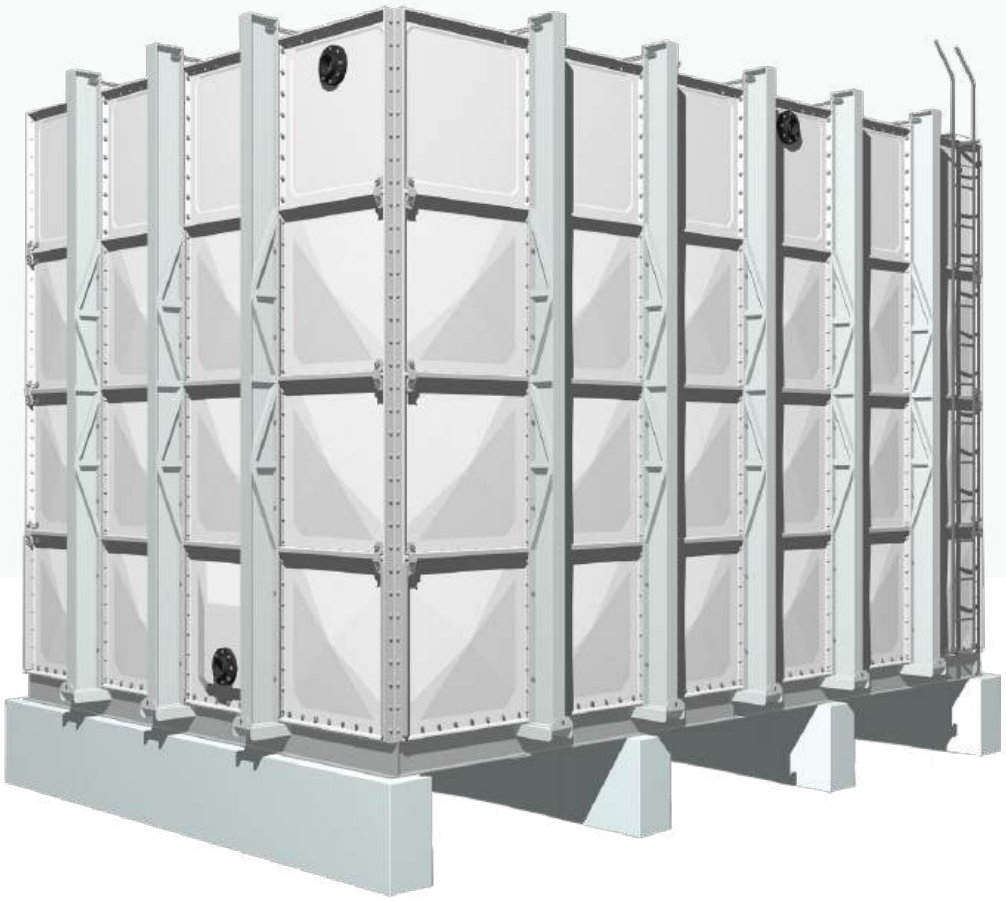
FTC tanks



FRP Modular Water Storage Solution

No Lining | No Coating | No Painting

(703) 339-9605 info@ftctanks.com www.ftctanks.com

Design Standards

FTC Tanks are NSF61 & WRAS (UK) certified & compliant to AWWA D121-12 & NFPA 22.

The panel shapes are designed using Finite element analysis to ensure the required panel and tank safety factor is at a minimum of 8.

FTC FRP Panels are manufactured using State of the Art SMC Hot Press Molding Process under pressure reaching up to 2,200 US ton and at a temperature of 300°F.

Design Criteria

Panel Strength	Hydrostatic Pressure x8 (FRP Panels Safety factor)
Wind Velocity	134 mph (higher designs possible on demand)
Roof Load	24.57 psf (higher designs possible on demand)
Snow Load	12.28 psf (Higher designs possible on demand)
Ambient Temperature	140 °F (Max)
Water Temperature	32 °F (Min - Non Freezing) to 140°F (Max)

Seismic Load: Peak Ground Acceleration PGA = 0.25 (Max) for Class A Design

Seismic Zone:

- B2 (PGA = 0.25) for Class A Design
- 0.25 < PGA < 0.40 for Class B Design
- PGA >= 0.40 for Class C Design

These FTC FRP Tanks seismic classes cover all seismic regions in North, Central & South America.

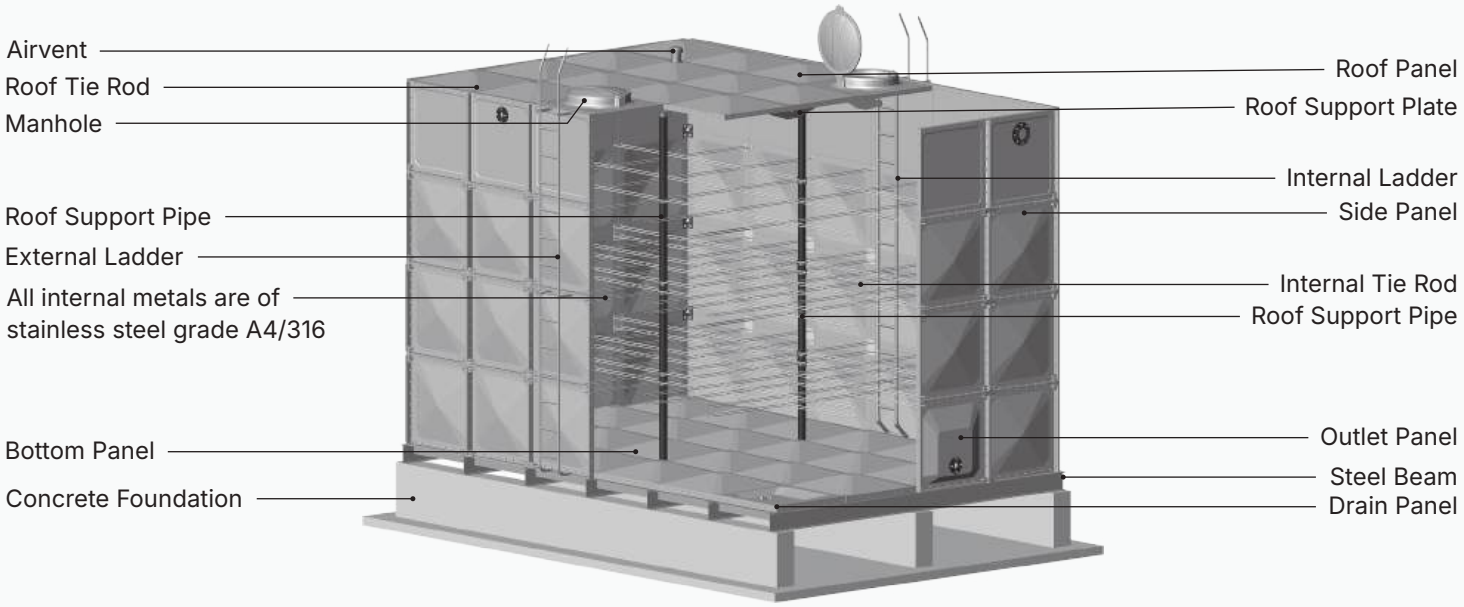
	Class A	Class B	Class C
S_1	0.18	1	1.5
S_s	0.36	2	3.5

Technical Characteristics

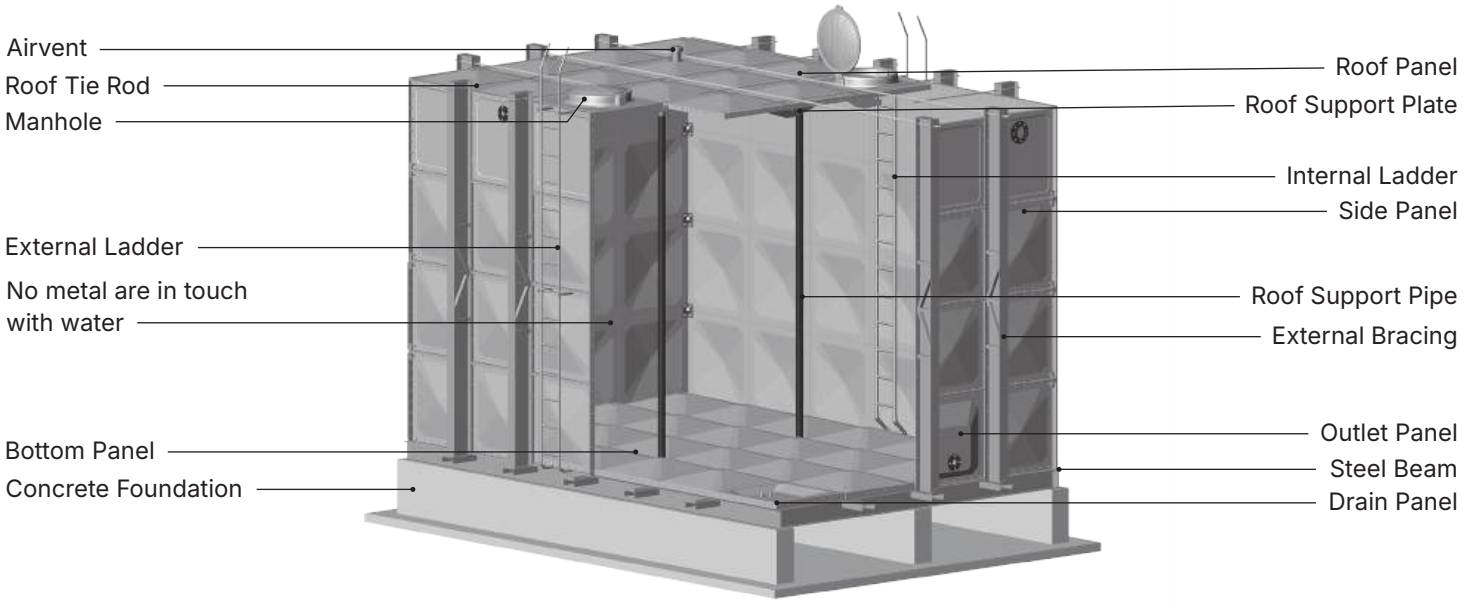
Description	FTC FRP Panel
Glass Content	40%
Specific Gravity	1.76
Tensile Strength	95 MPa
Young's Modulus	13.5 GPa
Flexural Strength	165 MPa
Impact Strength	80 Kgf.cm/cm²
Compressive Strength	165 MPa
Shear Strength	100 MPa
Barcol Hardness	66
Thermal Expansion	9.2 × 10^{-6} /°F
Thermal Resistance (R-Value)	
Standard Panel	0.42 °F.ft².h/BTU
Insulated Panel 1 inch	5.85 °F.ft².h/BTU
Insulated Panel 2 inch	12.26 °F.ft².h/BTU
Thermal Conductivity	
Standard Panel	0.666 BTU.in/h.ft².°F
Insulated Panel 1 inch	0.253 BTU.in/h.ft².°F
Insulated Panel 2 inch	0.204 BTU.in/h.ft².°F
Coefficient of Overall Heat Transmission (Thermal Conductance)	
Standard Panel	2.37 BTU/h.ft².°F
Insulated Panel 1 inch	0.17 BTU/h.ft².°F
Insulated Panel 2 inch	0.08 BTU/h.ft².°F
Water Absorption	Less than 0.1%
Light Transmission	Gray 0.00%
Fire Properties	
Fire Rating Class	B / 2
Flame Spread (FSI)	60
Smoke Development (SD)	400

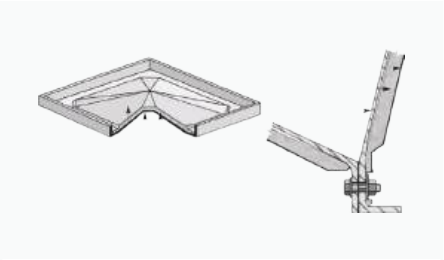
Specifiations subject to change.
Consult website or contact FTC Tanks.

Internal Tie Rod Reinforcement



External Bracing Reinforcement





Insulation

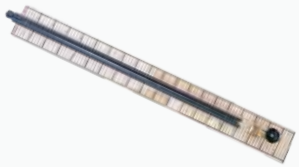
Material: Rigid Polyurethane
Density: From 2.50 lb/ft³
Thickness: 1 inch (optional 2 inch)
Insulation Cover: 2mm UV Resistant ASA/FRP Sheet

Sealant

Material: SEBS (Styrene-Ethylene-Butylene-Styrene)
Properties: Strong, Durable, and UV Resistant
Shape: "O" Ring for added security

Panel

Material: SMC Hot Pressed Glass Reinforced Polyester (FRP or FRP) with Reinforced Roving Mesh



Tube Type Water Level Gauge

Components: FRP Backing, Acrylic Tube, Brass Fittings

Reinforcements

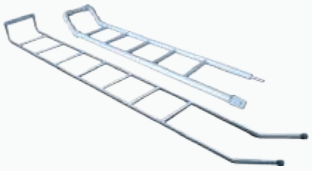
External: HDG (Hot-Dip Galvanized) Structural Steel Beams, Angles, and Brackets
Internal: S/S (Stainless Steel) Grade A4/316 Tie Rods or Diagonal Struts

Roof Supports

Material: PVC/FRP roof support pipes
Components: FRP Roof Brackets

Bolts & Rubber Capped Bolt Sets

External: S/S Grade A4/316
Internal: S/S Grade A4/316 (if needed)



Ladders

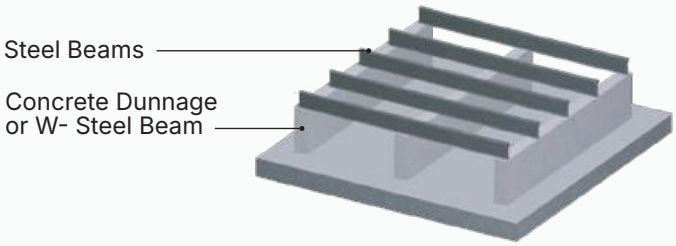
External: HDG Steel (Optional S/S or FRP)
Internal: FRP (Optional S/S)

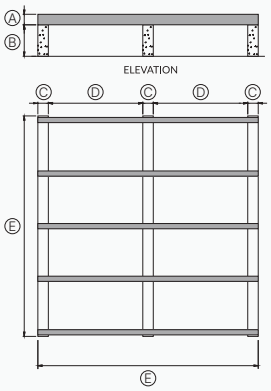
Airvents

Size: PVC 4" DIA with Nylon Mesh #22
Properties: Light, Dust, and Insect Proof

Steel Support Beams

For 1.5 and 2.0 mH (4.92 and 6.56 ft.)



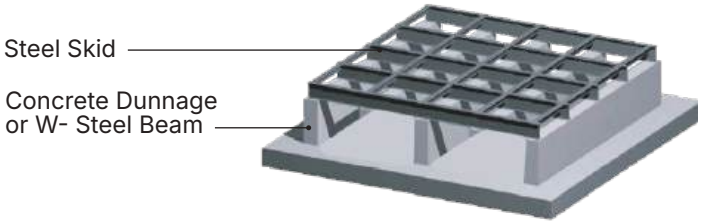


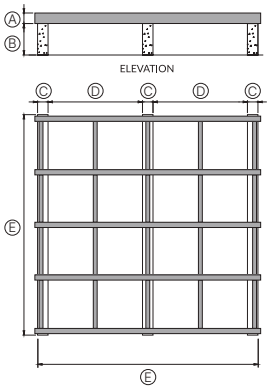
Ⓐ 200 mm or 7 ⅞″
Ⓑ 500 mm or 1′ 7 ¹¹⁄₁₆″
Ⓒ 250 mm or 10″
Ⓓ 1750 mm or 5′ 8 ⅞″
Ⓔ 4250 mm or 13′ 11 ¼″

Plan View
(example for 4×4×2 mH
or 13.12×13.12×6.56′ tank)
L x W x H

Steel Support Beams

For 2.5 to 6 mH (8.2 and 19.68 ft.)



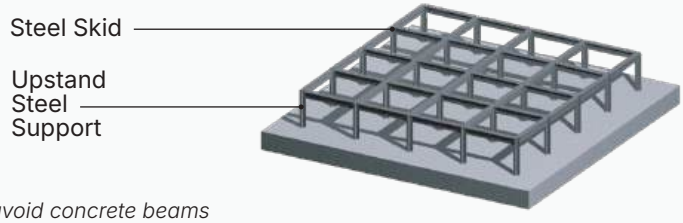


Ⓐ 200 mm or 7 ⅞″
Ⓑ 500 mm or 1′ 7 ¹¹⁄₁₆″
Ⓒ 250 mm or 10″
Ⓓ 1750 mm or 5′ 8 ⅞″
Ⓔ 4250 mm or 13′ 11 ¼″

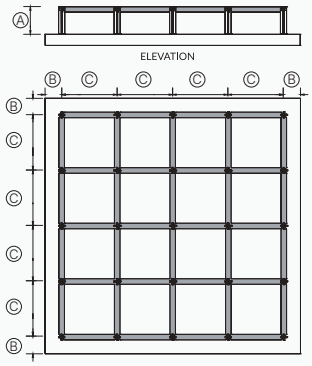
Plan View
(example for 4×4×4 mH
or 13.12×13.12×13.12′ tank)
L x W x H

Steel Upstand Support*

For 1 to 4 mH (3.28 and 13.12 ft.)



*to avoid concrete beams
(recommended for indoor installation).*



Ⓐ 500 mm or 1′ 7 ¹¹⁄₁₆″
Ⓑ 500 mm or 1′ 7 ¹¹⁄₁₆″
Ⓒ 1002 mm or 3′ 3 ½″

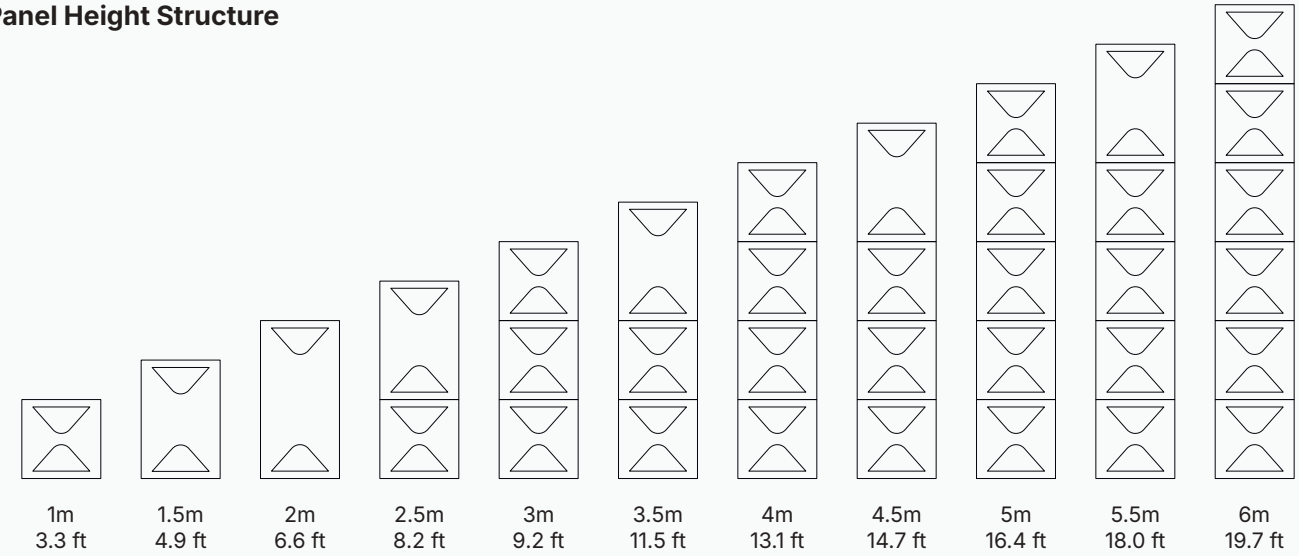
Plan View
(example for 4×4×1.5 mH
or 13.12×13.12×4.92′ tank)
L x W x H

Concrete Foundation

FTC Tanks provides shop drawings of the concrete foundations required for each tank to all clients, as detailed above.

- Minimum space requirement along all sides = 500mm or 1′ 7 ¹¹⁄₁₆″
- Minimum space requirement above roof panel for manhole opening = 1000mm or 3′ 3 ⅜″

Side Panel Height Structure



Flange Connections

The specially designed panels provide easy and safe flange connections for the plumber to connect their pipe works to the tanks. Typical Tank Connections are shown below.

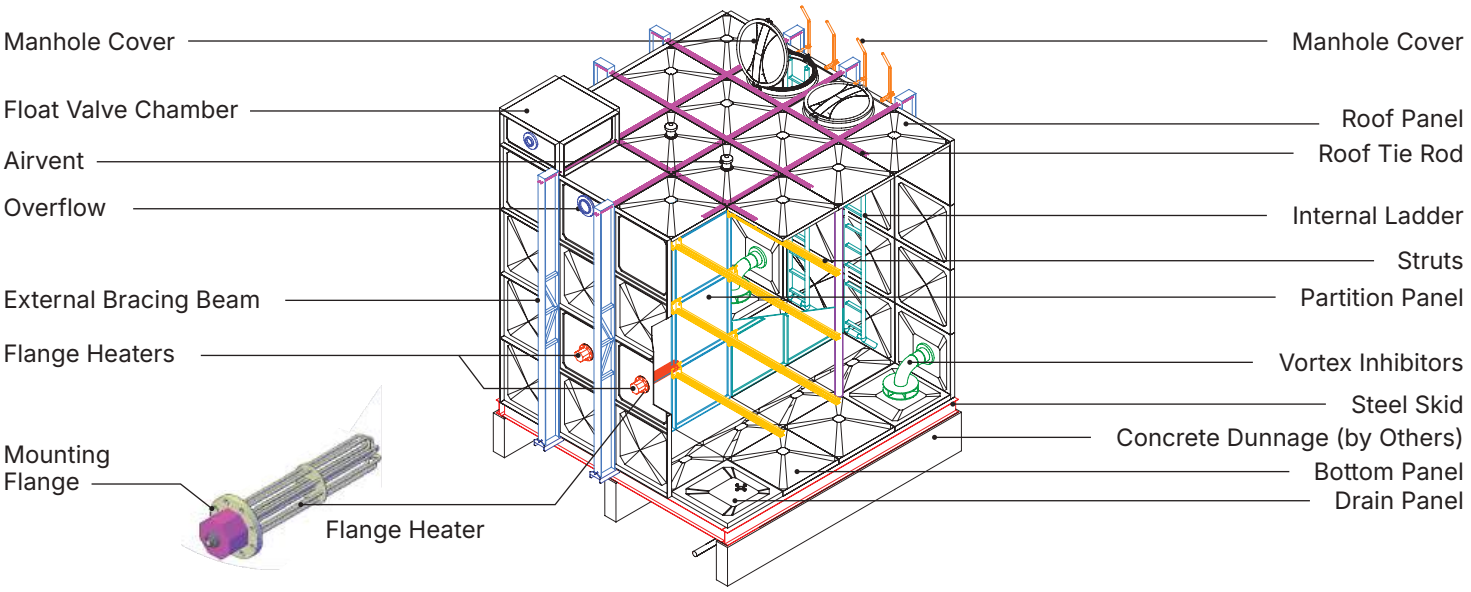
FRP / PVC Bolted Flange

Brass Socket Flange

Carbon Steel Bolted Flange

Stainless Steel Bolted Flange

FRP / PVC Spool Flange



FRP Panel Tanks Cautions

FTC FRP Panel Type Tanks should be safely transported, stored and installed under FTC Tanks supervision or as per FTC's assembly intructions.

FTC FRP Panel Type Tanks are designed to store water up to a maximum of 140 °F temperature.

No flame or heavy load should be directly imposed on FTC FRP Panel Type Tanks and all piping connections should be self supported to avoid any direct stress.

Do not use any other liquid than water with a pH value of 5 - 9 without FTC Tanks recommendation.

Do not bury FTC FRP Panel Type Tanks and keep standard space clear all around the tank for easy access during maintenance.

Tank cleaning should be done on a regular basis by using a power washer or water hose.
No hard material, chemical or brush should be used.

Do not use any sub-standard parts and accessories other than original provided and approved by FTC Tanks.

Monthly or yearly inspection should be done to ensure tigthening of bolts, no overload, no harmful material around, no leakage, manhole tightness, no clogging in air vent and overflow for safety assurance.

Maintain minimum and maximum water level inside FTC FRP Panel Type Tank for safety and long life.