

**SECTION 23 10 00
FACILITY FUEL SYSTEMS**

PART 1 - GENERAL:**1.1 DESCRIPTION:**

- A. Diesel fuel oil piping and accessories located aboveground as shown on contract drawings.

1.2 RELATED WORK:

- A. Section 23 05 11, COMMON WORK RESULTS FOR HVAC.
- B. Fuel oil pumps for engine generators: Section 26 32 13, ENGINE GENERATORS.

1.3 QUALITY ASSURANCE:

- A. Apply and install materials, equipment and specialties in accordance with manufacturer's written instructions. Conflicts between the manufacturer's instructions and the contract drawings and specifications shall be referred to the Contracting Officers Technical Representative (COTR) for resolution. Provide copies of installation instructions to the COTR two weeks prior to commencing installation of any item.
- B. All equipment shall be free from defects that would adversely affect the performance, maintainability and appearance of individual components or overall assembly.
- C. Piping installation contractor shall be certified as acceptable by local and state pollution control authorities.
- D. Entire installation shall conform to requirements of local and state pollution control authorities.
- E. Pipe Welding: Conform to requirements of ASME B31.1. Welders shall show evidence of qualification. Welders shall utilize a stamp to identify their work. Unqualified personnel will be rejected.
- F. Where specified codes or standards conflict, consult the RE/COTR.
- G. Label of Conformance (definition): Labels of accredited testing laboratories showing conformance to the standards specified.
- H. Equipment and materials installed shall be compatible in all respects with other items being furnished and with existing items so that the result will be a safe, complete and fully operational system which conforms to contract requirements and in which no item is subject to conditions beyond its design capabilities.

1.4 SUBMITTALS:

- A. Submit in accordance with Section 01 33 23, SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES.
- B. Fuel Piping:
 - 1. ASTM and UL compliance.
 - 2. Grade, class or type, schedule number.
 - 3. Manufacturer.
- C. Pipe Fittings, Unions, Flanges:
 - 1. ASTM and UL compliance.
 - 2. ASTM standards number.
 - 3. Catalog cuts.
 - 4. Pressure and temperature rating.
- D. Valves:
 - 1. Catalog cuts showing design and construction.
 - 2. Pressure and temperature ratings.
 - 3. Pressure loss and flow rate data.
 - 4. Materials of construction.
 - 5. Accessories.
- E. Leak Detection System:
 - 1. Existing to remain.
- F. Tank Fluid Level Monitoring Instrumentation System:
 - 1. Existing to remain.

1.5 DELIVERY, STORAGE AND HANDLING:

- A. Protection of Equipment:
 - 1. Equipment and material placed on the job site shall remain in the custody of the Contractor until phased acceptance, whether or not the Government has reimbursed the Contractor for the equipment and material. The Contractor is solely responsible for the protection of such equipment and material against any damage.
 - 2. Place damaged equipment in first class, new operating condition; or, replace same as determined and directed by the COTR. Such repair or replacement shall be at no additional cost to the Government.
 - 3. Protect new equipment and piping systems against entry of foreign matter on the inside. Clean both inside and outside before painting or placing equipment in operation.
 - 4. Existing equipment and piping being worked on by the Contractor shall be under the custody and responsibility of the Contractor and shall be protected as required for new work.

B. Cleanliness of Equipment and Piping:

1. Exercise care in storage and handling of equipment and piping material to be incorporated in the work. Remove debris arising from cutting, threading and welding of piping.
2. Piping systems shall be flushed, blown or pigged as necessary to provide clean systems.
3. Contractor shall be fully responsible for all costs, damages and delay arising from failure to provide clean systems and equipment.

1.6 APPLICABLE PUBLICATIONS:

A. The publications listed below form a part of this specification to the extent referenced. The publications are referenced in the text by basic designation only.

B. ASTM International (ASTM):

A36/A36M-08.....Carbon Structural Steel

A53/A53M-10.....Pipe, Steel, Black and Hot-Dipped, Zinc-Coated,
Welded and Seamless

A126-04(R2009).....Gray Iron Castings for Valves, Flanges and Pipe
Fittings

A234/A234M-10.....Piping Fittings of Wrought Carbon Steel and
Alloy Steel for Moderate and High Temperature
Service

C. American Society of Mechanical Engineers (ASME):

B16.5-09.....Pipe Flanges and Flanged Fittings (NPS ½-24).

B16.11-09.....Forged Fittings, Socket-Welding and Threaded

B31.1-10.....Code for Pressure Piping, Power Piping with
Current Amendments

D. National Electrical Manufacturers Association (NEMA):

250-08.....Enclosures for Electrical Equipment (1000 Volts
Maximum)

E. National Fire Protection Association (NFPA):

30-12.....Flammable and Combustible Liquids Code

31-11.....Installation of Oil Burning Equipment

70-11.....National Electrical Code

PART - 2 PRODUCTS:**2.1 PIPING, VALVES, FITTINGS:**

A. Fuel supply and return vents.

B. Steel Pipe and Fittings:

1. Piping: Steel, seamless or electric resistance welded (ERW), ASTM A53 Grade B or ASTM A106 Grade B, Schedule 40. Aboveground piping shall be painted.
2. Joints: Socket or butt-welded. Threaded joints not permitted except at valves, unions and tank connections.
3. Fittings:
 - a. Butt-welded joints: Steel, ASTM A234, Grade B, ASME B16.9, same schedule as adjoining pipe.
 - b. Socket-welded joints: Forged steel, ASME B16.11, 2000 psi class.
4. Unions: Malleable iron, 300 psi class.
5. Companion flanges: Flanges and bolting, ASME B16.5.
6. Welding flanges: Weld neck, ASME B16.5, forged steel ASTM A105, 150 psi.

C. Check Valves - Fuel Pump Suction.

1. Pipe Sizes 2 inches and under: Rated for 200 psi water-oil-gas, swing-type, threaded ends, ASTM B62 bronze body. Provide union adjacent to valve.

2.2 LEAK DETECTION SYSTEMS:

- A. Existing to remain.

2.3 TANK FLUID LEVEL MONITOR AND ALARM SYSTEMS:

- A. Existing to remain.

PART 3 - EXECUTION**3.1 INSTALLATION AND TESTING:**

- A. Conform to NFPA 30 or 31 as applicable.

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