Guide Specifications
The following specification is intended to be used, generally verbatim, in the contract documents. [Specifier Notes] shall be deleted during the editing process. Where [ ] appears in this document, this indicates requirements which are optional depending upon the project scope and conditions. Edit as appropriate for the project. The A/E consultant shall take ownership and responsibility for the contents of this section and is expected to modify other portions as necessary to accurately reflect conditions of the project. For draft copies during the design process, annotate any deletions by lining through the proposed change, and use bold lettering for any proposed additions.

PART 1 – GENERAL

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

1.2 SECTION INCLUDES:
   a. Project Record Document submittal.
   b. Operation and Maintenance manuals.

1.3 SUBMITTALS:
   a. Project Record Documents: Submit documents to A/E. The following submittal procedure shall occur prior to Final Acceptance.
      i. Submit original copy of as-builts (drawings & specifications) to A/E for review.
      ii. Compile and organize any drawings or schedules in the Project Manual onto sheets of the same size as the Contract Drawings and submit with other record documents.
      iii. Contractor will be notified within 15 work days if the submitted documents are acceptable.
      iv. Should the submittal be unacceptable for any reason, the Contractor shall make requested modifications and resubmit to the A/E. Continue to resubmit as necessary until the submittal is acceptable.
      v. Upon acceptance of the submittal, A/E will within 30 work days incorporate the Contractor's as-builts into the A/E's original Contract Documents.
   b. Operation and Maintenance Data:
      i. Submit one (1) copy of preliminary Operating and Maintenance Manuals for operational and non-operational equipment for review by A/E. Submit for each system upon attaining 50% system completion, together with respective training synopsis; refer to Section 01770. Upon review, A/E will return copy with comments.
ii. Submit 1 copy of completed documents 15 days prior to final inspection. This copy will be reviewed and returned after final inspection, with A/E comments. Revise content of all document sets as required prior to final submission.

iii. Within 10 days following receipt of the A/E approval and comments, and prior to Owner training, Contractor shall prepare and transmit to the A/E one (1) final copy of each of the above manuals.

c. Warranties, Bonds, Extra Stock, and Permits:

   i. Obtain and assemble executed certificates, warranties, bonds, receipts for extra stock, permits signed by any authorities having jurisdiction, and any required service and maintenance contracts from the respective manufacturers, suppliers, and Subcontractors. These may be tabbed in the front of the General Operation and Maintenance Manual provided they do not over-fill the binder.

   ii. Verify that documents are in proper form and contain full information.

   iii. Include originals of each in operation and maintenance manual, indexed separately on Table of Contents.

   iv. Co-execute submittals when required.


   vi. Provide Table of Contents neatly typed, in complete and orderly sequence. Include complete information for each of the following:

       1. Product or work item;
       2. Firm, with name of principal, address, and telephone number;
       3. Scope;
       4. Date of beginning of warranty or service and maintenance contract;
       5. Duration of warranty or service maintenance contract;
       6. Proper procedure in case of failure;
       7. Instances which might affect validity of warranty or bond; and
       8. Contractor, name or responsible principal, address, and telephone number.

   vii. For equipment or component parts of equipment put into service during construction with Owner's permission, submit documents within ten days after acceptance.

   viii. Make other submittals within ten days after Date of Substantial Completion.

   ix. For items of Work for which acceptance is delayed beyond Date of Substantial Completion, submit within ten days after acceptance, listing the date of acceptance as the beginning of the warranty period.

   x. Furnish one (1) executed copy for inclusion into Operation & Maintenance manuals.

PART 2 - PRODUCTS

2.1 PROJECT RECORD DOCUMENTS:

   a. Project Record Documents include the following:
PART 3 - EXECUTION

3.1 PROJECT RECORD DOCUMENTS:

a. Maintenance of Documents and Samples:

i. Store and maintain in field office apart from the Contract Documents used for construction, one complete set of record documents and samples which are used to record as-built conditions.

ii. Do not use Project Record Documents for construction purposes; protect from deterioration and loss in a secure fire-resistant location. Maintain record documents in good order and in a clean, dry, legible condition.

iii. Make record documents and samples available at all times for review by A/E and the Owner.

iv. Record actual revisions to the Work concurrent with construction progress.
v. Ensure entries are complete and accurate, enabling future reference by Owner.

1. Following each monthly progress schedule meeting, Contractor shall meet with all major subcontractors whose work is in progress at the site, including but not limited to mechanical, plumbing, electrical, security, fire protection, civil, and as otherwise designated, to review all "as-built" revisions on the day-by-day working set of "Project Record Copy" and verify installed record information from the previous month is properly recorded on the day-by-day "Project Record Copy", with all revisions and pertinent information clearly indicated.

b. Record Drawings and Shop Drawings: A clean, undamaged set of Contract Drawings including coordination drawings and shop drawings shall be kept at the job site as as-built record documents. Record "as-built" drawings shall be comprised of all sheets contained in the Contract Drawings, as well as all special equipment or systems drawings.

i. Mark the set to show the actual installation where the installation varies substantially from the Work as originally shown. Mark whichever drawings that show conditions fully and accurately. Where shop drawings, RFI's or other communication record are used to identify a change, record a cross-reference at the corresponding location on the Contract Drawings. Give particular attention to concealed elements that would be difficult to measure and record at a later date. Items required to be marked include, but are not limited to, the following:

1. Indicate field changes of dimension and detail.
2. RFIs.
3. Depths of foundations below the first floor.
4. Horizontal and vertical measurements of underground services and utilities, referenced to the building or other permanent construction.
5. Note changes of directions and locations, by dimensions and elevations, as utilities are actually installed.
6. Duct size and routing. Indicated locations of mechanical dampers, valves, reheat boxes, cleanouts, and other items that require maintenance.
7. Show measured locations of construction-concealed internal utilities and appurtenances referenced to visible and accessible features of the structure.
8. Record accurate locations of piping, valves, traps, dampers, duct work, equipment, and the like.
9. Revisions to electrical circuitry.
10. Indicate details not on original Contract drawings.
11. "X-out" conditions not constructed and appropriately annotate "not constructed" to convey the actual "as constructed" condition.

iii. Mark record sets in a clear, legible manner, using red ink (no pencils); use other colors to distinguish between variations in separate categories of the work. Use 'whiteout' to erase errors.

iv. Mark new information that is important to Owner, but which was not shown on Contract Documents or Shop Drawings.

v. Show addenda items, change orders, RFI, or other means of communication used in the construction process.

vi. Show and date revisions to drawings with a "cloud" drawn around the revision.
vii. Organize record drawing sheets in manageable sets, bind with durable paper cover sheets, and print suitable titles, dates and other identification on the cover of each set. Where shop drawings, RFI’s or other communication record are used as a reference, include a copy of them as part of the record drawings.

viii. Shop Drawings:

1. Maintain as record documents; legibly annotate to record changes made after review.

2. Include subcontractor reproducible shop drawings for all special equipment including as a minimum where applicable to the project, ductwork layout, fire sprinkler system layout, temperature control system, fire alarm system, intrusion alarm system, communications systems, data systems, detention security systems and others as deemed appropriate. Record Drawing shop drawings shall be easily reproducible; as appropriate and approved by the A/E.

c. Project Manual(s): During the construction period, maintain one complete copy of the Project Manual(s), including Specifications, Detail Book(s), addenda, and one copy of other written construction documents, such as Change Orders and RFI’s issued in printed form during construction.

i. Legibly mark these documents in red ink to show substantial variations in actual work performed in comparison with the text of the specification and modifications. Give particular attention to substitutions, selection of options and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation. Note related record drawing information and product data. Record at each product section description of actual products installed, including the following:

1. Manufacturer's name and product model and number.
2. Product substitutions or alternates utilized.
3. Changes made by Addenda and modifications.

ii. Mark Detail Book schedules, details, etc., to indicate the actual installation where the installation varies from that indicated in the Detail Book and modifications issued. Complete information in accordance with paragraph below for all detail drawings.

iii. Each prime contractor (Subcontractor) is responsible for marking up Sections that contain its own Work.

iv. General Contractor shall be responsible for collecting marked-up record Sections from each of the other prime contractors. General Contractor shall also be responsible for collating these Sections in proper numeric order with its own Sections to form a complete set of record Specifications.

v. General Contractor shall be responsible for submitting the complete set of record Specifications as specified.

d. Record Product Data:

i. Maintain one copy of each product data submittal, and mark-up variations in actual work in comparison with submitted information. Include both variations in product as delivered to site, and variations from manufacturer's instructions and recommendations for installation.
ii. Give particular attention to concealed products and portions of the work which cannot otherwise be readily discerned at a later date by direct observation. Note related change orders and mark-up of record drawings and project manuals.

iii. Note related Change Orders and mark-up of record Drawings, where applicable.

iv. Upon completion of mark-up, submit complete set to Architect for Owner's records.

v. Where record Product Data is required as part of maintenance manuals, submit marked-up Product Data as an insert in the manual instead of submittal as record Product Data.

vi. Each prime contractor (Subcontractor) shall be responsible for marking up and submitting record Product Data for its own Work.

vii. Insofar as possible, insert record product data in individual sub-sections of O&M Manuals. Refer to 3.05 below.

e. Record Sample Submittal: Immediately prior to date(s) of substantial completion, A/E will meet with Contractor at site, and will determine which (if any) of submitted samples maintained by Contractor during progress of the work are to be transmitted to Owner for record purposes. Comply with A/E’s instructions for packaging, identification marking, and delivery to Owner's sample storage place.

f. Miscellaneous Record Submittals: Refer to paragraph above for listing of miscellaneous record documents and to other Sections of these specifications for requirements of miscellaneous record-keeping and submittals in connection with actual performance of the work. Immediately prior to date of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference. Submit to A/E for Owner's records.

3.2 OPERATION AND MAINTENANCE DATA – GENERAL:

a. General: For all operational equipment installed, Contractor shall submit operation and maintenance documents in manuals as specified herein.

b. For Each Product or System: List names, addresses and telephone numbers of Subcontractors and suppliers, including local source of supplies and replacement parts.

c. Product Data: Mark each sheet to clearly identify specific products and component parts, and data applicable to installation. Delete inapplicable information.

d. Drawings: Supplement product data to illustrate relations of component parts of equipment and systems, to show control and flow diagrams. Do not use Project Record Documents as maintenance drawings.

e. Typed Text: As required to supplement product data. Provide logical sequence of instructions for each procedure, incorporating manufacturer's instructions.

3.3 OPERATION AND MAINTENANCE DATA FOR EQUIPMENT AND SYSTEMS:

a. Content for Operational Equipment.

i. Product Data.
1. Compile product data and related information for Owner's maintenance and operation. All manufacturer literature shall be original printed matter; photocopies, printouts from websites or other non-original reproductions are not acceptable.

ii. Product data shall contain detailed information relative to the following:

1. Description of unit or system, and component parts.
2. Equipment functions, normal operating characteristics, and limiting conditions.
3. Assembly, installation, alignment, adjustment and checking instructions.
4. Operating instructions and sequences for start-up, break-in, routine and normal operation, regulation and control, shutdown, and emergency conditions. Include control diagrams and sequence of operation by controls manufacturer.
5. Routine procedures and guide for preventative maintenance and trouble shooting, including a schedule of recommended checks; disassembly, repair, and reassembly instructions.
6. Detailed servicing and lubrication schedule. Include list of lubricants required.
7. Provide original manufacturer's parts list, illustrations, assembly drawings, and diagrams required for maintenance.
8. Complete nomenclature and model number of replaceable parts. Include with list manufacturer's current prices and recommended quantities to be maintained in storage.
9. Safety precautions and safety features.
10. Outline, cross-section and assembly drawings, engineering data, and color coded wiring diagrams as installed.
11. Test data and performance curves.
12. Panelboard Circuit Directories: Provide electrical service characteristics, controls, and communications; typed.
13. Provide Contractor's coordination drawings, with color coded piping diagrams as installed.
14. Provide charts of valve tag numbers, with location and function of each valve, keyed to flow and control diagrams.
15. Test and balancing reports.

iii. Include only sheet pertinent to specific product.

iv. Annotate each sheet to:

1. Clearly identify specific product or part installed.
2. Clearly identify data applicable to installation.

v. Delete references to inapplicable information.

b. Drawings.

i. Supplement product data with drawings as necessary to clearly illustrate relations of component parts of equipment and systems.

ii. Coordinate drawings with information in Project Record Documents to ensure correct illustration of completed installation.

iii. Do not use Project Record Documents as maintenance drawings.

c. Supplement product/installation data with written text.
i. Organize in consistent format under separate headings for different procedures.
ii. Provide logical sequence of installations for each procedure.

d. Special Mechanical Subcontractor Requirements: Comply with Divisions 21 though 25 requirements.
e. Special Electrical Subcontractor Requirements: Comply with Divisions 26 through 28 requirements.

3.4 OPERATION AND MAINTENANCE DATA FOR MATERIALS AND FINISHES:

a. For all A/E non-operational products, applied materials and finish items installed, including but not limited to, floor coverings such as vinyl composition tile, acoustical ceiling panels, marker boards, etc., Contractor shall submit maintenance information as specified herein. Provide detailed information relative to the following:

i. Manufacture's data, giving full information on products.
   1. Catalog number, size, and composition.
   2. Color and texture designations.
   3. Information required for re-ordering special manufactured products.

   ii. Instructions for care and maintenance.
       1. Manufacturer's recommendation for types of cleaning agents and methods.
       2. Cautions against cleaning agents and methods, which are detrimental to the product.
       3. Recommended schedule for cleaning and maintenance.
       4. Instructions and recommendations for repair of finish.

   iii. Moisture protection and weather-exposed products.
       1. Include product data listing applicable reference standards, chemical composition, and details of installation.
       2. Provide recommendations for inspections, maintenance, and repair.

b. For additional requirements for maintenance data, see respective Specification Sections.

c. Provide a listing in Table of Contents for design data, with tabbed fly sheet and space for insertion of data.

3.5 OPERATION AND MAINTENANCE MANUALS:


b. Format of Operation and Maintenance Manuals

   i. Binders:
      1. Commercial quality, stiff cover, metal-hinged 8-1/2 x 11 inch three D side ring binders with durable and cleanable plastic covers.
      2. Provide suitable ring size for content with a 3-inch maximum size.
3. When multiple binders are used, correlate data into related consistent groupings.

   ii. Cover and Spine: Identify the cover and spine of each volume with typed or printed title of the project, project number, and the words OPERATION AND MAINTENANCE INSTRUCTIONS.

   iii. For Contractor produced pages, paper shall be 8-1/2" x 11", white, 20 pound minimum.

   iv. Provide tabbed dividers for each separate product and system, with typed description of product and major component parts of equipment.

   v. Text: Manufacturer's printed data, or typewritten data.

   vi. Drawings: Provide with reinforced punched binder tab. Bind in with text; fold larger drawings to size of text pages and inset into prepared document sleeves.

   vii. Arrange content by systems under section numbers and sequence of Table of Contents of this Project Manual.

   viii. Contents: Prepare a Table of Contents for each volume, with each product or system description identified, in three parts as follows:

1. Part 1: Directory, listing names, addresses, and telephone numbers of A/E, A/E Consultants, Contractor, Subcontractors, and major equipment suppliers.

2. Part 2: Operation and maintenance instructions, arranged by system and subdivided by specification section. For each category, identify names, addresses, and telephone numbers of Subcontractors and suppliers. Identify the following:

   a. Significant design criteria.
   b. List of equipment.
   c. Parts list for each component.
   d. Operating instructions.
   e. Maintenance instructions for equipment and systems.
   f. Maintenance instructions for special finishes, including recommended cleaning methods and materials, and special precautions identifying detrimental agents.

3. Part 3: Project documents and certificates, including the following:

   a. Shop drawings and manufacturer's printed product data.
   b. Air and water balance reports.
   c. Certificates.
   d. Photocopies of warranties and bonds.
   e. Materials Safety Data Sheets (MSDS) for each product used on the Project.

4. Provide a listing in Table of Contents for design data, with tabbed dividers and space for insertion of data.
5. Table of Contents: Provide title of Project; names, addresses, and telephone numbers of Architect, Consultants, and Contractor with name of responsible parties; schedule of products and systems, indexed to content of the volume.

3.6 WARRANTIES, BONDS, AND PERMIT MANUAL:

a. Project Warranty - General:

i. If, within one (1) year after the Date of Substantial Completion of the Work, or designated portion thereof, or within such longer period of time as may be prescribed by law or by the terms of any applicable special warranty required by the Contract Documents, any of the Work is found to be defective or not in accordance with the Contract Documents, the Contractor, and where applicable, his subcontractor that portion of the work, shall correct it promptly after receipt of a written notice from the Owner or Architect to do so. This obligation shall survive Termination of the Contract. The Owner will give such notice promptly after discovery of the condition.

ii. Refer to Section 01 78 36 for administrative and procedural requirements for tracking project warranty issues subsequent to date of Substantial Completion.

b. Categories Of Specific Warranties:

i. Warranties on the work are in several categories, including those of General Conditions, and including (but not necessarily limited to) the following specific categories related to individual units of work specified in the technical sections of these specifications.

1. Special Project Warranty (Guarantee): A warranty specifically written and signed by Contractor for a defined portion of the work; and, where required, countersigned by subcontractor, installer, manufacturer or other entity engaged by Contractor.

2. Specified Product Warranty: A warranty which is required by contract documents, to be provided for a manufactured product incorporated into the work; regardless of whether manufacturer has published warranty without regard for specific incorporation of product into the work, or has written and executed warranty as a direct result of contract document requirements.

3. Coincidental Product Warranty: A warranty which is not specifically required by contract documents (other than as specified in this section); but which is available on a product incorporated into the work, by virtue of the fact that manufacturer of product has published warranty in connection with purchases and uses of product without regard for specific applications except as otherwise limited by terms of warranty.

ii. Refer to individual sections for the determination of units of work which are required to be specifically or individually warranted, and for the specific requirements and terms of those warranties (or guarantees).

c. Disclaimer and Limitations: Manufacturer's disclaimers and limitations on product warranties do not relieve the Contractor of the warranty on the Work that incorporates the products. Manufacturer's disclaimers and limitations on product warranties do not relieve suppliers, manufacturers, and subcontractors required to countersign special warranties with the Contractor.

d. General Limitations:
i. It is recognized that specific warranties are intended primarily to protect Owner against failure of the work to perform as required, and against deficient, defective and faulty materials and workmanship, regardless of sources.

ii. Except as otherwise indicated, specific warranties do not cover failures in the work which result from: 1) Unusual and abnormal phenomena of the elements, 2) The Owner's misuse, maltreatment or improper maintenance of the work, 3) Vandalism after time of substantial completion, or 4) Insurrection or acts of aggression including war.

e. Related Damages & Losses:

i. General: In connection with Contractor's correction of warranted work which has failed, remove and replace other work of project which has been damaged as a result of such failure, or must be removed and replaced to provide access for correction of warranted work.

ii. Consequential Damages: Except as otherwise indicated or required by governing regulations, special project warranties and product warranties are not extended to cover damage to building contents (other than work of Contract) which occurs as a result of failure of warranted work.

f. Except for items put into use with Owner's permission, leave date of beginning of time of warranty until the Date of Substantial completion is determined.

g. Reinstatement Of Warranty Period: Except as otherwise indicated, when work covered by a special project warranty or product warranty has failed and has been corrected by replacement or restoration, reinstate warranty by written endorsement for the time period starting on the date of acceptance of replaced or restored work and ending upon date original warranty would have expired if there had been no failure, with an equitable adjustment for depreciation.

h. Replacement Cost, Obligations: Upon determination that Work covered by a warranty has failed, replace or rebuild the Work to an acceptable condition complying with requirements of the Contract Documents. Contractor shall be responsible for the cost of replacing or restoring defective Work regardless of whether the Owner has benefited from use of the Work through a portion of anticipated useful service life.

i. Owner's Recourse: Expressed warranties made to the Owner are in addition to implied warranties and shall not limit the duties, obligations, right, and remedies otherwise available under the law. Expressed warranty periods shall not be interpreted as limitations on the time in which the Owner can enforce such other duties, obligations, rights, or remedies.

j. Rejection Of Warranties: Owner reserves the right, at time of final acceptance or thereafter, to reject coincidental product warranties submitted by the Contractor, which in opinion of Owner tend to detract from or confuse interpretation of requirements of Contract Documents.

k. Contractor's Procurement Obligations: Do not purchase, subcontract for, or allow others to purchase or sub-subcontract for materials or units of work for project where a special project warranty, specified product warranty, certification or similar commitment is required, until it has been determined that entities required to countersign such commitments are willing to do so.

l. Co-execute warranties when required. Provide originals of each for inclusion in each operation and maintenance manual.
m. Retain warranties and bonds until time specified for submittal.

END OF SECTION 01780