

DESCRIPTION

The work shall consist of furnishing and installing fiber reinforced polymer (FRP) grating as shown on the contract plans.

MATERIALS**General:**

Materials used in the manufacture of the FRP grating shall be raw materials in conformance with the specification.

All materials shall be of the kind and quality specified.

The FRP grating shall be manufactured using a pultruded process utilizing polyester resin with flame retardant and ultraviolet (UV) inhibitor additives. A synthetic surface veil shall be the outermost layer covering the exterior surface. The flame retardant FRP shapes shall achieve a flame spread of 25 or less in accordance with ASTM test method E-84.

After fabrication, all cut ends, holes and abrasions of FRP shapes shall be sealed with a compatible resin coating.

FRP products exposed to weather shall contain an ultraviolet inhibitor.

All exposed surfaces shall be smooth and true to form.

The FRP grating shall be fabricated from bearing bars and cross rods manufactured by the pultrusion process. The glass fiber reinforcement for the bearing bars shall be a core of continuous glass strand rovings wrapped with continuous strand glass mat. A synthetic surface veil shall be the outermost layer covering the exterior surfaces.

Design:

The grating panels shall sustain a deflection of no more than 6 mm under a uniform distributed load of 4.79 kN/m² for the span lengths shown on the contract plans.

The bearing bars shall be joined into panels by passing continuous length fiberglass pultruded cross rods through the web of each bearing bar. A continuous fiberglass pultruded bar shaped section shall be wedged between the two cross rod spacers mechanically locking the notches in the cross rod spacers to the web of the bearing bars. Continuous chemical bonding shall be achieved between the cross rod spacers and the bearing web and between the bar shaped wedge and the two cross rod spacers locking the entire panel together to give a panel that resists twist and prevents internal movement of the bearing bars.

The top surface of all panels shall have a non-skid grit affixed to the surface by an epoxy resin followed by a top coat of epoxy resin.

Grating panels shall be fabricated to the sizes and type shown on the contract plans.

Hold down clamps shall be Type 316L stainless steel insert hold downs as provided by the manufacturer. A minimum of 4 each per panel shall be provided.

Grating panel color shall be gray.

Quality Assurance:

The material covered by these specifications shall be furnished by an ISO-9001 certified manufacturer of proven ability who has regularly engaged in the manufacture and installation of FRP systems.

Substitution of any component or modification of system shall be made only when approved by the Engineer.

Fabricator Qualifications: Firm experienced in successfully producing FRP fabrications similar to that indicated for this project, with sufficient production capacity to produce required units without causing delay in the work.

Submittals:

Shop drawings of the FRP grating shall be submitted to the Engineer for approval.

Manufacturer's catalog data showing:

1. Dimensions, spacings and construction of grating.
2. Design tables showing limits for span length and deflection under various uniform and concentrated loads.
3. Materials of construction.

Detail shop drawings showing:

1. Dimensions.
2. Sectional assembly.
3. Location and identification mark.
4. Size and type of supporting frames required.

Samples of each type of product shall be submitted for approval prior to placement of purchase orders.

Shipping and Storage Instructions:

All systems, sub-systems and structures shall be shop fabricated and assembled into the largest practical size suitable for transporting.

All materials and equipment necessary for the fabrication and installation of the FRP grating shall be stored before, during and after shipment in a manner to prevent cracking, twisting, bending, breaking, chipping or damage of any kind to the materials or equipment, including damage due to over exposure to the sun. Any material which, in the opinion of the Engineer, has become damaged as to be unfit for use, shall be

promptly removed from the site of work, and the Contractor shall receive no compensation for the damaged material or its removal.

CONSTRUCTION DETAILS

Provide anchorage devices and fasteners for securing the grating in accordance with the manufacturer's instructions.

Perform cutting, drilling and fitting required for installation of the FRP grating. Set FRP grating accurately in location, alignment and elevation; with edges and surfaces level, plumb, true and free of rack; measured from established lines and levels.

All field cut and drilled edges, holes and abrasions shall be sealed with a catalyzed resin compatible with the original resin as recommended by the manufacturer. The sealing of the edges shall prevent premature fraying at the field cut edges.

METHOD OF MEASUREMENT

The work shall be measured as the actual area, in square meters (horizontal plane projection of topmost surface) of grating furnished and installed.

BASIS OF PAYMENT

The unit price paid per square meter shall include the costs of all labor, material (including fabrication), tools, equipment and incidentals necessary to complete the work.