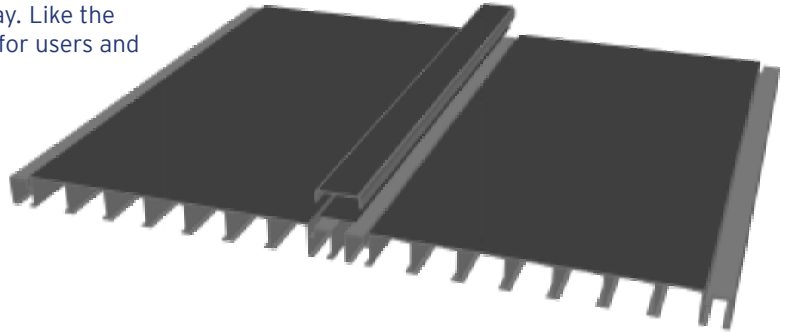


XL3 (FRP) Tank Covers

Corrosion Resistance Superior Strength Long Service Life

Delivering exceptional benefits and value, the XL3 Tank Cover from Enduro Composites is the most advanced cover system available today. Like the Enduro XL6 cover, the XL3 system offers appealing qualities for users and operators but with lighter panels and easier removability:

- Outstanding strength & corrosion resistance
- Easy access & panel removability
- Odor & vapor control
- Non-skid, structural panels for worker foot traffic
- Easy, low cost installation
- Size versatility



Outstanding Strength & Corrosion Resistance

- **Maintenance Free**
- **Long Service Life**

XL3 fiberglass reinforced plastic (FRP) components do not corrode in challenging chemical exposures and wet conditions associated with water and wastewater treatment operations. The pultrusion process used for manufacturing produces high content of reinforcing fibers (up to 60% by weight) and strength for long span capability and high load conditions.

Easy Access & Removability

- **Removable Panels**
- **Access Hatches**

Weighing 11 lbs per lineal foot, Enduro XL3 panels are lightweight and easy to handle. Removing sections only requires backing out bolts from permanent nutserts. After removing bolts and locking channel, single panels can be removed easily. Access hatches can be sized to fit within individual 30" wide, XL3 panel sections.

Odor & Vapor Control

- **Sealed with Gaskets**

Sealed with EPDM gaskets at panel joints, end conditions, and at access hatches, XL3 Cover System effectively contains odors and gases associated with treatment processes.

Non-Skid Structural Panels for Worker Foot Traffic

- **High Strength Panels**
- **Gritted Surface**

High strength, pultruded panels enable the cover system to be used as a safe, working surface for operators. It's flat, gritted surface protects workers from slipping.

Easy, Low Cost Installation

- **Lightweight Sections**
- **Minimal Fastening & Components**

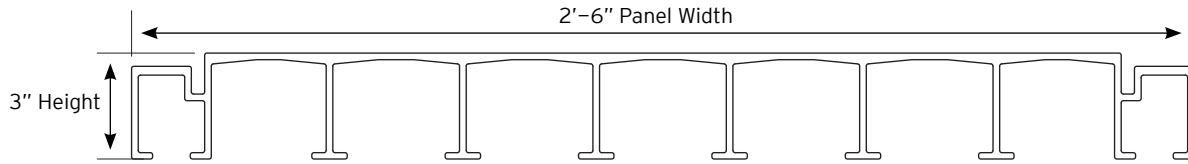
XL3 FRP components are typically lighter, easier to handle, and field fabricate than alternative materials. Minimal fasteners are required to attach panels and locking channel. Installation of flashings and support beams are similar to installing flashing and roof beams in typical construction.

Size Versatility

- **Rectangular Covers**
- **Round Covers**
- **Sized for Application**

XL3 Tank Covers are custom designed to accommodate most any size tank, either round or rectangular, large or small. Enduro's experienced technical staff can assist design engineers with cost budgets, appropriate material selection, system design, and specifications.

For water and wastewater treatment operations, Enduro offers fiberglass (FRP): Tank Covers, Baffle Walls, Weirs and Scum Baffles, Density Current Baffles, Launder Covers, and Building Structures.



Load Span Table

Uniform Load (Lbs./SF)	20		30		40		50	
	One	Two	One	Two	One	Two	One	Two
Maximum Span (in lineal ft.)								
Span, L/D=180 (.67" max)	11.98	16.05	10.46	14.02	9.50	12.74	8.82	11.83
Span, L/D=240 (.67" max)	10.88	14.58	9.50	12.74	8.64	11.58	8.02	10.75
Personnel Load (Lbs.)	250		300		400		500	
Span, L/D=180 (.67" max)	17.50	19.00	16.50	18.25	14.75	16.50	13.75	15.50

Spans for personnel loads are based on total load distributed over 2.5' x 2.5' area.
Factor Safety = 2.5 minimum

SPECIFICATIONS: FIBERGLASS REINFORCED PLASTIC TANK COVER

PART 1 - GENERAL

1.01 Description of Work

The scope of this specification shall include labor and materials for fiberglass reinforced plastic (FRP) flat tank covers, which may include, but not limited to tank cover deck panels; structural supports; flashing and trim; fasteners and anchors; gaskets and sealant.

1.02 Design Criteria

A. Design Loads shall comply with local codes with combined loads determined by Allowable Stress Method.

1. Live or Snow: ____ psf
2. Wind Uplift: ____ psf
3. Dead Load: ____ psf

B. Design Limits

1. Dead + Live or Snow Load: Deflection Limit=L/180; Factor of Safety=2.5
2. Wind Uplift less Dead Load: Deflection Limit=L/60; Factor of Safety=1.88
3. Personnel Load: 300 lb. load distributed over 2.5' x 2.5' area at mid-span of cover panel with deflection not to exceed .67" or L/180.

C. Cover Panel Removability:

1. Each cover panel shall be removable without having to remove adjacent cover panels.
2. Each cover panel shall be removable vertically and without cutting of a cover component.

PART 2 - PRODUCTS

2.01 Manufacturer(s)

The standard for design, characteristics, and performance is the XL3 Tank Cover System as manufactured by Enduro Composites, 16602 Central Green Blvd., Houston, TX 77032, (713)358-4000, www.endurocomposites.com.

2.02 Materials

Fiberglass reinforced plastic (FRP) structural components including decking and structural supports shall be manufactured by pultrusion process.

A. XL3 Tank Cover Deck Panels

1. FRP deck panels shall have minimum thickness of 3/16" (0.1875 inch).
2. Resin type for FRP tank cover decking shall be: ____ Isophthalic Polyester ____ Vinyl Ester.
3. Glass fiber reinforcements shall be minimum of 50% of the material weight.
4. Materials shall be fire retardant with flame spread rating of 25 or less per ASTM E84 (UL723) test.

5. Materials shall exhibit these Physical Properties (minimum):

Tensile Strength (ASTM D638)	30,000 psi
Compressive Strength (ASTM D695)	30,000 psi
Flexural Strength (ASTM D790)	30,000 psi

6. Top of the tank cover decking shall be flat with factory applied, non-skid, UV resistant surface.

7. Color of deck panels shall be standard gray, unless otherwise selected by Owner.

B. Hatches (if required)

1. Access hatches shall be sized as indicated on drawings.
2. Hatches shall have a hold-open device to prevent door from blowing open or closing on itself.
3. Hatch lids shall have factory-applied non-skid surface with plastic or stainless steel lift handles.
4. View port hatches shall be 12 inches square or less.
5. Hatch openings shall be factory cut in tank cover decking.

C. FRP Structural Framing (if required)

1. Resin type for FRP beams shall be: ____ Vinyl Ester ____ Isophthalic Polyester.
2. Glass fiber reinforcements shall be minimum of 50% of the material weight.
3. FRP beams shall be fire retardant with flame spread rating of 25 or less per ASTM E84 test.
4. Metal angles or plates attached to FRP beams or connections shall be:

____ 316 Stainless Steel ____ 304 Stainless Steel

D. Flashing and Trim

1. Flashing shall be FRP or 304 Stainless Steel.

E. Hardware

1. Fasteners, anchors, hinges, and other accessories located on underside of cover shall be: ____ 316 Stainless Steel ____ 304 Stainless Steel
2. Perimeter flashing fasteners, concrete anchors, or other hardware not exposed to inside of tank shall be 304 Stainless Steel.
3. Fasteners to attach tank cover decking shall have gasketed seal washers and be: ____ 316 Stainless Steel ____ 304 Stainless Steel

F. Gaskets and Sealants

1. EPDM or neoprene gaskets shall be installed at end joints of deck panels and under flashing to seal tank perimeter and seams.
2. Sikaflex®-1A sealant shall be applied by Contractor at various locations as required.