

**SECTION 01 60 00****MATERIALS AND EQUIPMENT****PART 1 - GENERAL****1.1 RELATED REQUIREMENTS**

- A. General requirements of each specification section of the Project Manual.

**1.2 RELATED REQUIREMENTS**

- A. Section 01 30 00: Submittals.
- B. Section 01 70 00: Contract Closeout.

**1.3 MATERIAL AND EQUIPMENT INCORPORATED INTO WORK**

- A. Comply with applicable specifications and standards.
- B. Comply with size, make, type and quality specified or as specifically accepted in writing by Engineer.
- C. Design, fabricate, assemble and install products in accordance with engineering and shop practices normal to trade.
- D. Manufacture like parts of duplicate units to standard interchangeable sizes and gauges. Two or more items of same kind shall be identical by same manufacturer.
- E. Products shall be suitable for intended purpose.
- F. Equipment capacities, sizes and dimensions shown or specified shall be adhered to unless variations are specifically accepted in writing.
- G. Do not use material or equipment for any purpose other than that for which it is designed or is specified.

**1.4 QUALITY ASSURANCE**

- A. Where materials or equipment are specified by trade or brand name, it is not intended to omit equivalent products of another manufacturer, except where specifically noted.
- B. Materials specified are to define standard of quality or performance and to establish basis for evaluation of proposals.

## **1.5 PRODUCTS LIST**

- A. Within 15 days after award of Contract, submit to Engineer five copies of complete list of major Products which are proposed for installation.
- B. Tabulate Products by Specification Section number and title.
- C. For products specified only by reference standards, list for each such Product:
  - 1. Name and address of manufacturer.
  - 2. Trade name.
  - 3. Model or catalogue designation.
  - 4. Manufacturer's data:
    - a. Reference standards.
    - b. Performance test data.
- D. Engineer will reply promptly in writing stating whether there is reasonable objection to listed items. Failure to object to a listed item shall not constitute a waiver of the requirements of Contract Documents.

## **1.6 PRODUCT OPTIONS**

- A. For Products specified only by reference standard, select Product meeting that standard, by any manufacturer.
- B. For Products specified by naming several Products or manufacturers, select any one of products and manufacturers named which complies with Specifications.
- C. For Products specified by naming one or more Products or manufacturers and stating "or equal", submit a request as for substitutions, for any Product or manufacturer which is not specifically named.
- D. For Products specified by naming only one Product and manufacturer, there is no option and no substitution will be allowed.

## **1.7 MANUFACTURER'S INSTRUCTIONS**

- A. When Contract Documents require that installation of work shall comply with manufacturers printed instructions, obtain and distribute copies of instructions to parties involved in installation, including two copies to Engineer, prior to commencing work.
- B. Maintain one set of complete instructions at job site during installation and until complete.
- C. Maintain copies for Project Record Documents.

- D. Handle, install, connect, clean, condition and adjust products in strict accord with manufacturer's instructions and in conformity with specified requirements.
- E. Should job conditions or specified requirements conflict with manufacturer's instructions, notify Engineer in writing for further instructions. Do not proceed with work without clear instructions.
- F. Perform Work in accordance with manufacturer's instructions. Do not omit preparatory steps of installation procedures unless specifically modified or exempted by Contract Documents.

## **1.8 SUBSTITUTIONS**

- A. Within a period of 30 days after award of Contract, Engineer will consider formal requests from the Contractor for substitution of Products in place of those specified.
  - 1. After end of that period, requests will be considered only in case of Product no longer manufactured.
- B. Submit separate request for each substitution. Support each request with:
  - 1. Complete data substantiating compliance of proposed substitution with requirements stated in Contract Documents:
    - a. Product identification, including manufacturer's name and address.
    - b. Manufacturer's literature; identify:
      - 1) Product description.
      - 2) Reference standards.
      - 3) Performance and test data.
    - c. Samples, as applicable.
    - d. Name and address of similar projects on which product has been used, and date of each installation.
  - 2. Itemized comparison of the proposed substitution with product specified; List significant variations.
  - 3. Data relating to changes in construction schedule.
  - 4. Any effect of substitution on separate contracts.
  - 5. List of changes required in other work or Products.
  - 6. Accurate cost data comparing proposed substitution with product specified.
    - a. Amount of any net change to Contract Sum.
  - 7. Designation of required license fees or royalties.
  - 8. Designation of availability of maintenance services, sources of replacement materials.
- C. Substitutions will not be considered for acceptance when:

1. They are indicated or implied on shop drawings or product data submittals without a formal request from Contractor.
  2. They are requested directly by a subcontractor or supplier.
  3. Acceptance will require substantial revision of Contract Documents.
  4. Additional cost to Owner.
- D. Substitute products shall not be ordered or installed without written acceptance of Engineer.
- E. Engineer will determine acceptability of proposed substitutions.
- F. If proposed substitution is not accepted by Engineer, provide specified product or material.

## **1.9 TRANSPORTATION AND HANDLING**

- A. Arrange deliveries of products in accordance with construction schedules. Coordinate to avoid conflict with work and conditions at site. Avoid congesting traffic.
- B. Deliver products in undamaged condition, in manufacturer's original containers or packaging, with identifying labels intact and legible.
- C. Immediately upon delivery, inspect shipments to assure compliance with requirements of Contract Documents and accepted submittals and that products are properly protected and undamaged.
- D. Promptly remove unsatisfactory materials from site.
- E. Furnish equipment and personnel to handle products by methods to prevent soiling or damage to products or packaging.

## **1.10 STORAGE**

- A. Store materials subject to damage from exposure to weather in weathertight storage facilities of suitable size with floors raised above ground. Materials not subject to weather damage may be stored on blocks off ground.
- B. Store fabricated products in accordance with manufacturer's instructions, seals and labels intact and legible. Store products subject to damage by elements in weathertight enclosures. Maintain temperature and humidity within ranges required by manufacturer's instructions.
- C. Cover materials which are subject to deterioration with breathable, impervious sheet covering providing adequate ventilation to avoid condensation.
- D. Arrange storage in manner to permit easy access for inspections.

- E. Protect metal from damage, dirt or dampness. Furnish flat, solid support for sheet products during storage.
- F. Make periodic inspections of stored materials to verify that products are maintained under specified conditions and are free from damage or deterioration.
- G. Do not use materials in work which have deteriorated, become damaged or are otherwise unfit for use.
- H. Store paints in assigned room or area kept under lock and key.
- I. Remove oil, rags and other combustible materials daily and take precautions to prevent fire hazards.
- J. Do not load structure during construction by storing materials with load greater than structure is calculated to support safely.

### **1.11 PROTECTION**

- A. Furnish protection against weather. Cover building openings to protect interior of building from weather.
- B. Maintain work, materials, apparatus and fixtures free from damage.
- C. Protect items having factory finish to prevent damage to finish and equipment.
- D. At end of day's work, cover new work likely to be damaged or otherwise protect as necessary.
- E. After installation, secure substantial coverings as necessary to protect installed products from damage from traffic and subsequent construction operations.
- F. Remove protection when no longer needed. Upon completion of work, remove storage facilities from site.

### **1.12 CONTRACTOR'S REPRESENTATION**

- A. In making formal request for substitution Contractor represents that:
  - 1. He has investigated proposed product and has determined that it is equal to or superior in all respects to that specified.
  - 2. He will provide same warranties or bonds for substitution as for product specified.
  - 3. He will coordinate installation of accepted substitution into the Work, and will make such changes as may be required for the Work to be complete in all respects.
  - 4. He waives claims for additional costs caused by substitution which may subsequently become apparent.
  - 5. Cost data is complete and includes related costs under his Contract, but not:
    - a. Costs under separate contracts.

- b. Engineer's costs for redesign or revision of Contract Documents.
- 6. Material will remain available as a standard for a minimum of five (5) years.

### **1.13 ENGINEER DUTIES**

- A. Engineer will determine acceptability of proposed substitutions.
- B. Engineer will review requests for substitutions with reasonable promptness and notify Contractor in writing of decision to accept or reject proposed substitution.
- C. Review of Engineer, acceptance or failure to take exceptions to substitutions or other review documents, shall not relieve Contractor of his responsibility for item actually meeting performance or other requirements of Contract Documents.

### **PART 2 - PRODUCTS**

**Not Used**

### **PART 3 - EXECUTION**

**Not Used**

**END OF SECTION**