

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.

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.

Inspect products on delivery to ensure compliance with the Contract Documents and to ensure that products are undamaged and properly protected.

Store products to allow for inspection and measurement of quantity or counting of units.

Store materials in a manner that will not endanger Project structure.

Store products that are subject to damage by the elements, under cover in a weathertight enclosure above ground, with ventilation adequate to prevent condensation.

Comply with product manufacturer's written instructions for temperature, humidity, ventilation, and weather-protection requirements for storage.

Protect stored products from damage.

STORAGE: Provide a secure location and enclosure at Project site for storage of materials and equipment. Coordinate location with Owner.

PRODUCT WARRANTIES

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.

SPECIAL WARRANTIES: Prepare a written document that contains appropriate terms and identification, ready for execution. Submit a draft for approval before final execution.

Manufacturer's Standard Form: Modified to include Project-specific information and properly executed.

Specified Form: Forms are included with the Specifications. Prepare a written document using appropriate form properly executed.

Refer to Divisions 2 through 16 Sections for specific content requirements and particular requirements for submitting special warranties.

SUBMITTAL TIME: Comply with requirements in Division 1 Section "Closeout Procedures."

PART 2 - PRODUCTS

PRODUCT OPTIONS

PROVIDE PRODUCTS THAT COMPLY with the Contract Documents, that are undamaged, and unless otherwise indicated, that are new at time of installation.

PROVIDE PRODUCTS COMPLETE with accessories, trim, finish, fasteners, and other items needed for a complete installation and indicated use and effect.

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.

OWNER RESERVES THE RIGHT to limit selection to products with warranties not in conflict with requirements of the Contract Documents.

WHERE PRODUCTS ARE ACCOMPANIED BY THE TERM "as selected," Architect will make selection. Where products are accompanied by the term "match sample," sample to be matched is Architect's.

DESCRIPTIVE, PERFORMANCE, AND REFERENCE STANDARD REQUIREMENTS in the Specifications establish "salient characteristics" of products.

OR EQUAL: Where products are specified by name and accompanied by the term "or equal" or "or approved equal" or "or approved," comply with provisions in "Comparable Products" Article to obtain approval for use of an unnamed product.

PRODUCT SELECTION PROCEDURES: Procedures for product selection include the following:

SINGLE NAMED PRODUCT: Where the Drawings or Specifications name a single product and/or manufacturer, provide that product name unless a substitution has been approved.

SINGLE MANUFACTURER/SOURCE: Where Specification paragraphs or subparagraphs titled "Manufacturer" or "Source" name single manufacturers or sources, provide a product by the manufacturer or from the source named that complies with requirements.

MULTIPLE NAMED PRODUCTS: Where Specification paragraphs or subparagraphs titled "Products" introduce a list of names of both products and manufacturers, provide one of the products listed that complies with requirements.

MULTIPLE MANUFACTURERS: Where Specification paragraphs or subparagraphs titled "Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed that complies with requirements.

AVAILABLE PRODUCTS: Where Specification paragraphs or subparagraphs titled "Available Products" introduce a list of names of both products and manufacturers, provide one of the products listed or another product that complies with requirements.

AVAILABLE MANUFACTURERS: Where Specification paragraphs or subparagraphs titled "Available Manufacturers" introduce a list of manufacturers' names, provide a product by one of the manufacturers listed or another manufacturer that complies with requirements.

PRODUCT OPTIONS: Where Specification paragraphs titled "Product Options" indicate that size, profiles, and dimensional requirements on Drawings are based on a specific product or system, provide either the specific product or system indicated or a comparable product or system by another manufacturer with similar size, profiles, and dimensional requirements.

BASIS-OF-DESIGN PRODUCTS: Where Specification paragraphs or subparagraphs titled "Basis-of-Design Product(s)" are included and also introduce or refer to a list of manufacturers' names, provide either the specified 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.

SUBSTITUTIONS MAY BE CONSIDERED at the option of the Architect, except when indicated on either the Drawings or Specifications as "no substitutions" or "no equal(s)".

VISUAL MATCHING SPECIFICATION: Where Specifications require matching an established Sample, select a product (and manufacturer) that complies with requirements and matches Architect's sample. Architect's decision will be final on whether a proposed product matches satisfactorily. If no product available within specified category matches satisfactorily and complies with other specified requirements established by the Drawings and Specifications, Architect will make selection of a matching product.

VISUAL SELECTION SPECIFICATION: Where Specifications include the phrase "as selected from manufacturers' names" or a similar phrase, select a product (and manufacturer) that complies with other specified requirements.

STANDARD RANGE: Where Specifications include the phrase "standard range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that does not include premium items.

FULL RANGE: Where Specifications include the phrase "full range of colors, patterns, textures" or similar phrase, Architect will select color, pattern, or texture from manufacturer's product line that includes both standard and premium items.

ALLOWANCES: Refer to individual Specification Sections and "Allowance" provisions in Division 1 (if applicable) for allowances that control product selection and for procedures required for processing such selections.

PRODUCT SUBSTITUTIONS

TIMING: Architect will consider requests for substitution if received within THIRTY (30) DAYS after commencement of the Work. Requests received after that time may be considered or rejected at discretion of Architect.

SUBSTITUTION CONDITIONS: Architect will consider Contractor's request for substitution when the following conditions are satisfied. If the following conditions are not satisfied, Architect will return requests without action, except to record noncompliance with these requirements:

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.

Requested substitution does not require extensive revisions to the Contract Documents.

Requested substitution is consistent with the Contract Documents and will produce indicated results.

Substitution request is fully documented and properly submitted.

Requested substitution will not adversely affect Contractor's Construction Schedule.

Requested substitution has received necessary approvals of authorities having jurisdiction.

Requested substitution is compatible with other portions of the Work.

Requested substitution has been coordinated with other portions of the Work.

Requested substitution provides specified warranty.

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.

COMPARABLE PRODUCTS: Where products or manufacturers are specified by name, submit the following, in addition to other required approval of an unnamed product:

Evidence that the proposed product does not require extensive 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.

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.

Evidence that proposed product provides specified warranty.

List of similar installations for completed projects with project names and addresses and names and addresses of architects and owners, if requested.

Samples, if requested.

END OF SECTION 01 60 00

EXECUTION REQUIREMENTS SECTION 01 73 00

PART 1 - GENERAL

RELATED DOCUMENTS: The Drawings, and general provisions of the Contract, including the General and Supplementary Conditions, and other Division-1 Sections of the Specifications, apply to this Section.

THIS SECTION INCLUDES general procedural requirements governing execution of the Work including, but not limited to, the following:

Construction layout

Field engineering and surveying

General installation of products

Progress cleaning

Starting and adjusting

Protection of installed construction

Correction of the Work

RELATED SECTIONS include the following:

Division 1 Section "Project Management and Coordination" for procedures for coordinating field engineering with other construction activities.

Division 1 Section "Submittal Procedures" for submitting surveys.

Division 1 Section "Cutting and Patching" for procedural requirements for cutting and patching necessary for the installation or performance of other components of the Work.

CERTIFICATES: Submit certificate signed by land surveyor certifying that location and elevation of improvements comply with requirements.

QUALITY ASSURANCE

SURVEYOR QUALIFICATIONS: A professional land surveyor legally qualified to practice in jurisdiction where Project is located and who is experienced in providing land-surveying services of the kind indicated.

PART 2 - PRODUCTS (Not Used)

PART 3 - EXECUTION

EXAMINATION

EXISTING CONDITIONS: The existence and location of site improvements, utilities, and other construction indicated as existing are not guaranteed. Before beginning work, investigate and verify the existence and location of mechanical and electrical systems and other construction affecting the Work. Before construction, verify the location and points of connection of utility services.

EXISTING UTILITIES: The existence and location of underground and other utilities and construction indicated as existing are not guaranteed. Before beginning sitework, investigate and verify the existence and location of underground utilities and other construction affecting the Work.

BEFORE CONSTRUCTION, VERIFY the location and invert elevation at points of connection of sanitary sewer, storm sewer, and water-service piping; and underground electrical services.

FURNISH LOCATION DATA for work related to Project that must be performed by public utilities serving Project site.

ACCEPTANCE OF CONDITIONS: Examine substrates, areas, and conditions, with Installer or Applicant present where indicated, for compliance with requirements for installation tolerances and other conditions affecting performance. Record observations.

WHERE A WRITTEN REPORT listing conditions detrimental to performance of the Work is required by other Sections, include the following:

Description of the Work.

List of detrimental conditions, including substrates.

List of unacceptable installation tolerances.

Recommended corrections.

VERIFY COMPATIBILITY with and suitability of substrates, including compatibility with existing finishes or primers.

EXAMINE ROUGHING-IN FOR MECHANICAL AND ELECTRICAL SYSTEMS to verify actual locations of connections before equipment and fixture installation.

EXAMINE walls, floors, and roofs for suitable conditions where products and systems are to be installed.

PROCEED WITH INSTALLATION ONLY AFTER unsatisfactory conditions have been corrected. Proceeding with the Work indicates acceptance of surfaces and conditions.

PREPARATION

EXISTING UTILITY INFORMATION: Furnish information to the local utility 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.

EXISTING UTILITY INTERRUPTIONS: Do not interrupt existing unless permitted under the following conditions and then only after arranging to provide temporary utility services according to requirements indicated.

Notify Owner not less than TWO (2) days in advance of proposed utility interruptions.

Do not proceed with utility interruptions without Owner's written permission.

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.

VERIFY SPACE REQUIREMENTS and dimensions of items shown diagrammatically on Drawings.

CONSTRUCTION LAYOUT

VERIFICATION: Before proceeding to lay out the Work, verify layout information shown on Drawings, in relation to the property survey and existing benchmarks. If discrepancies are discovered, notify Architect promptly.

ENGAGE A LAND SURVEYOR to lay out the Work using accepted surveying practices:

ESTABLISH BENCHMARKS AND CONTROL POINTS to set lines and levels at each story of construction and elsewhere as needed to locate each element of Project.

ESTABLISH DIMENSIONS within tolerances indicated. Do not scale Drawings to obtain required dimensions.

INFORM INSTALLERS of lines and levels to which they must comply.

CHECK THE LOCATION, LEVEL AND PLUMB, of every major element as the Work progresses.

NOTIFY ARCHITECT of any deviations from required lines and levels exceeding allowable tolerances.

CLOSE SITE SURVEYS with an error of closure equal to or less than the standard established by authorities having jurisdiction.

LOCATE AND LAY OUT SITE IMPROVEMENTS, including pavements, grading, fill and topsoil placement, utility slopes, and invert elevations.

BUILDING LINES AND LEVELS: Locate and lay out control lines and levels for structures, building foundations, column grids, and floor levels, including those required for mechanical and electrical work. Transfer survey markings and elevations for use with control lines and levels. Level foundations and piers from two or more locations.

RECORD LOG: Maintain a log of layout control work. Record deviations from required lines and levels. Include beginning and ending dates and times of surveys, weather conditions, name and duty of each survey party member, and types of instruments and tapes used. Make the log available for reference by Architect and Owner.

FIELD ENGINEERING

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. Do not change or relocate existing benchmarks or control points without prior written approval of Architect or Owner. Report lost or destroyed permanent benchmarks or control points promptly. Report the need to relocate permanent benchmarks or control points to Architect or Owner before proceeding. Replace lost or destroyed permanent benchmarks and control points promptly. Base replacements on the original survey control points.

BENCHMARKS: Establish and maintain a minimum of TWO (2) permanent benchmarks on Project Site, referenced to data established by survey control points. Comply with authorities having jurisdiction for type and size of benchmark. Record benchmark locations, with horizontal and vertical data, on Project Record Documents. Where the actual location or elevation of layout points cannot be marked, provide temporary reference points sufficient to locate the Work. Remove temporary reference points when no longer needed. Restore marked construction to its original condition.

INSTALLATION

LOCATE THE WORK AND COMPONENTS of the Work accurately, in correct alignment and elevation, as indicated.

INSTALL vertical work plumb and make horizontal work level.

WHERE SPACE IS LIMITED, install components to maximize space available for maintenance and ease of removal for replacement.

Conceal pipes, ducts, and wiring in finished areas, unless otherwise indicated.

Maintain minimum headroom clearance of 8 feet in spaces without a suspended ceiling.

COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND RECOMMENDATIONS for installing products in applications indicated.

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

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.

TOOLS AND EQUIPMENT: Do not use tools or equipment that produce harmful noise levels.

ANCHORS AND FASTENERS: Provide anchors and fasteners as required to anchor each component securely in place, accurately located and aligned with other portions of the Work.

MOUNTING HEIGHTS: where mounting heights are not indicated, mount components at heights directed by architect.

ALLOW FOR BUILDING MOVEMENT, including thermal expansion and contraction.

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.

HAZARDOUS MATERIALS: Use products, cleaners, and installation materials that are not considered hazardous.

CONSTRUCT CHASES AND PROVIDE OPENINGS to facilitate installation of equipment and systems indicated.

PROGRESS CLEANING

CLEAN PROJECT SITE AND WORK AREAS DAILY, including common areas. Coordinate progress cleaning for joint-use areas where more than one installer has worked. Enforce requirements strictly. Dispose of materials lawfully.

COMPLY WITH REQUIREMENTS in NFPA 241 for removal of combustible waste materials and debris. Do not hold materials more than 7 DAYS during normal weather or 3 days if the temperature is expected to rise above 80 deg F.

CONTAINERIZE HAZARDOUS AND UNSANITARY WASTE MATERIALS separately from other waste. Mark containers appropriately and dispose of legally, according to regulations.

MAINTAIN PROJECT SITE free of waste materials and debris.

CLEAN AREAS WHERE WORK IS IN PROGRESS to the level of cleanliness necessary for proper execution of the Work. Remove liquid spills promptly. Where dust would impair proper execution of the Work, broom-clean or vacuum the entire work area, as appropriate.

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.

CONCEALED SPACES: Remove debris from concealed spaces before enclosing the space.

EXPOSED SURFACES: Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

CUTTING AND PATCHING: Clean areas and spaces where cutting and patching are performed. Completely remove paint, mortar, oils, putty, and similar materials. Thoroughly clean piping, conduit, and similar features before applying paint or other finishing materials. Restore damaged pipe covering to its original condition.

BURYING OR BURNING WASTE MATERIALS on-site will not be permitted. Washing waste materials down sewers or into waterways will not be permitted.

CLEAN AND PROTECT CONSTRUCTION in PROGRESS and adjoining materials already in place during handling and installation. Apply protective covering where required to ensure protection from damage or deterioration at Substantial Completion.

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.

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

STARTING AND ADJUSTING

START EQUIPMENT AND OPERATING COMPONENTS to confirm proper operation. Remove malfunctioning units, replace with new units, and retest.

ADJUST OPERATING COMPONENTS for proper operation without binding. Adjust equipment for proper operation.

TEST EACH PIECE OF EQUIPMENT to verify proper operation. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

MANUFACTURER'S FIELD SERVICE: If a factory-authorized service representative is required to inspect field-assembled components and equipment installation, comply with qualification requirements in Division 1 Section "Quality Requirements."

PROTECTION OF INSTALLED CONSTRUCTION

PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS that ensure installed Work is without damage or deterioration at time of Substantial Completion.

COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS for temperature and relative humidity.

CORRECTION OF THE WORK

REPAIR OR REMOVE AND REPLACE defective construction. Restore damaged substrates and finishes. Comply with requirements in Division 1 Section "Cutting and Patching." Repairing includes replacing defective parts, refinishing damaged surfaces, touching up with matching materials, and properly adjusting operating equipment.

RESTORE PERMANENT FACILITIES used during construction to their specified condition.

REMOVE AND REPLACE DAMAGED SURFACES that are exposed to view if surfaces cannot be repaired without visible evidence of repair. Repair components that do not operate properly. Remove and replace operating components that cannot be repaired. Remove and replace chipped, scratched, and broken glass or reflective surfaces.

END OF SECTION 01 73 00

CLOSEOUT REQUIREMENTS

SECTION 01 77 00

PART 1 - GENERAL

RELATED DOCUMENTS: The Drawings, and general provisions of the Contract, including the General and Supplementary Conditions, and Division-1 Sections of the Specifications, apply to this Section.

THIS SECTION INCLUDES administrative and procedural requirements for contract closeout, including, but not limited to, the following:

Inspection procedures.

Project Record Documents.

Operation and maintenance manuals.

Warranties.

Instruction of Owner's personnel.

Final cleaning.

RELATED SECTIONS

Division 1 Section "Payment Procedures" for requirements for Applications for Payment for Substantial and Final Completion.

Division 1 Section "Construction Progress Documentation" for submitting Final Completion construction photographs and negatives.

Division 1 Section "Project Record Documents" for submitting Record Drawings, Record Specifications, and Record Product Data.

Division 1 Section "Operation and Maintenance Data" for operation and maintenance manual requirements.

Divisions 2 through 49 Sections for specific closeout and special cleaning requirements for products of those Sections.

SUBSTANTIAL COMPLETION

PRELIMINARY PROCEDURES: Before requesting inspection for determining date of Substantial Completion, complete the following. List items below that are incomplete in request.

Prepare a list of items to be completed and corrected (punch list), the value of items on the list, and reasons why the Work is not complete.

Advise Owner of pending insurance changeover requirements.

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.

Make final changeover of permanent locks and deliver keys to Owner. Advise Owner's personnel of changeover in security provisions.

Complete startup testing of systems.

Terminate and remove temporary facilities from Project site, along with mockups, construction tools, and similar elements.

Advise Owner of changeover in heat and other utilities.

Submit changeover information related to Owner's occupancy, use, operation, and maintenance.

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.

Reinspection: Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

Results of completed inspection will form the basis of requirements for Final Completion.

FINAL COMPLETION

PRELIMINARY PROCEDURES: Before requesting final inspection for determining date of Final Completion, complete the following:

Submit a final Application for Payment according to Division 1 Section "Payment Procedures."

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.

Submit evidence of final, continuing insurance coverage complying with insurance requirements.

Submit pest-control final inspection report and warranty.

Submit specific warranties, workmanship bonds, maintenance service agreements, final certifications, and similar documents.

Prepare and submit Project Record Documents, operation and maintenance manuals, Final Completion construction photographs, damage or settlement surveys, property surveys, and similar final record information.

Deliver tools, spare parts, extra materials, and similar items to location designated by Owner. Label with manufacturer's name and model number where applicable.

Submit test/adjust/balance records.

Complete final cleaning requirements, including touchup painting.

Touch up and otherwise repair and restore marred exposed finishes to eliminate visual defects.

Instruct Owner's personnel in operation, adjustment, and maintenance of products, equipment, and systems.

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. Request reinspection when the Work identified in previous inspections as incomplete is completed or corrected.

LIST OF INCOMPLETE ITEMS (PUNCH LIST)

PREPARATION: Submit three copies 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.

ORGANIZE LIST OF SPACES in sequential order, starting with exterior areas first.

ORGANIZE ITEMS APPLYING TO EACH SPACE by major element, including categories for ceiling, individual walls, floors, equipment, and building systems.

INCLUDE THE FOLLOWING information at the top of each page:

Project name.

Date.

Name of Architect.

Name of Contractor.

Page number.

PROJECT RECORD DOCUMENTS

DO NOT USE PROJECT RECORD DOCUMENTS for construction purposes. Protect Project Record Documents from deterioration and loss. Provide access to Project Record Documents for Architect's reference during normal working hours.

RECORD DRAWINGS: Maintain and submit ONE (1) SET of blue- or black-line white prints of Contract Drawings and Shop Drawings.

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 prepare the marked-up Record Prints.

Give particular attention to information on concealed elements that cannot be readily identified and recorded later.

Accurately record information in an understandable recording technique.

Record data as soon as possible after obtaining it. Record and check the markup before enclosing completed installations.

Mark Contract Drawings or Shop Drawings, whichever is most capable of showing actual physical conditions, completely and accurately. Where Shop Drawings are marked, show cross-reference on Contract Drawings.

MARK WITH ERASABLE, RED-COLORED PENCIL. Use other colors to distinguish between changes for different categories of the Work at the same location.

MARK IMPORTANT ADDITIONAL INFORMATION that was either shown schematically or omitted from original Drawings.

NOTE Construction Change Directive numbers, Change Order numbers, alternate numbers, and similar identification where applicable.

IDENTIFY AND DATE each Record Drawing; include the designation "PROJECT RECORD DRAWING" in a prominent location. Organize into manageable sets; bind each set with durable paper cover sheets. Include identification on cover sheets.

RECORD SPECIFICATIONS: Submit ONE (1) copy of Project's Specifications, including addenda and contract modifications. Mark copy to indicate the actual product installation where installation varies from that indicated in Specifications, addenda, and contract modifications.

GIVE PARTICULAR ATTENTION to information on concealed products and installations that cannot be readily identified and recorded later.

MARK COPY with the proprietary name and model number of products, materials, and equipment furnished, including substitutions and product options selected.

NOTE related Change Orders, Record Drawings, and Product Data, where applicable.

RECORD PRODUCT DATA: Submit one copy of each Product Data submittal. Mark one set to indicate the actual product installation where installation varies substantially from that indicated in Product Data.

GIVE PARTICULAR ATTENTION to information on concealed products and installations that cannot be readily identified and recorded later.

INCLUDE SIGNIFICANT CHANGES in the product delivered to Project site and changes in Manufacturer's written instructions for installation.

NOTE related Change Orders, Record Drawings, and Record Specifications, where applicable.

MISCELLANEOUS RECORD SUBMITTALS: 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.

ELECTRONIC PROJECT RECORD DOCUMENTS: Scan paper originals of Record Drawings, Record Specifications, Record Product Data and miscellaneous Record Submittals to PDF files.

OPERATION AND MAINTENANCE MANUALS

ASSEMBLE A COMPLETE SET of operation and maintenance data indicating the operation and maintenance of each system, subsystem, and piece of equipment not part of a system. Include operation and maintenance data required in individual Specification Sections and as follows:

OPERATION DATA:

Emergency instructions and procedures.

System, subsystem, and equipment descriptions, including operating standards.

Operating procedures, including startup, shutdown, seasonal, and weekend operations.

Description of controls and sequence of operations.

Piping diagrams.

MAINTENANCE DATA:

Manufacturer's information, including list of spare parts.

Name, address, and telephone number of installer or supplier.

Maintenance procedures.

Maintenance and service schedules for preventive and routine maintenance.

Maintenance record forms.

Sources of spare parts and maintenance materials.

Copies of maintenance service agreements.

Copies of warranties and bonds.

PROVIDE BOTH ELECTRONIC AND PRINTED Operations and Maintenance Manuals. Electronic version shall have Jewel Case cover and disk identified to match printed copy. Provide on CD disk with data typically in PDF format.

ORGANIZE OPERATION AND MAINTENANCE MANUALS into suitable sets of manageable size. Bind and index data in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, in thickness necessary to accommodate contents, with pocket inside the covers to receive folded oversized sheets. Identify each binder on front and spine with the printed title "OPERATION AND MAINTENANCE MANUAL," Project name, and subject matter of contents.

WARRANTIES

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.

PARTIAL OCCUPANCY: Submit properly executed warranties within 15 days of completion of designated portions of the Work that are completed and occupied or used by Owner during construction period by separate agreement with Contractor.

ORGANIZE WARRANTY DOCUMENTS into an orderly sequence based on the table of contents of the Project Manual.

BIND WARRANTIES AND BONDS in heavy-duty, 3-ring, vinyl-covered, loose-leaf binders, thickness as necessary to accommodate contents, and size to receive 8-1/2-by-11-inch (115-by-280-mm) paper.

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.

IDENTIFY EACH BINDER on the front and spine with the typed or printed title "WARRANTIES," Project name, and name of Contractor.

PROVIDE ADDITIONAL COPIES OF EACH WARRANTY to include in operation and maintenance manuals.

PART 2 - PRODUCTS

MATERIALS

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.

PART 3 - EXECUTION

FINAL CLEANING PROCEDURES:

EMPLOY EXPERIENCED WORKERS or professional cleaners for final cleaning. Clean each surface or unit of work to the condition expected from a normal, commercial building cleaning and maintenance program. Comply with the manufacturer's instructions for operations.

CLEAN TRANSPARENT MATERIALS, including mirrors and glass in doors and windows, to a polished condition. Remove putty and other substances which are noticeable as vision-obscuring materials. Replace chipped or broken glass and other damaged transparent materials.

CLEAN EXPOSED EXTERIOR and interim hard-surfaced finishes to a dust-free condition, free of dust, stains, films and similar noticeable distracting substances. Restore reflective surfaces to their original reflective condition. Leave concrete floors broom clean. Vacuum carpeted surfaces.

MECHANICAL AND ELECTRICAL EQUIPMENT shall be wiped clean. Remove excess lubrication and other substances. Clean plumbing fixtures to a sanitary condition. Clean light fixtures and lamps.