

1 SUBMITTALS

- .1 Submittals: in accordance with Section 01 33 00.
- .2 Prepare instructions and data using personnel experienced in maintenance and operation of described products.
- .3 Copy will be returned after final inspection, with Departmental Representative's comments.
- .4 Revise content of documents as required prior to final submittal.
- .5 Two (2) weeks prior to Substantial Performance of the Work, submit to the Departmental Representative;  
.1 Two (2) final copies plus electronic copies of operating and maintenance manuals in English.
- .6 Ensure spare parts, maintenance materials and special tools provided are new, undamaged or non-defective, and of same quality and manufacture as products provided in Work.
- .7 Furnish evidence, if requested, for type, source and quality of products provided.
- .8 Defective products will be rejected, regardless of previous inspections. Replace products at own expense.
- .9 Pay costs of transportation.

2 ELECTRONIC  
SUBMITTALS

- .1 Submit number of hard copies specified for each type and format of submittal and in also submit in electronic format as pdf files and also in MS Word, Excel, Project as may be appropriate and in Autocad DWG files all on CD R/W or USB.

3 FORMAT

- .1 Organize data as instructional manual.
- .2 Binders: vinyl, hard covered, 3 'D' ring, loose leaf 219 x 279 mm with spine and face pockets.

- .3 When multiple binders are used correlate data into related consistent groupings. Identify contents of each binder on spine.
- .4 Cover: identify each binder with type or printed title 'Project Record Documents'; list title of project and identify subject matter of contents.
- .5 Arrange content by components, systems, integrated systems, process flow, under Section numbers and sequence of Table of Contents.
- .6 Provide tabbed fly leaf for each separate product and system, with typed description of product and major component parts of equipment.
- .7 Text: manufacturer's printed data, or typewritten data.
- .8 Drawings: provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages.
- .9 Provide drawings in pdf and DWG format.
- 10 On project completion submit to Departmental Representative 1 electronic pdf copy and 4 paper copies in binders of Operations and Maintenance Manual.
  - .1 Organize manuals into industry standard maintenance manual tabs with links in index to each descriptive section describing the component or maintenance procedure.
  - .2 Organize files into Masterformat 2010 numbering system.
  - .3 Label disk "Operational and Maintenance Data", project name, date, names of Contractor, subcontractors, consultants and subconsultants.
  - .4 Include scanned guarantees, bonds, diagrams and drawings.
  - .5 Organize contents into applicable sections of work to parallel specification break-down. Mark each section by labeled tabs (navigation buttons).
  - .6 Ensure all content is legible.

4 CONTENTS - EACH  
VOLUME

- .1 Table of Contents: provide title of project;
  - .1 Date of submission; names.
  - .2 Addresses, and telephone numbers of Department Representative and Contractor with name of responsible parties.
  - .3 Schedule of products and systems, indexed to content of volume.
- .2 For each product or system:
  - .1 List names, addresses and telephone numbers of subcontractors and suppliers, including local source of supplies and replacement parts.
- .3 Product Data: mark each sheet to identify specific products and component parts, and data applicable to installation; delete inapplicable information.
- .4 Drawings: supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams.
- .5 Typewritten Text: as required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00.

5 AS-BUILTS  
SPECIFICATIONS AND  
SAMPLES

- .1 Maintain, in addition to requirements in General Conditions, at site for Departmental Representative one record copy of:
  - .1 Contract Drawings.
  - .2 Specifications.
  - .3 Addenda.
  - .4 Change Orders and other modifications to Contract.
  - .5 Reviewed shop drawings, product data, and samples.
  - .6 Field test records.
  - .7 Inspection certificates.
  - .8 Manufacturer's certificates.
- .2 Store record documents and samples in field office apart from documents used for construction. Provide files, racks, and

secure storage.

- .3 Label record documents and file in accordance with Section number listings in List of Contents of this Project Manual. Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition. Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.
- .6 Departmental Representative may furnish additional drawings and specifications to clarify Work.
  - .1 Such documents become part of Contract Document.
  - .2 Include such documents in As Built submission.
- .7 Turn over, at completion, with all as-built information:
- .8 Submit to Departmental Representative one copy of drawings and specifications for review prior to final submission.

6 RECORDING  
ACTUAL SITE  
CONDITIONS

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- .1 As work progresses record information on set of black line opaque shop drawings, and in copy of Specifications Documents.
- .2 Provide felt tip marking pens, maintaining separate colours for each major system, for recording information.
- .3 Record information concurrently with construction progress. Do not conceal Work until required information is recorded.
- .4 Marked Up Contract Drawings and Shop Drawings: mark each item to record actual construction, including:
  - .1 Measured depths of elements of foundation in relation to finish first floor datum.

- .2 Measured horizontal and vertical locations of underground utilities and appurtenances, referenced to permanent surface improvements.
  - .3 Measured locations of internal utilities and appurtenances, referenced to visible and accessible features of construction.
  - .4 Field changes of dimension and detail.
  - .5 Changes made by change orders.
  - .6 Details not on original Contract Drawings.
  - .7 References to related shop drawings and modifications.
- .5 Prepare Autocad drawings modifying shop drawings to show information recorded as per item .4 above, "Marked Up Contract Drawings and Shop Drawings".
  - .6 Specifications: mark each item to record actual construction, including:
    - .1 Manufacturer, trade name, and catalogue number of each product actually installed, particularly optional items and substitute items.
    - .2 Changes made by Addenda and change orders.
  - .7 Other Documents: maintain manufacturer's certifications, guarantees, inspection certifications, field test records, required by individual specifications sections.
  - .8 Submit binder and electronic pdf file containing all the weekly construction photographs.

7 MATERIALS AND FINISHES

- .1 Building Products, Applied Materials, and Finishes: include product data, with catalogue number, size, composition, and colour and texture designations. Provide information for re-ordering custom manufactured products.
- .2 Instructions for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.

- .3 Moisture-Protection and Weather-Exposed Products: include manufacturer's recommendations for cleaning agents and methods, precautions against detrimental agents and methods, and recommended schedule for cleaning and maintenance.
- .4 Additional Requirements: as specified in individual specifications sections.

8 SPARE PARTS

- .1 Provide spare parts, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

9 MAINTENANCE MATERIALS

- .1 Provide maintenance and extra materials, in quantities specified in individual specification sections.
- .2 Provide items of same manufacture and quality as items in Work.
- .3 Deliver to site as directed; place and store.
- .4 Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.
- .5 Obtain receipt for delivered products and submit prior to final payment.

10 SPECIAL TOOLS

- .1 Provide special tools, in quantities specified in individual specification section.

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|   | .2 | Provide items with tags identifying their associated function and equipment.   |
|   | .3 | Deliver to site as directed; place and store.  |
|   | .4 | Receive and catalogue items. Submit inventory listing to Departmental Representative. Include approved listings in Maintenance Manual.                     |
| 11 STORAGE,<br>HANDLING AND<br>PROTECTION | .1 | Store spare parts, maintenance materials, and special tools in manner to prevent damage or deterioration.  |
|   | .2 | Store in original and undamaged condition with manufacturer's seal and labels intact.  |
|   | .3 | Store components subject to damage from weather in weatherproof enclosures.  |
|   | .4 | Store paints and freezable materials in a heated and ventilated room.  |
|   | .5 | Remove and replace damaged products at own expense and to satisfaction of Departmental Representative.   |
| 12 WARRANTIES AND<br>BONDS                | .1 | Develop warranty management plan to contain information relevant to Warranties Manufacturers' Guarantees and Bonds.  |
|   | .2 | Submit warranty management plan, 60 days before planned pre-warranty conference, to Departmental Representative approval.                                  |
|   | .3 | Warranty management plan to include required actions and documents to assure that Departmental Representative receives warranties to which it is entitled. |
|   | .4 | Provide plan in narrative form and contain sufficient detail to make it suitable for use by future maintenance and repair personnel.                       |
|   | .5 | Submit, warranty information made available during construction phase, to Departmental   |

Representative for approval prior to each monthly pay estimate.

- .6 Assemble approved information in binder and submit upon acceptance of work. Organize binder as follows:
  - .1 Separate each warranty or bond with index tab sheets keyed to Table of Contents listing.
  - .2 List subcontractor, supplier, and manufacturer, with name, address, and telephone number of responsible principal.
  - .3 Obtain warranties, manufacturers' guarantees and bonds, executed in duplicate by subcontractors, suppliers, and manufacturers, within 10 days after completion of applicable item of work.
  - .4 Verify that documents are in proper form, contain full information, and are notarized.
  - .5 Co-execute submittals when required.
  - .6 Retain warranties and bonds until time specified for submittal.
- .7 Except for items put into use with Departmental Representative permission, leave date of beginning of time of warranty until Date of Substantial Performance is determined.
- .8 Include information contained in warranty management plan as follows:
  - .1 Roles and responsibilities of personnel associated with warranty process, including points of contact and telephone numbers within the organizations of Contractors, subcontractors, manufacturers or suppliers involved.
  - .2 Listing and status of delivery of Certificates of Warranty for extended warranty items, to include roofs, HVAC balancing, pumps, motors, transformers, and commissioned systems and integrated systems.
  - .3 Provide list for each warranted equipment, item, feature of construction or system indicating:
    - .1 Name of item.
    - .2 Model and serial numbers.
    - .3 Location where installed.



- .4 Name and phone numbers of manufacturers or suppliers.
- .5 Names, addresses and telephone numbers of sources of spare parts.
- .6 Warranties and terms of warranty: include one-year overall warranty of construction. Indicate items that have extended warranties and show separate warranty expiration dates.
- .7 Cross-reference to warranty certificates as applicable.
- .8 Starting point and duration of warranty period.
- .9 Summary of maintenance procedures required to continue warranty in force.
- .10 Cross-Reference to specific pertinent Operation and Maintenance manuals.
- .11 Organization, names and phone numbers of persons to call for warranty service.
- .12 Typical response time and repair time expected for various warranted equipment.
- .4 Contractor's plans for attendance of the various required post-construction warranty inspections.
- .5 Procedure and status of tagging of equipment covered by extended warranties.
- .6 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .9 Respond in a timely manner to oral or written notification of required construction warranty repair work.
- .10 Written verification will follow oral instructions. Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.
- .1 Meet with Departmental Representative, to develop understanding of requirements of this section. Schedule meeting prior to contract completion, and at time designated by Departmental Representative.

13 PRE-WARRANTY  
CONFERENCE

- .2 Departmental Representative will establish communication procedures for:
  - .1 Notification of construction warranty defects.
  - .2 Determine priorities for type of defect.
  - .3 Determine reasonable time for response.
- .3 Provide name, telephone number and address of licensed and bonded company that is authorized to initiate and pursue construction warranty work action.
- .4 Ensure contact is located within local service area of warranted construction, is continuously available, and is responsive to inquiries for warranty work action.

END OF SECTION