
Special Specification 4135

Fiber Reinforced Polymer (FRP) Composite Shapes



1. DESCRIPTION

Furnish and install fiber reinforced polymer (FRP) composite shapes for miscellaneous, non-structural members. This specification only addresses thermoset-pultruded shapes and does not address thermoplastic structural shapes, nor vacuum infusion process (VIP) structural shapes.

2. MATERIALS

Provide pultruded shapes which meet the requirements in the material section of ASCE, Pre-Standard for Load & Resistance Factor Design (LRFD) of Pultruded Fiber Reinforced Polymer (FRP) Structures.

Provide commercial grade thermoset resins of either Isophthalic Polyester or Vinylester. Resin may contain fillers and additives such as flame retardants, UV light absorbers, pigments etc. as needed.

Provide commercial grade glass fibers that conform to ASTM D578 in the form of continuous glass rovings and/or continuous strand mats. Provide a minimum of 40% glass fibers (by weight) oriented in a minimum of two directions. Provide a minimum of 10 mil thick synthetic polyester surface veil on the outer surface of the pultruded part.

Provide pultruded members with impregnated color of gray, beige, or black or as approved by Engineer.

3. CONSTRUCTION

Construct FRP composite shapes in accordance with the plans. Ensure all framing is true and exact. Accurately cut all members, and frame so the joints have even bearing over the entire contact surfaces. Store members in piles at the worksite, as recommended by the manufacturer. Stack members at least 12 in. above the ground surface and protect from the weather. Clear the grounds of weeds and rubbish underneath and near material piles. Use slings or other approved equipment for handling. Use equipment that will not damage the surface of the FRP composite shapes. Provide corner protectors when using metal bands to bundle members.

4. MEASUREMENT

FRP composite shapes will be measured by the linear foot of installed member.

5. 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 "FRP Composite Shapes" of the shape (Plate, Angle, Beam, Channel, etc.) specified in the plans. This price is full compensation for furnishing and installing the members; and for hardware, equipment, tools, labor, and incidentals.