

PART 1 - GENERAL

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| <u>1.1 ACTION AND
INFORMATIONAL
SUBMITTALS</u> | .1 | Provide submittals in accordance with Section 01 33 00 - Submittal Procedures. |
| | .2 | Two weeks prior to Substantial Performance of the Work, submit to the Departmental Representative, four final copies of operating and maintenance manuals in English. |
| | .3 | Provide spare parts, maintenance materials and special tools of same quality and manufacture as products provided in Work. |
| | .4 | Provide evidence, if requested, for type, source and quality of products supplied. |
| <u>1.2 FORMAT</u> | .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.
.1 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 systems, 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. |
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1.2 FORMAT
(Cont'd)

- .8 Drawings: provide with reinforced punched binder tab.
 - .1 Bind in with text; fold larger drawings to size of text pages.
- .9 Provide 1:1 scaled CAD files in dwg format on CD.

1.3 CONTENTS -
PROJECT RECORD
DOCUMENTS

- .1 Table of Contents for Each Volume: provide title of project;
 - .1 Date of submission; names.
 - .2 Addresses, and telephone numbers of Departmental 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.
 - .1 Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions specified in Section 01 45 00 - Quality Control.
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1.4 AS -BUILT
DOCUMENTS 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.
 - .1 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.
 - .1 Label each document "PROJECT RECORD" in neat, large, printed letters.
- .4 Maintain record documents in clean, dry and legible condition.
 - .1 Do not use record documents for construction purposes.
- .5 Keep record documents and samples available for inspection by Departmental Representative.

1.5 RECORDING
INFORMATION ON
PROJECT RECORD
DOCUMENTS

- .1 Record information on set of black line opaque drawings provided by Departmental Representative.
 - .2 Use felt tip marking pens, maintaining separate colours for each major system, for recording information.
 - .3 Record information concurrently with construction progress.
 - .1 Do not conceal Work until required information is recorded.
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1.5 RECORDING
INFORMATION ON
PROJECT RECORD
DOCUMENTS
(Cont'd)

- .4 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 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.
- .6 Other Documents: maintain manufacturer's certifications, inspection certifications, field test records, required by individual specifications sections.
- .7 Provide digital photos, if requested, for site records.

1.6 FINAL SURVEY

- .1 Submit final site survey certificate certifying that elevations and locations of completed Work are in conformance, or non-conformance with Contract Documents.
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- 1.7 EQUIPMENT AND SYSTEMS
- .1 For each item of equipment and each system include description of unit or system, and component parts.
 - .1 Give function, normal operation characteristics and limiting conditions.
 - .2 Include performance curves, with engineering data and tests, and complete nomenclature and commercial number of replaceable parts.
 - .2 Panel board circuit directories: provide electrical service characteristics, controls, and communications.
 - .3 Include installed colour coded wiring diagrams.
 - .4 Operating Procedures: include start-up, break-in, and routine normal operating instructions and sequences.
 - .1 Include regulation, control, stopping, shut-down, and emergency instructions.
 - .2 Include summer, winter, and any special operating instructions.
 - .5 Maintenance Requirements: include routine procedures and guide for trouble-shooting; disassembly, repair, and reassembly instructions; and alignment, adjusting, balancing, and checking instructions.
 - .6 Provide servicing and lubrication schedule, and list of lubricants required.
 - .7 Include manufacturer's printed operation and maintenance instructions.
 - .8 Include sequence of operation by controls manufacturer.
 - .9 Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
 - .10 Provide installed control diagrams by controls manufacturer.
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- 1.7 EQUIPMENT AND SYSTEMS
(Cont'd)
- .11 Provide Contractor's Design-Builder's co-ordination drawings, with installed colour coded piping diagrams.
 - .12 Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
 - .13 Provide list of original manufacturer's spare parts, current prices, and recommended quantities to be maintained in storage.
 - .14 Additional requirements: as specified in individual specification sections.

- 1.8 MATERIALS AND FINISHES
- .1 Building products, applied materials, and finishes: include product data, with catalogue number, size, composition, and colour and texture designations.
 - .1 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.

- 1.9 MAINTENANCE MATERIALS
- .1 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.
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| 1.9 | MAINTENANCE
MATERIALS
(Cont'd) | .1 | Spare Parts: (Cont'd)
.3 Deliver to location as directed; place
and store.
.4 Receive and catalogue items.
.1 Submit inventory listing to
Departmental Representative.
.2 Include approved listings in
Maintenance Manual.
.5 Obtain receipt for delivered products
and submit prior to final payment. |
| | | .2 | Extra Stock 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 location as directed;
place and store.
.4 Receive and catalogue items.
.1 Submit inventory listing to
Departmental Representative.
.2 Include approved listings in
Maintenance Manual.
.5 Obtain receipt for delivered products
and submit prior to final payment. |
| | | .3 | Special Tools:
.1 Provide special tools, in quantities
specified in individual specification section.
.2 Provide items with tags identifying
their associated function and equipment.
.3 Deliver to location as directed; place
and store.
.4 Receive and catalogue items.
.1 Submit inventory listing to
Departmental Representative.
.2 Include approved listings in
Maintenance Manual. |
| 1.10 | DELIVERY,
STORAGE AND
HANDLING | .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. |
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1.11 WARRANTIES AND .6
BONDS
(Cont'd)

Except for items put into use with
Departmental Representative's permission,
leave date of beginning of time of warranty
until Date of Substantial Performance is
determined.

- .7 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,
motors, transformers, and commissioned systems
such as outdoor condenser, cooling coil,
heating coil and rooftop exhaust fan.
 - .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.

- 1.11 WARRANTIES AND .7 (Cont'd)
BONDS .3 (Cont'd)
(Cont'd) .12 Typical response time and repair time expected for various warranted equipment.
- .4 Procedure and status of tagging of equipment covered by extended warranties.
- .5 Post copies of instructions near selected pieces of equipment where operation is critical for warranty and/or safety reasons.
- .8 Respond in timely manner to oral or written notification of required construction warranty repair work.
- .9 Written verification to follow oral instructions.
- .1 Failure to respond will be cause for the Departmental Representative to proceed with action against Contractor.
- 1.12 WARRANTY TAGS .1 Tag, at time of installation, each warranted item. Provide durable, oil and water resistant tag approved by Departmental Representative.
- .2 Attach tags with copper wire and spray with waterproof silicone coating.
- .3 Leave date of acceptance until project is accepted for occupancy.
- .4 Indicate following information on tag:
- .1 Type of product/material.
- .2 Model number.
- .3 Serial number.
- .4 Contract number.
- .5 Warranty period.
- .6 Inspector's signature.
- .7 Construction Contractor.
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PART 2 - PRODUCTS

2.1 NOT USED .1 Not Used.

PART 3 - EXECUTION

3.1 NOT USED .1 Not Used.