

SECTION 130121
FRP BUILDINGS

PART 1 GENERAL

1.1 STIPULATIONS

- A. The specifications sections "General Conditions of the Construction Contract", "Special Conditions", and "Division 1 - General Requirements" form a part of this Section by this reference thereto, and shall have the same force and effect as if printed herewith in full.

1.2 SECTION INCLUDES

- A. Pre-engineered buildings.
- B. Electrical wiring and devices for pre-engineered structures.
- C. Heating equipment for pre-engineered structures.
- D. Ventilation equipment for pre-engineered structures.

1.3 REFERENCE SECTIONS

- A. Section 03300 - Cast-in-Place Concrete: Concrete building pad.
- B. Division 26: Electrical connections.

1.4 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 638 - Standard Test Methods for Tensile Properties of Plastics.
- D. ASTM D 732 - Standard Test Method for Shear Strength of Plastics by Punch Tool.
- E. ASTM D 790 - Standard Test Methods for Flexural Properties of Unreinforced and Reinforced Plastics and Electrical Insulating Materials.
- F. ASTM D 792 - Standard Test Method for Specific Gravity (Relative Density) and Density of Plastics by Displacement.
- G. ASTM D 1622 - Standard Test Method for Apparent Density of Rigid Cellular Plastics

1. Provide manufacturer's standard details and catalog.
2. Data demonstrating compliance with referenced standards.
3. Provide installation instructions.

B. Shop Drawings: Submit drawings showing layout, dimensions, anchorages and accessories.

1.6 SYSTEM DESCRIPTION

A. Design factory-fabricated, pre-engineered structures to withstand 125 mile per hour wind load and 30 PSF snow-load.

1.7 DELIVERY, STORAGE, AND HANDLING

A. Store products on flat surface and protect from construction traffic, and damage.

PART 2 PRODUCTS

2.1 MANUFACTURER

A. Provide products manufactured by Warminster Fiberglass Company, P. O. Box 188, Southampton, PA 18966; www.warminsterfiberglass.com Tel. (215)953-1260, Fax (215) 357-7893, or approved equal.

2.2 MATERIALS

A. Molded composite: Exterior and interior resin-fiberglass laminate with foam core.

1. Laminate: Polyester resin and chopped strand fiberglass; minimum glass content of 25%.
 - a. Exterior surface: White gel coat with low luster finish, smooth and free from fiber pattern, roughness, or other irregularities.
 - b. Exterior laminate: 1/8 inch thick, minimum, chemically bonded to gel coat. Interior laminate to be 1/8 inch thick, minimum.
 - c. Interior laminate: White color, encapsulate core in place.
 - d. Laminate properties:
 - 1) Tensile strength (ASTM D 638): 11,000 PSI
 - 2) Flexural strength (ASTM D 790): 18,000 PSI
 - 3) Shear strength (ASTM D 732): 12,000 PSI

b) Surface burning characteristics (ATSM E 84): Class A flame spread 25

2. Core

a. Rigid closed cell, self extinguishing, polyisocyanurate foam with a density of 2.0 pounds per cubic foot.

1) 2 inch thick with a minimum insulating value of R 14.

b. Core Properties:

1) Thermal conductivity (ASTM C 518): 0.13 BTU Inch/ Hr.SF F.

2) Density/specific gravity (ASTM D 1622): 2.0 PCF/ .03.

3) Surface burning characteristics (ASTM E 84):

4) Flame spread, 35 smoke density, 240.

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 PRE-ENGINEERED FIBERGLASS COMPOSITE BUILDINGS

A. Assembly:

1. Provide factory-assembled buildings.

B. Model: WFS 1010-14

C. Encapsulated aluminum extrusion 3 inches wide by 1 1/2 inches high by 0.125 inch thick with a 1 inch wide side flange shall be encapsulated into each corner of end panels (full height) and 4 inches wide by 2 1/2 inches high by 0.125 inch thick with a 1 inch wide side flange around the entire roof perimeter to maintain flatness, straightness, and structural integrity. Integral internal flanges on mating panels shall be provided for bolting the sides, ends and roof to the encapsulated aluminum extrusions.

1. Aluminum extrusions: Incorporate threaded inserts on 12-inch centers for internal bolting to mating panel flange during assembly.

2. Assemble panels with 3/8 inch diameter stainless steel bolts on 12-inch centers and a 1/4 inch thick by 3 inches wide urethane foam gasket for a weather tight seal at all joints. Assembly bolts shall not penetrate the exterior wall of the structure.

3. Structurally reinforce wall and roof panels with steel and aluminum extrusions to meet loading conditions.

a) Concrete pad specified in Division 3

2.4 ACCESSORIES

- A. Anchor bolts for attaching structure to concrete pad:
 - 1. Buildings: 1/2 inch diameter stainless steel expansion anchors.
- B. Exhaust fan with gravity shutter, and PVC shroud with insect screen.
 - 1. 10 inches diameter; 585 CFM
- C. PVC intake Louver: 12 inches square with fiberglass gravity shutter and insect screen.
- D. Lamp:
 - 1. Incandescent, vapor tight.
 - 2. Fluorescent, 48-inch 2-bulb fixture with acrylic lens.
- E. Fan and Lamp switch
 - 1. Interior or duplex switch.
 - 2. Exterior weatherproof duplex switch.
 - 3. Door actuated switch and selector switch- 3 position (manual/off/automatic)
- F. Heater:
 - 1. 1500 watt with thermostat and tip-over switch and heater mounting including mounting channel, outlet, and brackets.
- G. Duplex outlet.
- H. Duplex fuse box: 30 amp.
- I. Circuit breaker panel:
 - 1. 125 amp, MLO - including 4- 1 pole breakers (total spaces - 12).
- J. Electrical wiring in flexible, liquid tight, PVC conduit. Provide for:
 - 1. Fan and switch.
 - 2. Lamp and switch.

2.5 FINISHES

- A. Color: White

PART 3 EXECUTION

3.1 EXAMINATION

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

3.2 INSTALLATION

- A. Layout anchor bolt pattern according to drawings. Drill holes of depth and diameter required by anchor bolt manufacturer.
- B. Install structure in accordance with manufacturer's instructions.
- C. Erect structures true to line and plumb, free of twist and warp.
- D. Install and test accessories in accordance with manufacturer's instructions.

3.3 ADJUST AND CLEAN

- A. Adjust components for proper operation.
- B. Leave project site clean and free of debris.

END OF SECTION