

## SECTION 016000 - MATERIAL AND EQUIPMENT

### PART 1 - GENERAL

#### 1.1 SUMMARY

- A. Work Included: Contractor shall be responsible for the delivery, handling, storage and protection of all material and equipment required to complete the Work as specified herein.
- B. Related Sections and Divisions: Specific requirements for the handling and storage of material and equipment are described in other sections of these Specifications.

#### 1.2 RELATED SECTIONS

- A. Bid Documents - Instructions to Bidders: Product options and substitution procedures.
- B. Section 01300 - Submittals

#### 1.3 PRODUCTS

- A. Products: Means new material, machinery, components, equipment, fixtures, and systems forming the Work. Does not include machinery and equipment used for preparation, fabrication, conveying and erection of the Work. Products may also include existing materials or components required for reuse.
- B. Provide interchangeable components of the same manufacturer, for similar components.
- C. When any construction deviations from the Drawings and/or Specifications necessary to accommodate equipment supplied by Contractor result in additional costs to the Contractor or other contractors, such additional costs shall be borne by the Contractor. Contractor shall also pay any additional costs necessary for revisions of Drawings and/or Specifications by the Engineer.
- D. Each major component of equipment shall bear a nameplate giving the name and address of the manufacturer and the catalog number or designation.

#### 1.4 TRANSPORTATION AND HANDLING

- A. Materials, products and equipment shall be properly containerized, packaged, boxed and protected to prevent damage during transportation and handling.
- B. Contractor shall not overload any portion of the structure in the transporting or storage of materials.
- C. Contractor shall not damage other construction by careless transportation, handling, spillage, staining or impact of materials.

- D. Contractor shall provide equipment and personnel to handle products, including those provided by Owner, by methods to prevent soiling and damage.
- E. Contractor shall provide additional protection during handling to prevent marring and otherwise damaging products, packaging and surrounding surfaces.
- F. Contractor shall handle products by methods to avoid bending or overstressing. Lift large and heavy components only at designated lift points.

#### 1.5 DELIVERY AND RECEIVING

- A. Contractor shall arrange deliveries of products in accordance with the Progress Schedule, allowing time for observation prior to installation.
- B. Contractor shall coordinate deliveries to avoid conflict with the Work and conditions of the Site; limitations on storage space; and availability of personnel and handling equipment.
- C. Contractor shall deliver products in undamaged, dry condition, in original unopened containers or packaging with identifying labels intact and legible.
- D. Contractor shall clearly mark partial deliveries of component parts of equipment to identify equipment and contents to permit easy accumulation of parts and to facilitate assembly.
- E. Immediately upon delivery, Contractor shall inspect shipment to assure:
  - 1. Product complies with requirements of Contract Documents and reviewed submittals.
  - 2. Quantities are correct.
  - 3. Accessories and installation hardware are correct.
  - 4. Containers and packages are intact and labels legible.
  - 5. Products are protected and undamaged.

#### 1.6 STORAGE AND PROTECTION

- A. Contractor shall store products, immediately on delivery, in accordance with manufacturer's instructions, with seals and labels intact and legible.
- B. Equipment Manufacturer shall coordinate with Contractor to clarify storage requirements for equipment to be delivered to the site. Coordination shall be completed in advance of the projected delivery date to assure adequate facilities will be available for protection of the equipment.
- C. In enclosed storage, Contractor shall:
  - 1. Provide suitable temporary weather tight storage facilities as may be required for materials that will be damaged by storage in the open.
  - 2. Maintain temperature and humidity within ranges stated in the manufacturer's instructions.

3. Provide ventilation for sensitive products as required by manufacturer's instructions.
4. Store unpacked and loose products on shelves, in bins or in neat groups of like items.
5. Store solid materials such as insulation, tile, mechanical and electrical equipment, fittings, and fixtures under shelter, in original packages, away from dampness and other hazards.
6. Store liquid materials away from fire or intense heat and protect from freezing.

D. At exterior storage, Contractor shall:

1. Store unit materials such as concrete block, brick, steel, pipe, conduit, door frames and lumber off ground, out of reach of dirt, water, mud and splashing.
2. Store tools or equipment that carry dirt outside.
3. Store large equipment so as to not damage the Work or present a fire hazard.
4. Cover products subject to discoloration or detention from exposure to the elements, with impervious sheet material and provide ventilation to avoid condensation.
5. Completely cover and protect equipment or material that is prime coated or finish painted with secured plastic or cloth tarps. Store out of reach of dirt, water, mud and splashing.
6. Store loose granular materials on clean, solid surfaces such as pavement, or on rigid sheet materials, to prevent mixing with foreign matter.
7. Provide surface drainage to prevent erosion and ponding of water.
8. Prevent mixing of refuse or chemically injurious materials or liquids.
9. Cover aggregates such as sand and gravel in cold wet weather.
10. Remove all traces of piled bulk materials at completion of work and return site to original or indicated condition.

## 1.7 MAINTENANCE OF STORAGE

- A. Contractor shall periodically inspect stored products on a scheduled basis.
- B. Contractor shall verify that storage facilities comply with manufacturer's product storage requirements, and verify that the manufacturer's required environmental conditions are maintained continually.
- C. Contractor shall verify that surfaces of products exposed to the elements are not adversely affected and that any weathering of finishes is acceptable under requirements of the Contract Documents.
- D. Contractor shall perform scheduled maintenance of equipment in storage as recommended by the manufacturer. A record of the maintenance shall be kept and turned over to the Engineer when the equipment is installed.

## 1.8 INSTALLATION REQUIREMENTS

- A. Manufactured articles, materials, and equipment shall be applied, installed, connected, erected, used, cleaned, and conditioned as directed by the respective manufacturers, unless otherwise noted.

- B. After installation, Contractor shall protect all materials and equipment against weather, dust, moisture, and mechanical damage.
- C. Contractor shall be responsible for all damages that occur in connection with the care and protection of materials and equipment until completion and final acceptance of the Work by the Owner. Damaged material and equipment shall be immediately removed from the Site.

#### 1.9 PRODUCT OPTIONS

- A. Products Specified by Reference Standards or by Description Only: Any product meeting those standards or description.
- B. Products Specified by Naming One or More Manufacturers: Products of manufacturers named and meeting specifications, no options or substitutions allowed.
- C. Products Specified by Naming One or More Manufacturers with a Provision for Substitutions: Submit a request for substitution for any manufacturer not named.

#### 1.10 SUBSTITUTIONS AFTER NOTICE TO PROCEED

- A. Engineer will consider requests for Substitutions only within 45 days after date of Notice to Proceed.
- B. Substitutions may be considered when a product becomes unavailable through no fault of the Contractor.
- C. Document each request with complete data substantiating compliance of proposed Substitution with Contract Documents.
- D. A request constitutes a representation that the Contractor:
  - 1. Has investigated proposed product and determined that it meets or exceeds the quality level of the specified product.
  - 2. Will provide the same warranty for the Substitution as for the specified product.
  - 3. Will coordinate installation and make changes to other Work which may be required for the Work to be complete with no additional cost to Owner.
  - 4. Waives claims for additional costs or time extension which may subsequently become apparent.
  - 5. Will reimburse Owner for review or redesign services associated with re-approval by authorities.
  - 6. Substitutions will not be considered when they are indicated or implied on shop drawing or product data submittals, without separate written request, or when acceptance will require revision to the Contract Documents.

#### 1.11 SUBSTITUTION SUBMITTAL PROCEDURE

- A. Submit in accordance with Section 013300 - Submittals.

B. The Engineer will notify Contractor, in writing, of decision to accept or reject request.

PART 2 - PRODUCTS

Not Applicable.

PART 3 - EXECUTION

Not Applicable.

END OF SECTION 016000