# Specifications for ProtectoliteTM Composites FRP Walk On Launder Covers & Hatches

# GENERAL

**Description of Work**

 The scope of this specification is intended to cover all FRP Walk on Launder Covers and required accessories shown on the drawings. This includes but is not limited to the following:

* Fiberglass Reinforced Plastic (FRP) cover panels,
* FRP mounting perimeter angles
* Fasteners required to secure the panels and perimeter angles

**References**

 ASTM D 256 - Standard Test Methods for Determining the Izod

 Pendulum Impact Resistance of Plastics

ASTM D 570 - Standard Test Method for Water Absorption of Plastics

ASTM D 638 - Standard Test Method for Tensile Properties of Plastics

ASTM D 790 - Standard Test Methods for Flexural Properties of

 Unreinforced and Reinforced Plastics and Electrical

 Insulating Materials

ASTM D 2583 - Standard Test Method for Indentation Hardness of

 Rigid Plastics by Means of a Barcol Impressor

ASTM D 696 - Standard Test Method for Coefficient of Linear Thermal Expansion of Plastics Between -30°C and 30°C with a Vitreous Silica Dilatometer

**Submittals**

**Product Data**

 Submit manufacturer’s product data, including description and physical properties of FRP laminate.

 Submit manufacturer’s installation instructions.

**Shop Drawings**

 Submit manufacturer’s shop drawings showing plans, elevations, components, supports, dimensions, attachments, mounting, fasteners and anchors.

**Manufacturer’s Certification**

 Submit manufacturer’s certification that materials comply with specified requirements.

**Quality Control Submittals**

 Manufacturer’s Certificate of Compliance.

 Special shipping, storage and protection and handling instructions.

 Manufacturer’s written/printed installation instructions.

 A list of five installations of comparable size in operation for at least five years.

## PRODUCTS

**Manufacturer**

 Protectolite Composites Inc.

 84 Railside Road

 Toronto, ON M3A 1A3

 Phone: (416) 444-4484

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**Materials and Finishes**

* FRP Launder Covers shall be Protectolite™ Composites or an approved equal that conforms to these specifications.
* FRP components shall be manufactured using the matched metal die compression molding processes or equivalent
* Resin shall be premium grade Isophthalic Polyester
* Nominal thickness 3/16 inch or ¼ inch (owner specify thickness)
* Glass Reinforcement shall be straight rovings and/or continuous strand mat. Glass content shall be a minimum of 20% by weight.
* UVResistance
Panel material shall be made from a UV stabilized resin system. Additional UV resistance shall come from surfacing mats.
* Color: grey. Color molded-in with ultraviolet inhibitor

 **Fiberglass Reinforced Plastic (FRP) Minimum Physical Properties**

Tensile Strength: ASTM D 638: 14,000 psi

Flexural Strength: ASTM D 790: 25,000 psi

Flexural Modulus ASTM D-790: 1.0 x 106 psi

Barcol Hardness: ASTM D 2583: 35-45

Notch Izod Impact:                  ASTM D 256: >15 ft-lbs/inch

Water Absorption:                  ASTM D 570: <0.10%

Coef. Of Thermal Expansion: ASTM D-696: 10 x 10-6 in/in/°F (AVG)

**Cover panels**

Fabrication: FRP components shall be manufactured using the matched metal die compression molding processes or equivalent

Nominal thicknesses: 3/16 inch or ¼ inch (owner specify thickness)

Lengths: Covers shall not exceed 8ft in length

 Provide outer and inner perimeter angle to fasten cover to launder wall.

Weight: Not to exceed 50 lbs per panel

Shape:

 Rectangular Tanks: Straight cover panels

 Round Tanks: Curved cover panels to match tank radius as

 shown on the drawings

**Mounting Fasteners**

Type 304 or Type 316 stainless steel (owner to specify)

Fasteners:

Wedge Anchor Bolts

Handles, latches, hinges and restraint cables

**PART 3. DESIGN**

3.1

3.1.1 The Launder Cover shall consist of a system of molded fiberglass panels that are attached together to form a continuous cover over the launder trough, weir and scum baffle within the treatment tank. The Cover shall be designed and manufactured to inhibit incident sunlight from striking the surfaces of the launder and weir. Each Cover section shall be molded of UV-protected fiberglass and shall be opaque to sunlight. Individual sections shall be a minimum of four feet in length and flat to follow the curvature of the tank. The Cover shall extend over the trough and weir as far as possible and may extend to a point immediately inside the scum baffle so long as the Cover does not interfere with the sweep arm. The Cover shall be designed such that adjacent panels fit together properly and the completed Cover, when installed, forms a rigid structure and has a well-engineered and professional appearance.

* + 1. The Cover shall be designed to open away from the operator and toward the center of the tank or side-ways or to the side following the curvature of the tank. Each Cover segment shall consist of two sections, a fixed Mounting Section and a hinged Cover Section connected by a continuous stainless steel hinge.

The Mounting Section shall provide a rigid mount for the Cover and is fastened to the weir wall with brackets as shown in the contract drawings. The Mounting Section extends inward to a point just inboard the scum baffle. The hinged Cover Section extends outward toward the tank wall and swings open to allow inspection and maintenance of the launder and weir. In the closed position, the Cover Section rests on an FRP H-Beam attached to the inner wall of the tank, every cover can be opened.

* + 1. Provision shall be made to lock the Cover in the closed position for safety and security. This shall be accomplished by means of an easily operated latch mechanism that secures the hinged Cover Section to FRP angle support beam. The Cam latch will be flushed to the Hinged cover to avoid trip hazards.
		2. Provision shall be made to support the Cover in such a manner that the panels are held securely in place, with the panels hinged to provide access to the launder and weir for inspection and maintenance. Cover supports that cantilever from the outer effluent launder wall without support at the weir wall are unacceptable. Neither the Cover nor the means used to support it shall interfere with effluent flow over the weir or within the trough. Cover supports shall not impede personnel from entering and traversing the launder.
		3. Where the circumference of the trough is interrupted by a bridge-support or another obstacle, a fixed panel(s) shall be installed over the trough beneath the support such that the surface of the Cover is continuous around the entire tank. Alternatively, vertical panels may be installed on both sides of the bridge supports to block out sunlight.
		4. The Cover system shall be designed to withstand common wind and snow loads (50 lbs/ft2) and a 250 lbs point load which is to be intended as a “**walk-on**” Cover designed to support the weight of plant personnel of 300 lbs. The deflection shall not exceed L/240. Adequate stiffeners can be integral to each panel.

EXECUTION

**Handling and Storage**

**Handling**

 Protect the surface of FRP Launder Cover components from cuts, scratches, gouges, abrasions, and impacts. Do not use wire slings unless material is fully protected. Use spreader bars when lifting FRP.

**Storage**

 Store panels under cover. Keep panels dry in accordance with manufacturer’s instructions.

 **Installation of FRP Launder Covers**

**Installation Instructions**Installer must follow manufacturer's installation instructions and the shop drawings.

Seal cut edges with manufacturer’s sealant.

The property values are based upon tests believed to be reliable, performed on laboratory test plaques. However, no liability is assumed resulting from its use. We suggest that the user perform tests in order to establish the material suitable for the specific application.

**Revised: October, 2022**