

SECTION 23 13 63

THERMAL ENERGY WATER STORAGE TANKS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Section Includes:
 - 1. Steel, pressure, water storage tank.

1.2 SUMMARY

- A. Section includes:
 - 1. Thermal energy storage tank.
- B. The thermal energy storage tanks shall be Owner furnished and Contractor installed (OFCI).

1.3 SUBMITTALS

- A. Submit a compliance review of the Specifications, Drawings, and Addenda. The compliance review shall be a paragraph-by-paragraph review of the Specifications with the following information: "C," "D," or "E" marked in the margin of the original Specifications and any subsequent Addenda.
 - 1. "C": Comply with no exceptions.
 - 2. "D": Comply with deviations. For each deviation, provide a numbered footnote with reasons for the proposed deviation and how the intent of the Specification can be satisfied.
 - 3. "E": Exception, do not comply. For each exception, provide a numbered footnote with reasons and possible alternatives.
 - 4. The notes associated with "D" and "E" responses shall be typewritten and submitted alongside the compliance review for review by the Design Professional.
 - 5. Unless a deviation or exception is specifically noted in the compliance review, it is assumed that the Bidder is in complete compliance with the plans and Specifications. Deviations or exceptions taken in cover letters, subsidiary documents, by omission, or by contradiction do not release the Bidder from being in complete compliance, unless the exception or deviation has been specifically noted in the compliance review. Bidders may submit the latest state-of-the-art components and their standard control components in lieu of the specified items, however the deviations from the Specifications must be approved by the Engineer.
- B. Provide proposed equipment schedule with time durations for product data submittal creation, fabrication, initial delivery to site, follow up deliveries, completion of final delivery, and close out documentation creation (record product data, installation, operation, maintenance, spare parts list, warranty, etc.).

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.
 - 1. Include construction details, material descriptions, dimensions of individual components and profiles, and finishes for gray-water storage tanks.
 - 2. Include rated capacities, operating characteristics, and furnished specialties and accessories.
- B. Shop Drawings:
 - 1. Include plans, elevations, sections, and mounting details.
 - 2. Include details of equipment assemblies. Indicate dimensions, weights, loads, required clearances, method of field assembly, components, and location and size of each field connection.
 - 3. Detail fabrication and assembly of pressure rated thermal water storage tank.
 - 4. Include diagrams for power, signal, and control wiring.
- C. Warranty Information
 - 1. Clearly state in the submittal the duration of the parts and labor warranty being provided directly by the manufacturer or manufacturer's representative, and indicate the warranty is applicable to the location where the equipment shall ultimately operate at.
 - 2. Provide a generic copy of the manufacturer's warranty certificate as part of the initial submittal. Provide the actual warranty certificate as part of the project closeout phase.

1.5 QUALITY ASSURANCE

- A. Welding Qualifications: Qualify procedures and personnel according to the following:
 - 1. AWS D1.1/D1.1M, "Structural Welding Code - Steel."
 - 2. AWS D1.3/D1.3M, "Structural Welding Code - Sheet Steel."
 - 3. AWS D1.4/D1.4M, "Structural Welding Code - Reinforced Steel."
- B. Pipe and Pressure-Vessel Welding Qualifications: Qualify procedures and operators according to ASME Boiler and Pressure Vessel Code.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

- A. Comply with AWWA D100, "Welded Steel Tanks for Water Storage," and with AWWA M42, "Steel Water-Storage Tanks."

2.2 STEEL, PRESSURE, WATER STORAGE TANKS

- A. Acceptable manufacturers:

1. Taco Comfort Solutions, basis of design.
 - B. Description: Steel, horizontal, pressure-rated tank with cylindrical heads.
 - C. Design Criteria:
 1. Minimum Usable Water Storage: 1,650 gallons.
 2. Water Temperature: 62°F – 93.5°.
 3. Normal Flow Rate: 675 GPM.
 4. Dimensions: 6' diameter.
 5. Inlet/Outlet pipe size: 6".
 6. Orientation: Vertical.
 - D. Fabricate supports and attachments to tank with reinforcement strong enough to resist tank movement during seismic event when tank supports are anchored to building structure.
 - E. Construction: ASME code, steel, constructed with nontoxic welded joints, for 125-psig working pressure.
 - F. Manhole: Watertight, for tank more than 24 inches in diameter; same pressure rating as tank.
 1. Indicate manhole location on Drawings.
 - G. Tappings: Factory-fabricated steel, welded to tank before testing and labeling.
 1. NPS 2 and Smaller: ASME B1.20.1, with female thread.
 2. NPS 2-1/2 and Larger: ASME B16.5, flanged.
 - H. Specialties and Accessories: Include tappings in tank and the following:
 1. Low point drain.
 2. High point air vent.
 - I. Vertical Tank Supports: Factory-fabricated steel legs or steel skirt/ring, welded to tank before testing and labeling. Provide opening in skirt/ring to access drain.
 - J. Exterior Coating: Manufacturer's standard enamel paint.
 - K. Insulation: Uninsulated tank from factory.
- 2.3 PAINT MATERIALS
- A. Paint: Comply with AWWA D102.
 - B. Primer: Tank fabricator's standard epoxy-polyamide paint.
 - C. Tank Shell Exterior Intermediate Paint: Tank fabricator's standard, two-component epoxy paint compatible with prime and finish paint. Intermediate coat shall have a slight color contrast with finish coat.

- D. Tank Shell Exterior Finish Paint: Tank fabricator's standard urethane paint.

PART 3 - EXECUTION

3.1 INSTALLATION

- A. Install water storage tanks on dunnage, level and plumb, firmly anchored. Arrange so devices needing servicing are accessible.
- B. Anchor tank supports and tanks to substrate.
- C. Install tank seismic restraints as required.
- D. After installing tanks with factory finish, inspect finishes and repair damages to finishes.
- E. Field heat trace and insulate the tank and accessories.

3.2 FIELD QUALITY CONTROL

- A. Perform the following tests and inspections with the assistance of a factory-authorized service representative:
 - 1. Tank Weld Test: Use radiographic method according to AWWA D100. Repair failures and retest.
 - 2. Leak Test: Comply with AWWA D100. Fill tanks with water and test for leaks after installation. Repair leaks and retest until no leaks exist.
 - a. Water will be furnished by Owner.
 - 3. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.
- B. Water storage tanks will be considered defective if they do not pass test and inspections.
- C. Prepare test and inspection reports.

END OF SECTION