract Drawings and Shop Drawings completely and accurately. Utilize personnel proficient at recording graphic information in production of marked-up record prints.
3. Mark record sets with erasable, red-colored pencil. Use other colors to distinguish between changes for different categories of the Work at same location.
4. Note Construction Change Directive numbers, alternate numbers, Change Order numbers, and similar identification, where applicable.

B. Record Digital Data Files: Immediately before inspection for Final Completion, review marked-up record prints with Architect. When authorized, prepare a full set of corrected digital data files of the Contract Drawings, as follows:
1. Format: Annotated, Scanned to PDF, electronic file.
2. Incorporate changes and additional information previously marked on record prints. Delete, redraw, and add details and notations where applicable.

C. Format: Identify and date each record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location.

1. Record Prints: Organize record prints and newly prepared record Drawings into manageable sets. Bind each set with durable paper cover sheets. Include identification on cover sheets.
2. Format: Submit record Drawings as scanned PDF electronic file(s) of marked up paper copy of Record Drawings.
3. Record Digital Data Files: Organize digital data information into separate electronic files that correspond to each sheet of the Contract Drawings. Name each file with the sheet identification. Include identification in each digital data file.
4. Identification: As follows:

    a. Project name.
    b. Date.
    c. Designation "PROJECT RECORD DRAWINGS."
    d. Name of Architect.
    e. Name of Contractor.

2.2 RECORD SPECIFICATIONS

A. Preparation: Mark Specifications to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Mark copy with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.
3. Record the name of manufacturer, supplier, Installer, and other information necessary to provide a record of selections made.
4. Note related Change Orders, record Product Data, and record Drawings where applicable.

B. Format: Submit record Specifications as scanned PDF electronic file(s) of marked up paper copy of Specifications.

2.3 RECORD PRODUCT DATA

A. Preparation: Mark Product Data to indicate the actual product installation where installation varies substantially from that indicated in Product Data submittal.

1. Give particular attention to information on concealed products and installations that cannot be readily identified and recorded later.
2. Include significant changes in the product delivered to Project site and changes in manufacturer's written instructions for installation.
3. Note related Change Orders, record Specifications, and record Drawings where applicable.

B. Format: Submit record Product Data as scanned PDF electronic file(s) of marked up paper copy of Product Data.

2.4 MISCELLANEOUS RECORD SUBMITTALS

A. Assemble miscellaneous records required by other Specification Sections for miscellaneous record keeping and submittal in connection with actual performance of the Work. Bind or file miscellaneous records and identify each, ready for continued use and reference.

B. Format: Submit miscellaneous record submittals as scanned PDF electronic file(s) of marked up miscellaneous record submittals.

PART 3 - EXECUTION

3.1 RECORDING AND MAINTENANCE

A. Recording: Maintain one copy of each submittal during the construction period for project record document purposes. Post changes and modifications to project record documents as they occur; do not wait until the end of Project.

B. Maintenance of Record Documents and Samples: Store record documents and Samples in the field office apart from the Contract Documents used for construction. Do not use project record documents for construction purposes. Maintain record documents in good order and in a clean, dry, legible condition, protected from deterioration and loss. Provide access to project record documents for Architect's reference during normal working hours.

END OF SECTION 017839

SECTION 071916 - SILANE WATER REPELLENT SEALER

PART 1 - GENERAL

1.1 CONTRACT CONDITIONS and RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Silane Sealer System: Penetrating 40% Silane water repellent sealer for existing ‘exposed aggregate’ stucco wall panels.

B. Maximum V.O.C. requirements.

C. Cleaning and preparation of existing ‘exposed aggregate’ stucco wall panels

D. Mock up of sealer on ‘exposed aggregate’ wall panels

1.3 RELATED SECTIONS

A. Section 011416 - Coordination with Residents

1.4 QUALITY ASSURANCE

A. Contractor qualifications: Contractor shall be qualified in the field of concrete surface preparation with a minimum 5 five years documented successful experience.
   1. Contractor shall maintain qualified personnel who have experience with the application of specified materials and products.
   2. The Contractor shall have at least one qualified lead installer on site at all times work is in progress during preparation and installation.

B. Install materials in accordance with all safety and weather conditions required by manufacturer, or as modified by applicable rules and regulations of local, state and federal authorities having jurisdiction. Consult Material Safety Data Sheets for complete handling recommendations.
   1. Prior to each use of any product, the installer must read and follow the warnings and instructions on the product's most current Technical Data Sheets, product labels, and Material Safety Data Sheets (MSDS).

C. Date of manufacture shall be factory printed on all containers.

1.5 WARRANTY

A. Installer’s Warranty:

   1. The Contractor shall submit a two (2) year warranty guaranteeing installation is free from:

a. Defective materials,
b. Defective workmanship,
c. And agrees to repair or replace materials that fail to provide water repellency at same degree as approved tests on Mockup.

2. Warranty shall begin upon final acceptance or final payment of the installation.

3. Warranty shall be “no-dollar limit”, include labor and materials, and shall be non-prorated.

B. Manufacturer Warranty:

1. Provide Manufacturer’s standard written Warranty against defective material.

1.6. SITE VERIFICATION AND FIELD MEASUREMENTS

A. The Contractor shall verify all measurements at the site prior to Bid.

B. The Contractor shall verify the condition of the existing ‘exposed aggregate’ stucco wall panels prior to Bid.

C. Coordinate the Extent of Work Areas with Drawings and verify at site.

1.7 TESTING, MOCK UP, AND FIELD TEST SAMPLE

A. Prior to Mock up and application, the Contractor shall verify the absorbency of existing exposed aggregate stucco wall panels.
1. Contractor shall perform and pay for absorbency tests.
2. Contractor may test for absorbency of existing concrete either prior to Bid or after Bid.
3. If absorbency is tested after Bid, the Contractor shall be responsible for additional material and time (that may become apparent as a result of testing) that is required to comply with approved Manufacturer’s instructions, requirements, and recommendations; and these specifications, at no additional cost to Owner.

B. Mock up / Field Test Sample:

1. Contractor shall perform and pay for the Mock up / Field Test.

2. In a location of the building where directed by the Contract Administrator, the Contractor shall install field Mock-up sample. The location shall be accessible to all parties.

3. Provide mockup area of at least 50 square feet.

4. The Mock up test area shall include surface preparation and allow for evaluation of repellent performance and finish.

5. Conduct tests before and after field sample has cured a minimum of five (5) days, or for amount of days recommended by Manufacturer.

6. Prepare substrates and apply material in test area, in strict accordance with manufacturer's written application instructions, requirements, and recommendations.

7. Obtain Owner's written approval of field sample tests before start of material application, including approval of transparency, coloring, texture, and appearance.

8. When requested by Contractor, a Manufacturer's representative may review surface preparation, application, and workmanship.

9. The approved Field Sample Mock-up will become the standard for judging the water repellency for the application on remainder of Project. The Field sample will be maintained during construction for comparison.

10. Unless otherwise required or recommended by approved manufacturer, apply sufficient material so that surface remains wet for several minutes before material is absorbed. After 5-10 minutes, back-roll remaining pools or puddles with dry-roller to prevent excess material from drying on the surface. Material that is not absorbed should be back rolled or brushed out to avoid build up. The second coat shall be applied to maximize protection while the first coat is still damp.

11. The Mock-up may be incorporated into final construction upon Owner's approval.

1.9 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Submit approved Manufacturer's product data for all products.
   1. Include data indicating Volatile Organic Compound (VOC) for all products.

C. Submit approved Manufacturer's installation instructions with Manufacturer's approved and recommended methods of preparation.

D. Submit Warranties under provisions of Section 017700 Closeout

1.10 DELIVERY, STORAGE, PROTECTION, AND HANDLING

A. Deliver, store, protect, and handle materials to site under provisions of Section 016000.

B. Deliver, store, protect, and handle materials in compliance with the manufacturer's instructions, requirements, and recommendations.

C. All materials must be delivered in original, unopened containers with the manufacturer's name, labels, and product identification.

D.
   1. Diluted, contaminated, and damaged material or containers must be removed from the site immediately.
   2. Containers opened prior to delivery at site shall be removed from the site

immediately.

3. Date of manufacture shall be factory printed on all containers.

E. Store all materials off the ground and protected from rain, freezing, or excessive heat.

1.11 ENVIORONMENTAL CONDITIONS

A. Prepare and install materials in compliance with the manufacturer's instructions, requirements, and recommendations for weather and temperature

1. Do not apply material if it is raining or snowing or if such conditions appear to be imminent within following 48 hours.

2. Minimum application temperature 50ºF (5ºC), and rising for air and surface, for 24 hours prior to application, during application, and for 48 hours after application.

3. Hot-Weather Requirements: Do not apply to substrates with temperatures of 85 deg F and above.

1.12 JOB SITE CONDITIONS

A. The apartments and site are occupied.

1. Refer to Section 011416 Coordination with Residents.

1.13 SCHEDULE COORDINATION

A. Coordinate Schedule with Section 011416 Coordination with Residents.

B. Coordinate Schedule with work of other Sections.

1.14 REFERENCES

A. International Concrete Repair Institute (ICRI)

1. ICRI Guideline 310.2 ~ 'Selecting and Specifying Concrete Surface Preparation for Sealers, Coatings, Polymer Overlays, and Concrete Repair'.

PART 2 PRODUCTS

2.1 PENETRATING 40% SILANE WATER REPELLENT SEALER

A. Criteria:

1. Maximum V.O.C.: 260 g/L maximum.

2. Active Silane: 40% minimum.

3. Drying Time shall conform to approved Manufacturer's instructions, requirements, and recommendations.

4. Odor: No odor, or mild minimal odor.

5. Concrete / Stucco Penetration: Rated for 1/4" (one-quarter inch) (6mm) minimum penetration into concrete.

6. Material shall seal pores and capillaries of concrete substrates preventing liquid and moisture absorption.

7. Material shall allow vapor diffusion and not form a vapor barrier.

8. Material shall provide protection of existing reinforcing steel from corrosion.

9. The product shall penetrate independently of horizontal or vertical orientation.

10. The cured material shall provide protection against salt corrosion, deicing chemicals, freeze thaw cycles, efflorescence, leaching, acid rain deterioration, scaling, dirt buildup, airborne contaminants and staining, and alkali attack.

11. The penetrating water repellent shall dry clear and not change the color, appearance, or surface texture of the treated surface.

B. Approved Manufacturers and Products:

1. **PowerSeal 40,** Water Repellent Penetrating Sealer
ChemMasters, Inc. / www.chemmasters.net / (440) 428-2105
VOC; Percent Volatile by Volume: <100 g/L

2. **PS105 Silane Water Repellent WB-40** Penetrating Sealer
Concrete Sealers USA / www.concretesealerusa.com / (888) 583-2991
VOC; Percent Volatile by Volume: 260 g/L

3. **Protectosil AQUA-TRETE 40**
Evonik Corporation / www.protectosil.com / (800) 828-0919
VOC; Percent Volatile by Volume: 260 g/L

4. **OKON S-40** Silane Water Repellent Sealer
Rust-Oleum Corporation / www.rustoleum.com / (847) 367-7700
VOC; Percent Volatile by Volume: <50 g/L

5. **"Or equal",** Proposed Substitution Requests, 10 days prior to bid, in accordance with Section 01-60 00, articles 1.6 and 1.7.

PART 3 EXECUTION

3.1 EXAMINATION AND COORDINATION

A. Existing Conditions:

1. Verify site conditions and areas of work.
2. Examine substrate before beginning prep work and installation

B. Verify that Mock up test results have been approved in writing by Architect.

C. Verify that substrates have been correctly prepared and are ready to receive approved systems.

1. Do not proceed until conditions are satisfactory.
2. Notify Contract Administrator, in writing, of areas that require correction prior to work.

D. Review Drawings and extents with Architect, prior to installation.

E. Review criteria and schedules regarding occupants with Contract Administrator.

3.2 PROTECTION

A. Protect residents, dwellings, and property from consequences of work.

B. Contractor is responsible to protect buildings completely, (exterior surfaces, interior surfaces, contents, and Owner's property) at all times from work and weather while contract work is in progress.

C. Verify location of utilities in and around buildings.

D. Provide temporary tarps, weather coverings, etc. as required to protect residents, new installation, building exterior, building structure, building interior, and contents.

E. Protect plantings and landscaped areas from consequences of work.

F. Precautions shall be taken to avoid damage to any surface near the work zone that is not to be treated, due to mixing and handling of the specified materials.

G. Mask and protect adjoining existing surfaces.

3.3 PREPARATION

A. Prepare surfaces in compliance with Manufacturer's instructions, requirements, and recommendations.

B. Power Wash: Power Wash areas to receive water repellent penetrating sealer.

C. Clean substrates of substances that might interfere with penetration or performance of water repellent sealer. Remove all dust, dirt, paint, bitumens, efflorescence, oil, pollution deposits, and other contaminants detrimental to product performance, prior to application. Use abrasive brush, blast, or high pressure water as necessary to achieve the required surface condition.

D. Unless approved otherwise in Manufacturer's instructions, requirements, and recommendations; allow power washed surfaces to dry three days prior to coating. Surface should be dry to touch and show no visible signs of moisture prior to application of water repellent.

E. Protect adjoining work, including sealant bond surfaces, from spillage or over spray of water repellent. Cover adjoining and nearby surfaces of aluminum and glass if there is the possibility of water repellent being deposited on surfaces.

3.4 APPLICATION

A. Apply products and materials in compliance with Manufacturer's instructions, requirements, and recommendations.

B. Unless otherwise required or recommended by Manufacturer, apply a heavy saturation spray coating of water repellent on surfaces indicated for treatment using pressure spray equipment. Comply with Manufacturer's written instructions for using airless spraying procedure, or roller applications unless otherwise directed.

C. Follow application method and rate established by Test Area. Apply a second saturation pray coating, repeating first application, per Manufacturer's written instructions for limitations on drying time between coats.

D. Corrections to application shall be at Contractor's expense.

3.5 LOCATIONS

A. Existing 'exposed aggregate' stucco wall panels.

3.6 CLEAN UP

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

B. Clean up in accordance with manufacturer's instructions, requirements, and recommendations.

C. Comply with manufacturers written cleaning instructions. Immediately clean water repellent from adjoining surfaces and surfaces soiled or damaged by water repellent application as work progresses. Repair damage caused by water repellent application.

D. Remove masking materials.

E. Remove all debris from work area each day.

PART 2 - END OF SECTION 071916

SECTION 079200 - JOINT SEALANTS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:
   1. Silicone building sealants

1.2 REFERENCE STANDARDS

1. ASTM C 661 - Standard Test Method for Indentation Hardness of Elastomeric Type Sealants by Means of a Durometer.
2. Dow Corning Americas Technical Manual

1.3 SUBMITTALS

A. Product Data: For each joint-sealant product indicated.

B. VOC Submittal:

C. Product test reports.

1.4 QUALITY ASSURANCE

A. Pre-installation Conference: Conduct conference at Project site to review sealant installation and conduct mock-up.

1.5 DELIVERY, STORAGE AND HANDLING

A. Delivery: Deliver sealants and related accessories to the job site in factory sealed, unopened containers bearing manufacturer's name, product designation and batch number.

B. Storage: Store in unopened containers. Follow manufacturer's recommendations for storage temperatures and shelf life.

C. Handling: Follow manufacturer's recommendations for handling products containing toxic materials. Keep flammable material away from heat, sparks and open flame.

PART 2 - PRODUCTS

2.1 MATERIALS, GENERAL

A. Stain-Test-Response Characteristics: Provide products that have undergone testing according to ASTM C 510 or ASTM C 1248 and have resulted in no staining.

2.2 SILICONE BUILDING SEALANTS

A. Low-modulus, one-part, neutral-cure, 100% silicone sealant

B. ASTM C 920, Type S, Grade NS, Class 50

C. DOWSIL Contractors Concrete Sealant
1. Location: At base of site cast concrete walls.
2. Prepare surface and install backer rod sealant per sealant manufacturer's direction to fill gaps where base of site concrete walls meet concrete walkways.

2.3 JOINT SEALANT BACKING
1. Cylindrical Sealant Backings: ASTM C 1330, Type B **(bicellular** material with a surface skin), and of size and density to control sealant depth and otherwise contribute to producing optimum sealant performance. Material sized 1/3 larger than sealant gap.
a. Nomaco Inc. "SOF Rod".

B. Bond-Breaker Tape: Polyethylene tape or other plastic tape recommended by sealant manufacturer.

2.4 MISCELLANEOUS MATERIALS

A. Cleaners for Nonporous Surfaces: Chemical cleaners acceptable to manufacturers of sealants and sealant backing materials.

B. Masking Tape: Non-staining, nonabsorbent material compatible with joint sealants and surfaces adjacent to joints per manufacturer.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine joint profiles and surfaces to determine if work is ready to receive joint sealants. Verify joint dimensions are adequate for development of sealant movement capability. Proceed with joint sealant work once conditions meet sealant manufacturer's recommendations.

3.2 PREPARATION

A. Surface Cleaning of Joints: Clean joints prior to installing joint sealants using materials and methods recommended by sealant manufacturer. Clean out joints immediately before installing joint sealants to comply with joint-sealant manufacturer's written instructions.

1. Remove laitance and form-release agents from concrete.
2. Clean nonporous joint substrate surfaces with chemical cleaners or other means that do not stain, harm substrates, or leave residues capable of interfering with adhesion of joint sealants.

B. Joint Priming: Prime joint substrates where recommended by joint-sealant manufacturer or as indicated by preconstruction joint-sealant-substrate tests or prior experience. Apply primer to comply with joint-sealant manufacturer's written instructions. Confine primers to areas of joint-sealant bond; do not allow spillage or migration onto adjoining surfaces.

C. Masking Tape: Use masking tape where required to prevent contact of sealant or primer with adjoining surfaces that otherwise would be permanently stained or damaged by such contact or by cleaning methods required to remove sealant smears. Remove tape immediately after tooling without disturbing joint seal or as required by manufacturer.

3.3 INSTALLATION

A. Sealant Installation Standard: Comply with recommendations in ASTM C 1193 for use of joint sealants as applicable to materials, applications, and conditions indicated. Expansion-joint sealant cross-sectional dimension 2:1 ratio with ¼” minimum material dimension unless otherwise noted.

B. Install sealant backings of kind indicated to support sealants during application and at position required to produce cross-sectional shapes and depths of installed sealants relative to joint widths that allow optimum sealant movement capability.

1. Do not leave gaps between ends or overlap sealant backings. Cut ends clean, do not tear.
2. Apply sealant backing in linear runs, cut joints at corners.
3. DO NOT STRETCH, TWIST, PUNCTURE, OR TEAR SEALANT BACKINGS.
4. Remove sealant backings that have become wet, torn, stretched, or twisted before sealant application and replace them with new materials.

C. Install bond-breaker tape behind sealants where sealant backings are not used between sealants and backs of joints.

D. Install sealants using proven techniques that comply with the following and at the same time backings are installed:

1. Place sealants so they directly contact and fully wet joint substrates.
2. Completely fill recesses in each joint configuration.
3. Produce uniform, cross-sectional shapes and depths relative to joint widths that allow optimum sealant movement capability.

E. Tooling of Nonsag Sealants: Immediately after sealant application and before skinning or curing begins, tool sealants according to requirements specified in subparagraphs below to form smooth, uniform beads of configuration indicated; to eliminate air pockets; and to ensure contact and adhesion of sealant with sides of joint.

1. Remove excess sealant from surfaces adjacent to joints by approved methods.
2. Use tooling agents that are approved in writing by sealant manufacturer and that do not discolor sealants or adjacent surfaces.
3. Provide concave joint profile per Figure 8A in ASTM C 1193, unless otherwise indicated.

F. Clean off excess sealant or sealant smears adjacent to joints as the work progresses by methods and with cleaning materials approved in writing by manufacturers of joint sealants and of products in which joints occur.

END OF SECTION 079200

SECTION 099100 – PAINTING

PART 1 - GENERAL

1.1 CONTRACT CONDITIONS and RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Painting of steel doors and frames, steel window frames and glazing stops, and railings. Painting of previously painted grilles, louvers, vent caps, light fixtures, downpouts, conduit, fire extinguisher cabinets, etc.
   1. Any conduits, grilles, louvers, vent caps, metal flashing, and conduit that has not been previuosly painted or is unpainted galvanized metal is not to be painted.

B. Volatile Organic Compound (V.O.C.) product requirements

C. Coordination and preparation.

D. Special preparation of rusted areas on metals.

1.3 RELATED SECTIONS

A. Section 011416 - Coordination with Residents

B. Section 099653 - Elastomeric Coating System

1.4 QUALIFICATIONS

A. Manufacturer: Company specializing in manufacturing the Products specified in this section with a minimum of fifteen (15) years continuous documented experience.

B. Applicator: Company specializing in performing the work of this section with minimum five (5) years continuous full-time documented experience.

C. Single-Source Responsibility: Provide sealers, primers, and undercoats produced by the same manufacturer as the finish coats.

1.5 WARRANTY

A. Installer’s Warranty:
   1. The Contractor shall submit a two (2) year warranty guaranteeing installation is free from defective materials, spalling, flaking, de-lamination, blistering, holes, or pockets due to material or installation, dusting and unusual or non-typically wear not normal to manufacturer’s standards, and against water intrusion beneath newly installed materials.
   2. Warranty shall begin upon final acceptance or final payment of the installation.

3. Warranty shall be “no-dollar limit” and shall be non-prorated.

B. Manufacturer Warranty:
   1. Provide Manufacturer’s written Warranty against defects of materials for a Limited Lifetime period.

1.6 VOC REQUIREMENTS

A. VOC (Volatile Organic Compound) requirements:

1. VOC shall be less than 100g / L each for typical primers
2. VOC shall be less than 100g / L each for top coat / finishes
3. VOC shall be less than 400g / L for rust preventative primer

1.7 REFERENCES

A. The publications listed below form a part of this specification, where referenced

B. Products, preparation methods, and applications shall meet or exceed requirements and recommendations in the following, where referenced in this Specification Section:

1. ASTM D16 - Definitions of Terms Relating to Paint, Varnish, Lacquer, and Related Products.
2. PDCA (Painting and Decorating Contractors of America)
3. SSPC (The Society for Protective Coatings, formally the Steel Structures Painting Council).

1.8 EXTENT OF WORK

A. Refer to Article 3.7 below.

1.9 SUBMITTALS

A. Provide the manufacturer's technical Product Data (one or two pages max) for each treatment product, sealer, primer, and paint system specified.

1. Include Manufacturer’s data on VOC (Volatile Organic Compounds)

B. Samples: For each finish and for each color and texture required.
   1. Brushouts for each color until colors approved by Owner and Architect.

C. Mockups: Construct a movable panel representing siding and trim.(2 ft x 2 ft minimum size). Apply benchmark samples (of approved brushouts) of each paint system indicated and each color and finish selected to verify preliminary selections made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.
   1. Final approval of color selections will be based on benchmark samples.
   2. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

1.10 DELIVERY, STORAGE, PROTECTION, AND HANDLING

A. Deliver, store, protect and handle products to site under provisions noted below.

B. Comply with Manufacturer's instructions, requirements, and recommendations for protection, storage, and handling of materials.

C. Deliver materials to the job site in manufacturer's original, sealed and unopened packages and containers bearing manufacturer's name and label. Inspect to verify acceptability.

D. Container label to include manufacturer's name, type of paint, brand name, lot number, brand code, and manufacturer's instructions.

E. Keep storage area neat and orderly. Remove oily rags and waste daily.

1.11 ENVIRONMENTAL REQUIREMENTS

B. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required or recommended by the paint product manufacturer.

B. Do not apply coatings to damp or wet surfaces.

C. Minimum Application Temperatures: 50 degrees F for exterior; unless required otherwise by manufacturer's instructions. Apply paints only when the temperature of surfaces to be painted and surrounding air temperatures are between 50 deg F and 90 deg F.

D. Do not apply paint in snow, rain, fog, or mist; or when the relative humidity exceeds 85 percent; or at temperatures less than 5 deg F above the dew point.

E. Painting may continue during inclement weather if surfaces and areas to be painted are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.

F. Provide minimum lighting level of 80 ft candles measured mid-height at substrate surface.

1.12 COORDINATION

A. Coordinate work with Contract Administrator's approved work hours and work days.

B. Coordinate access with Contract Administrator.

C. Coordinate painting of edges of exterior doors with security protocol required by Contract Administrator.

PART 2 PRODUCTS

2.1 GENERAL

A. Material Compatibility: Provide primers and finish coat materials, and related materials that are compatible with one another and the substrates indicated, as demonstrated by the manufacturer based on testing and field experience.

C. VOC (Volatile Organic Compound) requirements:

1. VOC to be less than 100g / L for all top coat finishes.
2. VOC to be less than 400g / L for rust preventative primer

2.2 EXTERIOR - FINISH PAINT MATERIAL SYSTEMS

A. Exterior system on **rusted** areas of previously painted Steel:

1. Two coats Rust Preventative Primer
2. Two coats of specified top coats. Six (6) mil minimum thickness; total top coats.

B. Approved Manufacturers and products for ferrous metal (steel)

1. **Benjamin Moore and Co.** / www.benjaminmoore.com

a. Top Coats:
AURA® Waterborne 100% Acrylic Exterior Paint Soft-Gloss – N632
2 coats

b. Rust Preventive Primer:
Super Spec HP ® Alkyd metal primer P06
1 coat on rust free surfaces, 2 coats on rusted surfaces

2. **PPG Industries, Pittsburg Paints** / www.ppgpaints .com

a. Top Coats:
PPG / Glidden FORTIS® 450, 100% Acrylic, Semi-Gloss, 6407-0110G
2 coats

b. Rust Preventive Primer:
PITT-TECH PLUS 90-912 series
2 coats

3. **The Sherwin-Williams Company** / www.sherwin-williams.com

a. Top Coats:
Pro Industrial Acrylic Latex Semi-Gloss / B66-650 Series
2 coats

b. Rust Preventive Primer:
Pro Industrial Pro-Cryl Universal Primer B66-1300 Series
2 coats

4. **Miller Paint Co.** / www.millerpaint.com

a. Top Coats:

Semi-gloss Acrinamel Series 3205XX
2 coats

b. Rust Preventive Primer:
Acrimetal DTM Low Sheen Primer/Finish 310210
2 coats

5. **Rodda / Cloverdale Paint** / www.roddapaint.com / www.cloverdalepaint.com

a. Top Coats:
Renaissance Interior/Exterior Semi Gloss Hybrid Waterborne Alkyd Enamel / 031-Series
2 coats

b. Rust Preventive Primer:
708225 Barrier III HS Rust Inhibitive Primer:
2 coats

6. "Or equal", Proposed Substitution Requests, minimum 10 days prior to bid, in accordance with Section 016000, articles 1.6 and 1.7.

PART 3 EXECUTION

3.1 EXAMINATION AND COORDINATION

A. Examine substrates and conditions under which preparation and painting will be performed.

B. Verify that glazing in steel doors and steel sidelights has been protected.

C. Verify that surfaces and substrate conditions are ready to receive work as instructed and recommended by the product manufacturer.

1.10 Verify that all rust has been removed on doors and frames, including tops, bottoms, and edges.
1.11 Verify that all rust has been removed on stair handrails, deck/balcony and stairway guardrails, including behind escutcheons, etc.
1.12 Verify that rusted areas have been prepared as specified.

D. Surfaces receiving paint must be thoroughly dry before paint is applied.

E. Do not begin to apply primers or paint until unsatisfactory conditions have been corrected.

F. Coordinate access and resident notifications with Contract Administrator.

3.2 PREPARATION

A. Cleaning:

1.12.1.1 Before applying primers, paint, or other surface treatments, clean substrate of substances that could impair the bond of coatings.
1.12.1.2 Remove oils and grease prior to cleaning.

B. Surface Preparation:

1.12.1.2.1 Clean and prepare surfaces to be painted according to the Manufacturer's instructions, requirements, and recommendations for each particular substrate condition, and as specified herein.

C. Surface Preparation at rusted areas:

1.12.1.2.1.1 Minimum surface preparation is Hand Tool Clean per SSPC-SP2.

a. Hand Tool Cleaning - Removal of all rust scale, mill scale, loose rust and loose paint to the degree specified by hand wire brushing, hand sanding, hand scraping, hand chipping, or by a combination of these methods. The substrate should have a faint metallic sheen and also be free of oil, grease, dust, soil, salts and other contaminants.

1.12.1.2.1.2 Remove all oil and grease from surface by Solvent Cleaning per SSPC-SP1.
1.12.1.2.1.3 Prime any bare steel within 8 hours or before flash rusting occurs.

3.3 DOOR PREPARATION

A. Doors to be painted with hardware in place. Tape and conceal hardware as needed when prepreparing surfaces for paint. Clean any paint off door hardware as part of finishing.

3.4 APPLICATION

A. Apply products in accordance with manufacturer's instructions, requirements, and recommendations.

B. Do not apply finishes to surfaces that are not dry.

C. Apply both top coatings to uniform finish. Six (6) mil minimum dry total thickness.

3.5 FUME EXHAUST

A. Provide fans to direct fumes away from doors and windows of interior common areas and apartments.

B. Place fans to direct air to open exterior doors.

C. Increase air flow, including adding fans if required, until no smell can be detected in interior spaces.

D. Take additional precautions during application of higher VOC rust inhibitive primers.

3.6 CLEAN UP

A. Clean work under provisions of 017400 Progress and Final Cleaning

B. After completing painting, clean paint-spattered surfaces. Remove spattered paint.

C. Do not scratch or damage finished surfaces or adjacent surfaces.

3.7 PROTECTION

A. Protect adjacent areas and work of other trades, whether painted or not, against damage by painting. Correct damage by cleaning, repairing, or replacing, and repainting, as acceptable to Owner.

B. Glazing and Fixtures Protection:

1. Glass panels to be protected from overspray under work of this Section.Light fixtures and other wall penetrations such as hose bibs, exhaust fan caps, condensate pipes, shall be masked and protected from overspray. Cut in tight and clean with paint at joint sealant.

C. Provide "Wet Paint" signs to protect newly painted finishes.

D. Remove masking and temporary protective wrappings after painting operations.

E. Notify Contract Administrator in writing when doors need to be kept open for drying, a minimum of seventy-two (72) hours prior to enable honor to generate notices and post to meet their requirements of 48 hour notice to residents.

3.8 EXTENT OF WORK and REFER to DRAWINGS:

A. All existing exterior steel doors, steel door frames, sidelights, and courtyard facing metal window frames on all floors shall be prepared and painted under this Section.

B. Miscellaneous exterior louvers and grilles and similar items and surfaces on all levels, and where shown on Drawings, shall be prepared and painted under this Section.

C. The exterior face of the doors. Interior face, tops, bottoms, and edges of doors will not be painted as part of this scope.

D. The exterior faces of the door and courtyard side hollow metal window frames shall be finished with the same paint system for the face of the door. The interior faces of door frames and window frames will not be painted as part of this scope.

E. All existing steel handrails, guardrails, security grilles, and gates shall be prepared and painted, including guardrail at roof level.

F. See drawings for other miscellaneous items to be painted.

3.9 COLOR SCHEDULE AND MAIN COLORS

A. A final Color Schedule will be issued by the Contract Administrator after approval of Painting Submittals, including brushouts. See drawings for intended color schedule.

1. COLOR PT-1 PT-8: Elastomeric Coating on concrete and stucco – See 099653
2. COLOR PT-9: All exterior metals
3. See the Drawings for further information on finishes.

END OF SECTION

SECTION 099653 – ELASTOMERIC COATING SYSTEM

PART 1 - GENERAL

1.1 CONTRACT CONDITIONS and RELATED DOCUMENTS

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

1.2 SECTION INCLUDES

A. Cleaning and Preparation for Elastomeric Coating System.

B. Elastomeric Coating over previous Elastomeric Coating on concrete and masonry.

C. Priming and Elastomeric Coating over raw concrete at recent concrete repairs.

D. Crack and joint preparation and patching.

E. Maximum V.O.C. requirements.

F. Manufacturer’s Extended Warranty

1.3 RELATED SECTIONS

A. Section 071916 - Silane Water Repellent Sealers.

B. Section 079200 - Joint Sealants

C. Section 099100 - Painting

1.4 QUALITY ASSURANCE

A. Manufacturer: Company specializing in manufacturing the Products specified in this Section with minimum 15 years documented experience.

B. Contractor qualifications: Contractor shall be qualified in the field of elastomeric applications on concrete structures with a minimum 5 five years documented successful experience.

C. Single-Source Responsibility: Provide primers and related material produced by the same manufacturer as the finish coats.

D. Contractor shall coordinate with and notify manufacturer’s authorized representative as required for extended warranties.

E. Contractor shall be technically trained by - or - accepted by the manufacturer as an approved applicator.

1. Contractor shall maintain qualified personnel who have experience with the application of specified materials and products.
2. The Contractor shall have at least one qualified lead applicator on site at all times work is in progress during preparation and installation.
3. Applicator shall use mixing equipment, tools, and application equipment and methods approved by the manufacturer.

1.5 WARRANTY

A. Installer's Warranty:

1. The Contractor shall submit a two (2) year warranty guaranteeing installation is free from:

a. Defective materials,
b. Defective workmanship,
c. And agrees to re-apply, repair, and / or replace materials that fail to prevent water intrusion.

2. Warranty shall begin upon final acceptance or final payment of the installation.
3. Warranty shall be "no-dollar limit" and shall be non-prorated.

B. Manufacturer's Warranty:

1. Provide Manufacturer's Limited Warranty information for review by Contract Administrator and Architect.

1.6 SUBMITTALS

A. Submit under provisions of Section 013300.

B. Submit approved Manufacturer's product data for all products.
1. Include data indicating Volatile Organic Compound (VOC) for all products.
2. Include Manufacturer's data on primers, patching materials, and accessories

C. Submit approved Manufacturer's installation instructions with Manufacturer's approved and recommended methods of preparation.
1. Indicate special surface preparation procedures and substrate conditions requiring special attention.

D. Certified letter: Submit letter from Manufacturer's Representative that applicator is approved for application of their system, as required to obtain Manufacturer's extended Warranty.

E. Submit Color Samples as brushoults for each color selected until approved by Owner and Architect.

F. Mockups: Construct a movable panel representing siding and trim.(2 ft x 2 ft minimum size). Apply benchmark samples (of approved brushouts) of each paint system indicated and each color and finish selected to verify preliminary selections

made under sample submittals and to demonstrate aesthetic effects and set quality standards for materials and execution.

1. Final approval of color selections will be based on benchmark samples.
2. If preliminary color selections are not approved, apply additional benchmark samples of additional colors selected by Architect at no added cost to Owner.

G. Submit Warranties under provisions of Section 017700 - Closeout

1.7 COLOR DRAW DOWN AND JOB MOCK-UP

A. Coordinate “draw down” with color “drawdowns” of other paint and coating systems to coincide with elastomeric system draw down / job mock-up.

B. After initial color selection by Contract Administrator provide the following elastomeric coated areas for on-site review prior to any further finish work.
   1. Exterior Smooth Concrete/Stucco panels: PT-1 through PT-8 as shown in Construction Drawings
   2. Eight feet wide by one story high area at locations TBD with Contract Administrator and Architect.

C. Obtain written approval from Architect for approval of color choices prior to any further finish work.

1.8 DELIVERY, STORAGE, PROTECTION, AND HANDLING

A. Deliver, store, protect, and handle materials to site under provisions of Section 016000.

B. Deliver, store, protect, and handle materials in compliance with the manufacturer's instructions, requirements, and recommendations.

C. All materials must be delivered in original, unopened containers with the manufacturer’s name, labels, and product identification.

   1. Diluted, contaminated, and damaged material or containers must be removed from the site immediately.
   2. Date of manufacture shall be factory printed on all containers.
   3. Container label to include manufacturer's name, brand name, type of material, date of manufacture or expiration date, and batch or lot number.

D. Store tightly sealed material containers off the ground, away from moisture, damp surfaces, direct sunlight, and extreme heat.

E. Condition products to approximately 60 to 70 degrees F - or as required as required by manufacturer's instructions and recommendations.

F. Do not store below 35 degrees F (2 Deg. C), or temperatures recommended by Manufacturer.

G. Handle all products with precautions noted on Material Safety and Data Sheets.

H. Keep storage area neat and orderly. Remove waste daily.

1.9 ENVIRONMENTAL REQUIREMENTS - PROJECT CONDITIONS

A. Prepare and install materials in compliance with the manufacturer's instructions, requirements, and recommendations for weather and temperature.

B. Do not apply materials when surface and ambient temperatures are outside the temperature ranges required by the product manufacturer.

C. Do not apply exterior coatings during rain or snow, or when relative humidity is outside the humidity ranges required by the paint product manufacturer.

D. Minimum Application Temperatures unless required otherwise by manufacturer:

1. 50 degrees F during application and until drying is complete.
2. Application may continue during inclement weather if surfaces and areas to be coated are enclosed and heated within temperature limits specified by the manufacturer during application and drying periods.
3. Provide temporary heat as required. The use of salamanders to provide temporary heat is forbidden.

E. Substrate shall be dry unless approved in writing by manufacturer.

F. Substrate shall be prepared in full compliance with manufacturer's instructions, requirements, and recommendations prior to application.
1. Surface shall be free of all loose material, dirt, moss, grease, and any other substance detrimental to system.

1.10 SCHEDULE COORDINATION

A. The apartments and site are occupied.

B. Coordinate access to roof areas with Contract Administrator.

C. Coordinate Schedule with work of other Sections.

1.11 VOC and REGULATORY REQUIREMENTS

A. VOC (Volatile Organic Compound) shall be less than 100g / L each for all primers

B. VOC (Volatile Organic Compound) shall be less than 100g / L each for all finishes

PART 2 PRODUCTS

2.1 MINIMUM ELASTOMERIC PRODUCT CRITERIA (FOR TWO COATS)

A. Resistance to Wind Driven Rain
1. Passes TT-C-555B, 98 mph, or
2. Passes ASTM D6904-3

B. Solids Content:
1. By Weight: 55 % minimum

2. By Volume: 45 % +/- 2%

C. Low-Temperature Flexibility, ASTM D522: Passes.

D. Water Vapor Permeance ASTM D1653

E. Mildew Resistance ASTM D3273: No growth

F. Minimum elongation 250%

G. VOC (Volatile Organic Compound) less than 100g / L

2.2 APPROVED ELASTOMERIC SYSTEM MANUFACTURERS AND TYPE

A. ConFlex XL Smooth
Sherwin Williams
www.sherwinwilliams.com / (800) 474-3794

1. VOC content less than 50 g/L

B. MasterProtect EL 850
Master Builder Solutions - Sika
www.mbcc.sika.com / (800) 243-6739

1. VOC content: 84 g/L

C. **PERMA-CRETE PITT-FLEX®** Elastomeric Coating – Smooth
PPG Industries, Inc., Architectural Coatings
www.ppgpittsburghpaints.com / (800) 441-9695

1. VOC content: <100 g/L

D. "Or equal", Proposed Substitution Requests, minimum 10 days prior to bid, in accordance with Section 016000, articles 1.6 and 1.7.
a. Any alternative product must be tintable to match pre-selected Sherwin Williams paint colors listed in drawings.

2.3 PRIMERS

A. As manufactured and recommended by approved Elastomeric System Manufacturer for existing substrate conditions.

1. Material Compatibility: Provide primers, and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

B. Provide different primer types if required or recommended by manufacturer for existing elastomeric/coated surfaces.

2.4 PATCHING MATERIAL

A. As manufactured and recommended by approved Elastomeric System Manufacturer for existing substrate conditions.

B. Material Compatibility: Provide patching materials and related materials that are compatible with one another and the substrates indicated under conditions of service and application, as demonstrated by the manufacturer based on testing and field experience.

2.5 APPLIED DRY THICKNESS

A. Minimum average dry film:

1. Applied to 13 mil dry for wind driven rain resistance. Achieved with two coats applied at 12-16 mils wet each coat.

2.6 COLOR

A. Color selection is included in Construction Documents. Required final approval of drawdowns by Architect.

B. Colors: Provide custom colors at no additional charge to Owner.

C. Refer to Articles 1.6 - Submittals and 1.7 Color Draw Down - Job Mock-Up, above.

D. See Drawings for areas of different colors.

2.7 CLEANING PRODUCTS

A. Moss Removal: Jomax or Simple Green

B. Other products as manufactured or recommended by approved Elastomeric System Manufacturer for existing substrate conditions.

PART 3 EXECUTION

3.1 EXTENT OF WORK:

A. All existing exterior “smooth” concrete building surfaces are to be coated under this Section.

B. All existing exterior stucco building surfaces are to be coated under this Section.

C. All existing site concrete walls and planter walls are to be coated under this Section.

D. Each courtyard has an exterior stairwell that is open to the weather and is therefore deemed as exterior surfaces. All surfaces within these two stairwells, with the exception of previously coated treads and risers, are to be included in the work of this contract, as described in other specification sections.

E. The top, fascia, and underside of concrete decks are to be coated under this Section.

3.2 EXAMINATION AND COORDINATION

A. Verify that substrates have been cleaned and prepared per system manufacturer's requirements, instructions, and recommendations.

B. Verify that cracks have been prepared and patched per system manufacturer's requirements, instructions, and recommendations.

C. Holes, crevices and spalled or disintegrated portions must be properly patched and filled; consult manufacturer's Technical Service for the appropriate concrete repair product.

a. Patch concrete surfaces as identified and directed by Contract Administrator.

D. Verify that surfaces and substrate conditions are ready to receive work as required and recommended by the product manufacturer.

E. Surfaces receiving primers and elastomeric coating must be thoroughly dry before system is applied.

F. Provide manufacturer's required and recommended primer on existing raw (cured) concrete repairs, prior to application of elastomeric coatings.

G. Examine surfaces scheduled to be finished prior to commencement of work. Do not begin to apply elastomeric system until unsatisfactory conditions have been corrected.

H. Coordinate and verify that surfaces are approved by Manufacturer's Representative as required for system, prior to applications.

3.3 PROTECTION OF ADJACENT SURFACES AND LANDSCAPING

A. Protect all adjacent surfaces. Protect all trees, shrubs, ground covers, lawns etc. from contact with applied materials and from "run off".

B. Mask electrical equipment, hardware, light fixtures and trim, escutcheons, etc. prior to preparing surfaces.

3.4 CLEANING, MOSS REMOVAL, AND PREPARATION

A. Surface Preparation: Clean and prepare surfaces to be painted according to the manufacturer's instructions for each particular substrate condition and as specified.

B. Cleaning: Before applying elastomeric system or other surface treatments, clean substrate of substances that could impair the bond of various coatings. Surface shall be free of all loose material, dust, dirt, oils, grease, laitance, efflorescence, mildew, fungus, biological residues, and other contaminants that could prevent proper adhesion.

C. Pressure Wash: Comply with Manufacturer's instructions, requirement, and recommendations.
   1. Verify safety of operations. Provide barricades, etc. as required.
   2. Protect all property.

D. Moss removal:
   1. Verify Landscape materials are protected.
   2. Comply with Manufacturer's instructions, requirements, and recommendations.
   3. Treat severely infested substrates a second time after an interval of one to two weeks to eliminate growth.

E. Schedule cleaning, moss removal, and application so dust and other contaminants from the cleaning process will not fall on wet or newly finished surfaces.

F. Ensure concrete substrates have a minimum 28-day cure and are free of bond-inhibiting contaminants.

3.5 CRACK AND DETAIL PREPARATION

A. Prepare surfaces to be treated according to the manufacturer's instructions, requirements, and recommendations for each particular substrate condition and as specified.

B. Chip or grind out non-moving cracks larger than 1/16 inch and fill with manufacturer's approved sealant.

C. Apply joint sealant where appropriate on support columns and other details. Inspect expansion joints. Ensure there is no deteriorated sealant, adhesion loss, or non-elastomeric caulking in joints. Replace defective sealant with sealant approved by coating manufacturer.

D. Apply and tool liberal amount of patching compound or form cant bead of sealant approved by coating manufacturer wherever there is change in direction, where 2 walls abut, and at column and wall intersections.

E. If movement is anticipated where dissimilar substrates join (for example, stucco and concrete or brick and CMU), properly clean joint and seal with sealant approved by coating manufacturer.

F. Inspect through-wall penetrations, including electrical, lighting, signage, plumbing, HVAC, and fire-sprinkler piping, for watertight seal. Repair with sealant approved by coating manufacturer.

G. Inspect flashings, including cap flashing and roof flashing for watertight seals. Repair with sealant approved by coating manufacturer.

H. Cracks smaller than hairline can be bridged with knife-grade or brush-grade patching compounds.

I. Chip or grind out nonmoving cracks larger than hairline. Remove dust and pack with knife-grade patching compound. Bridge crack with brush-grade patching compound.

Brush narrow band directly into crack using brush, sponge, or other means to match substrate texture and reduce telegraphing of patches through finish coat. On textured substrates, use texturized patching compound to minimize telegraphing.

J. Rout out dynamic or moving cracks to minimum of 1/4 inch by 1/4 inch (6 mm by 6 mm), then fill with sealant approved by coating manufacturer. Once sealant is tooled and cured, proceed with crack repair.

3.6 PRIMING

A. Prime uncoated concrete and masonry substrates, in accordance with manufacturer's instructions, requirements, and recommendations.

B. Identify uncoated raw (cured) concrete at site prior to Bid.

3.7 APPLICATION

A. Verify acceptability of substrates with Manufacturer's Representative prior to work.

B. Apply products in accordance with manufacturer's instructions, requirements, and recommendations.

C. Do not apply primers, patching materials, or elastomeric coating to surfaces that are not dry.

3.8 FIELD QUALITY CONTROL

A Owner's field inspection will be performed under provisions of General and Special Conditions of Contract, and this Specification Section.

B. Test questionable coated areas.

C. Comply with Manufacturer's installation and system requirements.

a. CLEAN UP

A. Clean work under provisions of 017400.

B. Collect waste material which may constitute a fire hazard, place in closed metal containers and remove daily from site.

C. Cleanup: At the end of each work day, remove empty cans, rags, rubbish, and other discarded materials from the site.

D. After completing installation, clean glass and spattered surfaces.

E. Clean exterior of all window glass.

3.10 PROTECTION AND CORRECTIONS

A. Correct damage by cleaning, repairing, replacing, and recoating, as acceptable to Manufacturer's Representative and Owner.

B. Provide "Wet Paint" signs, barricades, etc. to protect new finishes.

END OF SECTION

SECTION 101400 – SIGNAGE

PART 1 - GENERAL

1.1 SUMMARY

A. This Section includes the following:
   1. Exterior Building Unit Number Signage

1.2 SUBMITTALS

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

B. Shop Drawings: Show fabrication and installation details for signs.
   1. Show sign mounting heights, locations of supplementary supports to be provided by others, and accessories.
   2. Provide message list, typestyles, graphic elements, including tactile characters and Braille, and layout for each sign.

C. Samples: For each sign type and for each color and texture required.

1.3 QUALITY ASSURANCE

A. Regulatory Requirements: Comply with applicable provisions in ADA Accessibility Guidelines and ICC/ANSI A117.1.

PART 2 - PRODUCTS

2.1 PLAQUES

A. Tactile and Braille Sign: Manufacturer's standard process for producing text and symbols complying with ADA Accessibility Guidelines and with ICC/ANSI A117.1. Text shall be accompanied by Grade 2 Braille. Produce precisely formed characters with square-cut edges free from burrs and cut marks; Braille dots with domed or rounded shape.
   1. Panel Material: Fabricated from .125 mm non-glare, acrylic sheet.
      a. Routed to receive white Rowmark letters and raster Braille
   2. Edge Condition: Square cut.
   3. Corner Condition: Rounded to radius 1/8 inch.
   4. Mounting: Unframed.
      a. Mounted with two-face tape. Contractor to review alternatives with Architect and Contract Administrator with consideration to unit number signs located on windows.
   5. Tactile Characters: Characters and Grade 2 Braille raised 1/32 inch above surface with contrasting colors.
   6. Character Height: 2 inch

7. Character Color: White
8. Background Color: TBD from manufacturer's standard options that contrast with white text.

2.2 SIGNAGE SCHEDULE:

A. Exterior Unit Numbers w/ Braille
   1. 101 – 115, 201-243, 301-346, 401-446 (150 count)

B. Exterior Common Use w/ Braille
   1. Laundry Room (7)

C. Directional signs (no Braille)
   1. Directional signs with unit numbers at elevator lobby and at covered walk area at top of stairs (11) – count to be verified in field with owner to during bid walk to confirm any additional locations.

2.3 FABRICATION

A. General: Provide manufacturer's standard signs of configurations indicated.

2.4 ACRYLIC SHEET FINISHES

A. Colored Opaque Acrylic Sheet: UV and water resistant, suitable for outdoor use.

PART 3 - EXECUTION

3.1 INSTALLATION

A. Replace existing signs with new. Mounting height to comply with ADA and ANSI A117.1 requirements as indicated in drawings.

B. Locate signs and accessories where indicated, using mounting methods of types described and complying with manufacturer's written instructions.
   1. Install signs level, plumb, and at heights indicated, with sign surfaces free of distortion and other defects in appearance.
   2. Install unit number signs on window adjacent to latch side of door as directed in drawings.
   3. Laundry room signs: install signs on the wall adjacent to latch side of door where applicable. Where not possible install on door.

C. Wall-Mounted Signs: Comply with sign manufacturer's written instructions except where more stringent requirements apply.
   1. Two-Face Tape: Mount signs to smooth, nonporous surfaces. Do not use this method for vinyl-covered or rough surfaces.
   2. Alternatives will be considered as sign manufacturer/installer recommend for attachment to windows.

END OF SECTION 101400