



EQUIPMENT ENCLOSURE SPECIFICATION

SECTION 13161 PRE-ENGINEERED FIBERGLASS ENCLOSURES

PART 1 GENERAL

1.1 SECTION INCLUDES

- A. Pre-engineered enclosures.
- B. Electrical wiring and devices for pre-engineered enclosures.
- C. Heating equipment for pre-engineered enclosures.
- D. Ventilation equipment for pre-engineered enclosures.
- E. Air conditioning equipment for pre-engineered enclosures.

1.2 RELATED SECTIONS

- A. Section 03300 – Cast-In-Place Concrete: Concrete building pad.
- B. Division 16: Electrical connections.

1.3 REFERENCES

- A. ASTM C 518 – Standard Test Method for Steady-State Heat Flux Measurements and Thermal Transmission Properties by Means of the Heat Flow Meter Apparatus.
- B. ASTM D 256 – Standard Test Method for Determining the Pendulum Impact Resistance of Notched Specimens of Plastics.
- C. ASTM D 618 – Standard Practice for Conditioning Plastics for Testing.
- D. ASTM D 638 – Standard Test Method for Tensile Properties of Plastics.
- E. ASTM D 732 – Standard Test Method for Shear Strength Plastics by Punch Tool.
- F. ASTM D 790 – Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- G. ASTM D 792 – Standard Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement.
- H. ASTM D 1622 – Standard Test Method for Apparent Density of Rigid Cellular Plastics.
- I. ASTM D 2583 – Standard Test Method for Indentation Hardness of Rigid Plastics by Means of a Barcol Impressor.

1.4 SUBMITTALS

- A. Submit under provisions of Section 01300.
- B. Product Data: Certified independent test results of representative wall laminate.
- C. Shop Drawings: Show:
 - 1. Critical dimensions, jointing and connections, fasteners and anchors.
 - 2. Materials of construction.
 - 3. Sizes, spacing, and location of structural members, connections, attachments, openings, and fasteners.
 - 4. Colors.
- D. Samples: 8-inch square sample of representative wall construction, upon request.
- E. Manufacturer's installation instructions.



1.5 SYSTEM DESCRIPTION

- A. Size: provide one-piece molded construction FRP enclosures of the following types:
 - 1. Size:
 - i. _____ INCHES W (**SPECIFY 40, 60, or 80**) x 1 FEET 9 INCHES D x 2 FEET 5 INCHES H.
- B. Construction:
 - 1. One-piece construction.
 - 2. Paneled construction shall not be acceptable.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Store products indoors or in weather protected area until installation. Protect from construction traffic and damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

- A. The product shall be manufactured by TRACOM, Inc.; 6575-A Industrial Way, Alpharetta, Georgia 30004; Toll-Free Voice (877) 435-8637, Toll-Free Fax (866) 435-8637, www.tracomfrp.com.
- B. Requests for substitution must be made in writing and received by the engineer's office a minimum of ten (10) business days before bid opening. Substitutions shall be made in accordance with the provisions of Section 01600.
- C. Substitutions: Manufacturers not pre-approved shall not be allowed.
- D. Warranty: Enclosures shall be warranted to be free of defects in workmanship and materials for a period of two years from date of shipment.

2.2 MATERIALS

- A. Molded Composite Construction:
 - 1. Laminate: Isophthalic polyester resin with high performance, chopped, commercial grade glass strand fiber reinforcement with a suitable coupling agent.
 - i. Minimum glass content: 30%.
 - ii. Exterior surface: 15 mil (minimum) gel coat with U.V. inhibitors and a satin finish lightly textured and free from fiber pattern, roughness, or other irregularities.
 - iii. Laminate: 1/8 inch thick (minimum); chemically bonded to the surface gel coats.
 - iv. Interior surface: 15 mil (minimum) gel coat with U.V. inhibitors and a textured finish, free from exposed glass or other irregularities.
 - v. Laminate properties:
 - 1. Tensile strength (ASTM D 638): 14,000 PSI.
 - 2. Flexural strength (ASTM D 790): 27,000 PSI.
 - 3. Shear strength (ASTM D 732): 12,000 PSI.
 - 4. Barcol hardness (ASTM D 2583): 40.
 - 5. Density / specific gravity (ASTM D 792): 93.6 PCF/1.5.
 - 2. Core:
 - i. Rigid closed cell, self-extinguishing, polyisocyanurate foam with a density of 2.3 pounds per cubic foot. Foam shall be T250 Elfoam without exception.
 - ii. 1 inch thick with a minimum core insulating value of R~7.
 - iii. 2 inch thick with a minimum insulating value of R~14 (**OPTIONAL**).
 - iv. Core properties:



1. Thermal conductivity (ASTM C 518): 0.145 BTU inch/hr./SF/°F.
 2. Density / specific gravity (ASTM D 1622): 2.3 PCF.
 3. Shear Strength (ASTM C 273): 25 lb/in²
 4. Tensile Strength (ASTM D 1623): 45 lb/in²
 5. Compressive Strength (7% deflection/yield) (ASTM D 1621): 35
3. Coupons prepared in accordance with ASTM D 618.
- B. The manufacturer shall maintain a continuous quality control program and upon request shall furnish to the engineer certified test results of the physical properties.

2.3 COMPONENTS

- A. Door:
- a. Fully opening top access door.
 - b. Construction:
 - i. One-piece molded fiberglass construction.
 - ii. Mount door with stainless steel continuous piano hinges.
 - iii. Provide stainless steel stop chain.
 - iv. Provide stainless steel lockable hasp (for user supplied pad lock).
 - v. Neoprene strip gasket with flexible lock to retain permanent grip.
- B. Floor:
- a. Integral.

2.4 OPTIONS (*select all that apply*)

- A. Electrical
- a. Circuit Breaker Box: NEMA 3R duplex metallic breaker box with (2) 20 Amp breakers (**OPTIONAL**).
 - b. Electrical Wiring: 12 gauge stranded, color-coded THHN electrical wiring in flexible, U.L. listed, non-conductive conduit. SO cord or other non-encased wiring shall not be acceptable (**STANDARD when enclosure equipped with both the circuit breaker box and any other electrical equipment option**).
 - c. Receptacle: GFCI receptacle 15A 125V, 20 A 125V feed-through, with 5mA +/- 1mA trip threshold.
 - i. Interior (**OPTIONAL**).
 - ii. Exterior with clear weatherproof cover (**OPTIONAL**).
 - d. Switch, Weatherproof:
 - i. Single toggle switch box, for _____ (**OPTIONAL – specify operation**).
 - ii. Double toggle switch box for _____ (**OPTIONAL – specify operation**).
- B. HVAC
- a. Exhaust Fan:
 - i. 71 CFM cooling fan, with thermostat and fixed 4 inch diameter polyethylene louver (**OPTIONAL**).
 - ii. Shutter-mounted 120 CFM 7 inch diameter exhaust fan with integral gravity shutter, aluminum fan blades, fiberglass canopy, and OSHA compliant polyester-coated wire guard (**OPTIONAL - requires switch or thermostat to control**).



- b. Heater: 500 watt, T-304 stainless steel line powered wall heater with built-in thermostat. No separate electrical outlet shall be required **(OPTIONAL)**.
- c. Louver:
 - i. Fixed aluminum louver, 10 inches W x 3 inches H **(OPTIONAL)**.
 - ii. Fixed polyethylene, 4 inch diameter **(OPTIONAL)**.
 - iii. Manually adjustable T-304 stainless steel, 5 inch diameter **(OPTIONAL)**.
- d. Shutter: Gravity operated fiberglass intake shutter, 10 inch x 10 inch, with heavy duty fiberglass frame and exterior removable insect screen **(OPTIONAL)**.
 - i. Fiberglass hood over intake shutter **(OPTIONAL)**.
 - ii. Shutter motor, wired to exhaust fan **(OPTIONAL)**.
- e. Thermostat: NEMA 4X line voltage thermostat for remote operation of heater or exhaust fan, 0-45 C and 30-110° F **(OPTIONAL – specify operation)**.

2.5 FINISHES

- A. Color: #1555 Whale Bone.
- B. Color: _____ **(OPTIONAL)**.

PART 3 EXECUTION

3.1 EXAMINATION

- A. Verify that the concrete pad is level, true to plane, and of the correct dimensions to receive the structure. Correct all deficiencies before proceeding.

3.2 INSTALLATION

- A. Install products in accordance with engineer’s instructions, plans, blueprints, etc, local codes, and in a manner consistent with the installation instruction and recommendation of the manufacturer.
- B. Move and position the enclosure into the appropriate position.
- C. Install (as necessary) and test the enclosure accessories in accordance with the manufacturers’ instructions.

3.3 ADJUST AND CLEAN

- A. Clean surfaces in accordance with the manufacturer’s instructions.
- B. Remove trash and debris, and leave the site in a clean condition.

END OF SECTION

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