Special Specification 6009
Rack Mounted Electronic Equipment Cabinets

1. DESCRIPTION

Furnish, install, and test rack mounted electronic equipment cabinets.

2. MATERIAL

Provide fully-furnished cabinets of identical size, shape, color, finish, and quality throughout project. Provide cabinets of steel or aluminum frames capable of withstanding a minimum load of 400 lb. Provide cabinets that meet Electronic Industries Association (EIA) for 19-in. rack mounted equipment.

Provide cabinets with removable steel sides and 2 pairs of user positional steel EIA standard equipment rails. Furnish EIA rails consisting of 4 continuous, adjustable equipment angles of 0.1345-in. minimum thickness plated steel tapped with 10-32 threads with EIA universal spacing. Provide angles that comply with Standard EIA RS-310-B. Provide 17.75-in. clearance between rails for mounting assemblies. Wood, wood fiber product, or flammable products are not acceptable in the cabinet.

Provide cabinets with a 76 in. height × 23 in. width × 29 in. depth minimum size. Provide a minimum 72 in. height of usable equipment mounting space.

Furnish cabinet with rack-mounted positive pressure blower assembly. Provide a blower assembly with 100 cfm airflow capacity. Mount the blower in the lowest position of the rack not interfering with the required 72 in. height of usable equipment mounting space. Design the blower to intake air from the front of the rack and discharge it upwards through the equipment mounting area.

Provide an adjustable thermostat with cabinet. Provide a manually adjustable thermostat, to turn on between 70°F and 150°F with a differential of not more than 40°F between automatic turn on and turn off. Provide cabinet fan circuit that is current protected at not less than 125% of the current rating of the fan motor.

Provide cabinet equipped with a ventilated top panel. Provide panel with enough ventilation to allow full airflow through the cabinet and blower assembly.

Provide covered blank panels to maintain positive ventilation flow even with the doors open for unused rack space.

Provide cabinets maintaining all contained equipment within its specified temperature range. Any necessary modification to the cabinet or additional equipment needed to maintain the equipment at the specified temperature range will be provided at no additional cost.

Provide smooth exterior welds. File edges to a radius of 0.03125 in. minimum.

Provide a light gray cabinet. Submit color and design details for approval.

Provide 4 casters with a minimum load rating of 200 lb. each. Provide leveling screws.

Provide front and rear doors. Design front door to cover the entire equipment mounting area except the air intake for the blower assembly. Design rear door to cover the entire rear area of the rack with a vent at the top. Furnish gaskets around the doors. Furnish doors with a lock. Provide doors with steel pin-type hinges.

Furnish front doors with a minimum of 0.125 in. thick framed Plexiglas and a lightly smoked color. Furnish rear doors of a minimum of 20-gauge steel as measured by United States Standard Gauge.

2.1. **Electrical Requirements**. Mount 2 UL approved electrical power tap strips in the rear of the cabinet for the distribution of 115 VAC power. Use 1 tap strip to distribute a source of Uninterruptible Power Supply (UPS) and the other to distribute a source of standard electrical service. Label the tap strips. If no UPS is supplied, both tap strips distribute standard electrical service. Protect tap strip with a 15 amp circuit breaker. Provide a minimum of 12 outlets on each tap strip equipped with a 12 ft. UL approved AC cord. The fan circuit may use one of the outlets on the tap strip.

2.2. **Wiring**. Cut wires to proper length. Do not double back wires to take up slack. Provide service loops to facilitate the removal and replacement of assemblies, panels, and modules for maintenance. Secure cables with nylon cable clamps. Carry the grounded side of the electric service throughout the cabinet without a break. Label the wires.

Wiring containing line voltage AC will be routed and bundled separately and/or shielded from all low voltage, i.e., control circuits. Cover all conductors and live terminals or parts, which could be hazardous to maintenance personnel with suitable insulating material.

2.3. **Environmental Design Requirements**. Furnish cabinet meeting all of its specified requirements during and after subjection to any combination of the following requirements:

- Ambient temperature range of 0°F to 158°F.
- Temperature shock not to exceed 30°F per hr., during which the relative humidity shall not exceed 95%.
- Relative humidity range not to exceed 95% over the temperature range of 40°F to 100°F.
- Moisture condensation on all surfaces caused by temperature changes.

3. CONSTRUCTION

3.1. **General**. Use the latest available techniques with a minimum number of different parts, subassemblies, circuits, cards, and modules to maximize standardization and commonality for the equipment, design, and construction. Place cabinets on an interior floor as shown on the plans. Ground the cabinet to an equipment ground circuit using a number 12 AWG wire.

3.2. **Electronic Components**. Provide electronic components in accordance with Special Specification, “Electronic Components.”

3.3. **Uninterruptible Power Supply**. If required, provide uninterruptible power supply in accordance with Special Specification, “Uninterruptible Power Supply.”

4. DOCUMENTATION REQUIREMENTS

Provide 3 copies and 1 Mylar reproducible for the following items:

- Complete and accurate final cabinet wiring diagram.
- Complete parts list including names of vendors for parts not identified by universal part numbers such as JEDEC, RETMA or EIA.

Place 1 set of the documentation in a heavy-duty plastic envelope in the cabinet. Deliver the other documentation to the Engineer.

5. TESTING AND WARRANTY

Test in accordance with Article 2, Special Specification, “Testing, Training, Documentation, Final Acceptance, and Warranty.”

Provide a warranty in accordance with Article 6, Special Specification, “Testing, Training, Documentation, Final Acceptance, and Warranty.”

6. MEASUREMENT

This Item will be measured by each unit furnished, installed, and tested.

7. PAYMENT

The work performed and materials furnished in accordance with this Item and measured as provided under “Measurement” will be paid for at the unit price bid for “Rack Mounted Electronic Equipment Cabinet.” This price is full compensation for cabinet; cables, connectors, and cabinet components; and equipment, labor, materials, training, and incidentals.