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01 61 00-COMMON PRODUCT REQUIREMENTS

PART 1   GENERAL

1.01   SCOPE

A.   Section covers general design and procedural requirements for shipment, receiving and unloading, and storage and maintenance of products prior to installation.

1.02   DEFINITIONS

A.   Products:

1.   New items for incorporation in the Work, whether purchased by Contractor or CHPRC for the Project, or taken from previously purchased stock, and may also include existing materials or components required for reuse.

2.   Includes the terms material, equipment, machinery, components, subsystem, system, hardware, software, and terms of similar intent and is not intended to change meaning of such other terms used in Contract Documents, as those terms are self-explanatory and have well recognized meanings in construction industry.

3.   Items identified by manufacturer’s product name, including make or model designation, indicated in manufacturer’s published product literature, that is current as of the date of the Contract Documents.

1.03   DESIGN REQUIREMENTS

A.   Where Contractor design is specified, design of installation, systems, equipment, and components, including supports and anchorage, shall be in accordance with provisions of latest edition of International Building Code (IBC) by International Code Council.

1.   Wind: \( V = 85 \text{ mph (3-second gust)}, \) exposure category C, and a project-specific Importance Factor \( I = 1.0. \)

2.   Snow Load: Basic ground snow load \( p_g = 15 \text{ psf}, \) and an Importance Factor \( I = 1.0. \)

3.   Seismic: For seismic requirements, see Section 01 88 15, Seismic Anchorage and Bracing.

1.04   ENVIRONMENTAL REQUIREMENTS

A.   Altitude: Provide materials and equipment suitable for installation and operation under rated conditions at 750 feet above sea level.
B. Provide equipment and devices installed outdoors or in unheated enclosures capable of continuous operation within an ambient outdoor temperature range of minus 23 degrees F to 113 degrees F.

1.05 VENDOR HANDLING, STORAGE, AND PROTECTION

A. Handle and store products in accordance with manufacturer’s written instructions and in a manner to prevent damage. Provide manufacturer’s recommended maintenance during storage and factory assembly.

1. Keep ports, nozzles, ends, and other openings on equipment, tanks, pipe, and tube capped or plugged during storage.
2. Provide indoor storage for products that can be damaged by, or can deteriorate from, changes in temperature and relative humidity.
3. Avoid ground contact by providing skids, pallets, platforms, and other supports.
4. Provide sunshade protection for products that can be damaged by, or can deteriorate from, exposure to sunlight.
5. Provide weatherproof covers for products that can be damaged by, or can deteriorate from, contact with rain, snow, ice deposits, and blowing sand and debris.
6. Arrange stacked products so that condensation will drain.
7. Primed surfaces shall not be exposed to weather for more than 2 months before being topcoated, or less time if recommended by coating manufacturer.

B. Manufacturer’s instructions for material requiring special handling, storage, or protection shall be provided prior to delivery of material.

C. Arrange storage in a manner to provide easy access for inspection. Make periodic inspections of stored products to assure that products are maintained under specified conditions, and free from damage or deterioration. Keep running account of products in storage to facilitate inspection and to estimate progress payments for products delivered, but not installed in the Work.

D. Store electrical, instrumentation, and control products, and equipment with bearings in weather-tight structures maintained above 60 degrees F. Protect electrical, instrumentation, and control products, and insulate against moisture, water, and dust damage. Connect and operate continuously space heaters furnished in electrical equipment. If temperature is above 60 degrees F, heaters are not required.

E. Store fabricated products above ground on blocking or skids, and prevent soiling or staining. Store loose granular materials in well-drained area on solid surface to prevent mixing with foreign matter. Cover products that are subject to deterioration with impervious sheet coverings; provide adequate ventilation to avoid condensation.
F. Store finished products that are awaiting shipment in dry and well-ventilated areas. Do not subject to extreme changes in temperature or humidity.

1.06 PREPARATION FOR SHIPMENT

A. When practical, factory assemble products. Mark or tag separate parts and assemblies to facilitate field assembly. Cover machined and unpainted parts that may be damaged by the elements with strippable protective coating.

B. Package products to facilitate handling and protect from damage during shipping, handling, and storage. Batten coated items to prevent abrasion. Mark or tag outside of each package or crate to indicate its purchase order number, bill of lading number, contents by name, name of Project and Contractor, equipment number, and approximate weight. Include complete packing list and bill of materials with each shipment.

C. Extra Materials, Special Tools, Test Equipment, and Expendables:

1. Furnish as required by individual Specifications.
2. Schedule:
   a. Ensure that shipment and delivery occurs concurrent with shipment of associated equipment.
   b. Transfer to CHPRC shall occur immediately subsequent to Contractor’s acceptance of equipment from Supplier.
3. Packaging and Shipment:
   a. Package and ship extra materials and special tools to avoid damage during long term storage in original cartons insofar as possible, or in appropriately sized, hinged-cover, wood, plastic, or metal box.
   b. Prominently displayed on each package, the following:
      1) Manufacturer’s part nomenclature and number, consistent with Operation and Maintenance Manual identification system.
      2) Applicable equipment description.
      3) Quantity of parts in package.
      4) Equipment manufacturer.
4. Deliver materials to the same address as equipment.
5. Notify Buyer’s Technical Representative (BTR) and Buyer upon shipment and estimated arrival of materials.
6. Replace extra materials and special tools found to be damaged or otherwise inoperable at time of transfer to CHPRC.

D. Factory Test Results: Reviewed and accepted by BTR before product shipment as required in individual Specification sections.
1.07 DELIVERY AND INSPECTION

A. Deliver products in accordance with accepted current Progress Schedule and coordinate to avoid conflict with the Work and conditions at Site. Deliver anchor bolts and templates sufficiently early to permit setting prior to placement of structural concrete.

B. Deliver products in undamaged condition, in manufacturer’s original container or packaging, with identifying labels intact and legible. Include on label, date of manufacture and shelf life, where applicable.

C. Remove damaged products from Site and expedite delivery of identical new undamaged products, and remedy incomplete or lost products to provide that specified, so as not to delay progress of the Work.

PART 2 PRODUCTS

2.01 GENERAL

A. Provide manufacturer’s standard materials suitable for service conditions, unless otherwise specified in the individual Specifications.

B. Where product specifications include a named manufacturer, with or without model number, and also include performance requirements, named manufacturer’s products must meet the performance specifications.

C. Like items of products furnished and installed in the Work shall be end products of one manufacturer and of the same series or family of models to achieve standardization for appearance, operation and maintenance, spare parts and replacement, manufacturer’s services, and implement same or similar process instrumentation and control functions in same or similar manner.

D. Provide interchangeable components of the same manufacturer, for similar components, unless otherwise specified.

E. Equipment, Components, Systems, and Subsystems: Design and manufacture with due regard for health and safety of operation, maintenance, and accessibility, durability of parts, and shall comply with applicable OSHA, state, and local health and safety regulations.

F. Regulatory Requirement: Coating materials shall meet federal, state, and local requirements limiting the emission of volatile organic compounds and for worker exposure.

G. Safety Guards: Provide for all belt or chain drives, fan blades, couplings, or other moving or rotary parts. Cover rotating part on all sides. Design for easy installation and removal. Use 16-gauge or heavier; galvanized steel, aluminum coated steel, or galvanized or aluminum coated 1/2-inch mesh expanded steel.
Provide galvanized steel accessories and supports, including bolts. For outdoors application, prevent entrance of rain and dripping water.

H. Authority Having Jurisdiction (AHJ):

1. Provide the Work in accordance with NFPA 70, National Electrical Code (NEC). Where required by the AHJ, material and equipment shall be labeled or listed by a nationally recognized testing laboratory or other organization acceptable to the AHJ in order to provide a basis for approval under NEC.

2. Materials and equipment manufactured within the scope of standards published by Underwriters Laboratories, Inc. shall conform to those standards and shall have an applied UL listing mark.

I. Equipment Finish:

1. Provide manufacturer’s standard finish and color, except where specific color is indicated.

2. If manufacturer has no standard color, provide equipment with gray finish as approved by CHPRC.

J. Special Tools and Accessories: Furnish to CHPRC, upon acceptance of equipment, all accessories required to place each item of equipment in full operation. These accessory items include, but are not limited to, adequate oil and grease (as required for first lubrication of equipment after field testing), light bulbs, fuses, hydrant wrenches, valve keys, handwheels, chain operators, special tools, and other spare parts as required for maintenance.

K. Lubricant: Provide initial lubricant recommended by equipment manufacturer in sufficient quantity to fill lubricant reservoirs and to replace consumption during testing, startup, and operation until final acceptance by CHPRC.

L. Lifting Lugs: Where provided, shall meet requirements of the Statement of Work.

2.02 FABRICATION AND MANUFACTURE

A. General:

1. Manufacture parts to U.S.A. standard sizes and gauges.

2. Two or more items of the same type shall be identical, by the same manufacturer, and interchangeable.

3. Design structural members for anticipated shock and vibratory loads.

4. Use 1/4-inch minimum thickness for steel that will be submerged, wholly or partially, during normal operation.

5. Modify standard products as necessary to meet performance Specifications.
B. Lubrication System:

1. Require no more than weekly attention during continuous operation.
2. Convenient and accessible; oil drains with bronze or stainless steel valves and fill-plugs easily accessible from the normal operating area or platform. Locate drains to allow convenient collection of oil during oil changes without removing equipment from its installed position.
3. Provide constant-level oilers or oil level indicators for oil lubrication systems.
4. For grease type bearings, which are not easily accessible, provide and install stainless steel tubing; protect and extend tubing to convenient location with suitable grease fitting. Tubing to be completely filled with lubricant.

2.03 SOURCE QUALITY CONTROL

A. Where Specifications call for factory testing to be witnessed by BTR, notify BTR not less than 14 days prior to scheduled test date, unless otherwise specified.

1. Provide step-by-step instruction for startup of each unit process.
2. Provide properly completed Unit Process Startup Form that includes the following:
   a. Description of the unit process, including equipment number/nomenclature of each item of equipment and all included devices.
   b. Detailed procedure for startup of the unit process, including valves to be opened/closed, order of equipment startup, etc.
   c. Startup requirements for each unit process, including water, power, chemical, etc.
   d. Space for evaluation comments.

B. Factory acceptance tests (FATs) will be conducted as specified by design engineering to ensure the structures, systems, and components (SSCs) and software meet certain requirements prior to shipment. FATs are conducted by the vendor and may be witnessed as desired by an engineering representative, an inspector, or both.

PART 3 EXECUTION

3.01 INSPECTION

A. Inspect materials and equipment for signs of pitting, rust decay, or other deleterious effects of storage. Do not install material or equipment showing such effects. Remove damaged material or equipment and expedite delivery of identical new material or equipment. Delays to the Work resulting from material or equipment damage that necessitates procurement of new products will be considered delays within Contractor’s control.
3.02 ADJUSTMENT AND CLEANING
   A. Perform required adjustments, tests, operation checks, and other startup activities as required.

3.03 LUBRICANTS
   A. Fill lubricant reservoirs and replace consumption during testing, startup, and operation prior to acceptance of equipment by CHPRC.