

# SECTIONAL WATER TANK

FRP/GRP SECTIONAL PANEL

# YMF™ WATER TANKS

Benefits of storing portable water in FRP/GRP tanks have now been recognised and widely used in the residential, commercial, industrial and the public works sectors is an essential resource. Therefore, storage of clean water for longer durability periods remains top priority.

YMF™ Firberglass Industries Sdn. Bhd. Sectional Panel Tanks manufactured YMF™ GRP/FRP panels, using moulding process to ensure that the panels are completely cured, dimensionally accurate, uniformly strong, durability and consistent under all weather conditions.

The standard are Industrial Research Institute of Malaysia (SIRIM) has certified YMF™ GRP/FRP Panels according to SS245:1995 as specifies requirement for Glass Reinforced Polyester Sectional Water Tank, called GRP and sometime termed FRP Sectional Water Tank. Top quality material YMF™ GRP/FRP panels manufactured are combination of unsaturated polyester resin meets the requirement of BS 3532 specification with reinforced with E-class Type Chopped Strand Mat conform to BS 3496 specification and E-class type Woven Roving conform to BS 3749 specification. Under the scheme of supervision and quality control specified by SIRIM, YMF™ GRP/FRP panels are scrutinised and tested to meet its performance as:-



- Confirmed to be non-toxic, odorless and is safe for portable water storage designated for human consumption.
- Modular that you can create the required capacity freely depending on the volume of water required and space available.
- Assembled by connecting independent angular panel with bolts and reinforced by external and internal bracing.
- Several times lighter than steel panel
- Vigorously designed to withstand both hydrostatic and dynamic water pressure exceeds six times its rated capacity.
- Completely rust free, a factor which greatly improves sanitation. Its noncorrodable properties greatly extend the life span of the tank and minimise maintenance.
- Panel are coated with UV stabilized polyester resin.

**YMF™** GRP / FRP water tanks support by dedicated network of dealers throughout Malaysia, assisted by **YMF™** Fibreglass Industries Sdn. Bhd sales and customer services. Our trained service and installation teams ensure proper installation and maintenance.

1. Strong & Long Durability
2. Light Weight Design & Easy Assembly
3. Non-Leakage
4. Drain Completely
5. Prevent Algae Growth, Non Toxic & No Effect on Taste

Lower drainage is possible

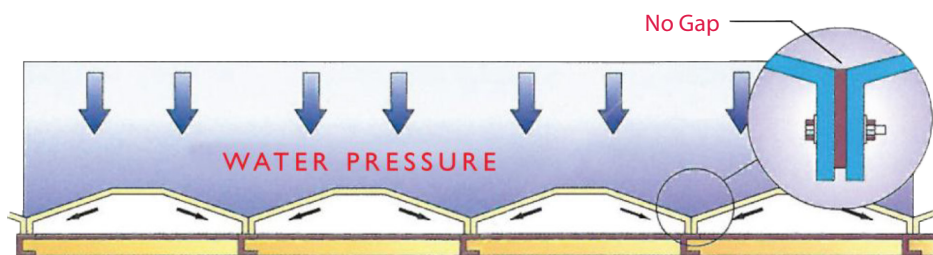
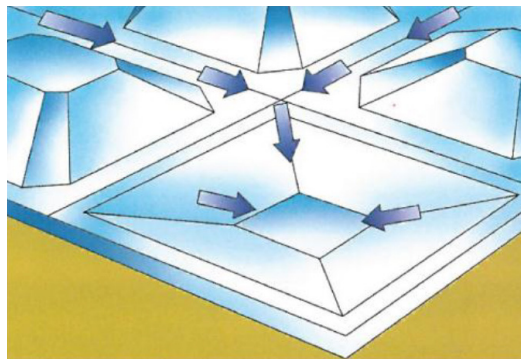


### Drains Completely

The **YMF™** water tank, is equipped with a unique features. The convex base panels and a convex drainage ensures a complete and faster drainage. The convex drain panel, was specially designed to facilitate, tank cleaning and inspection.

### Prevent Leakage

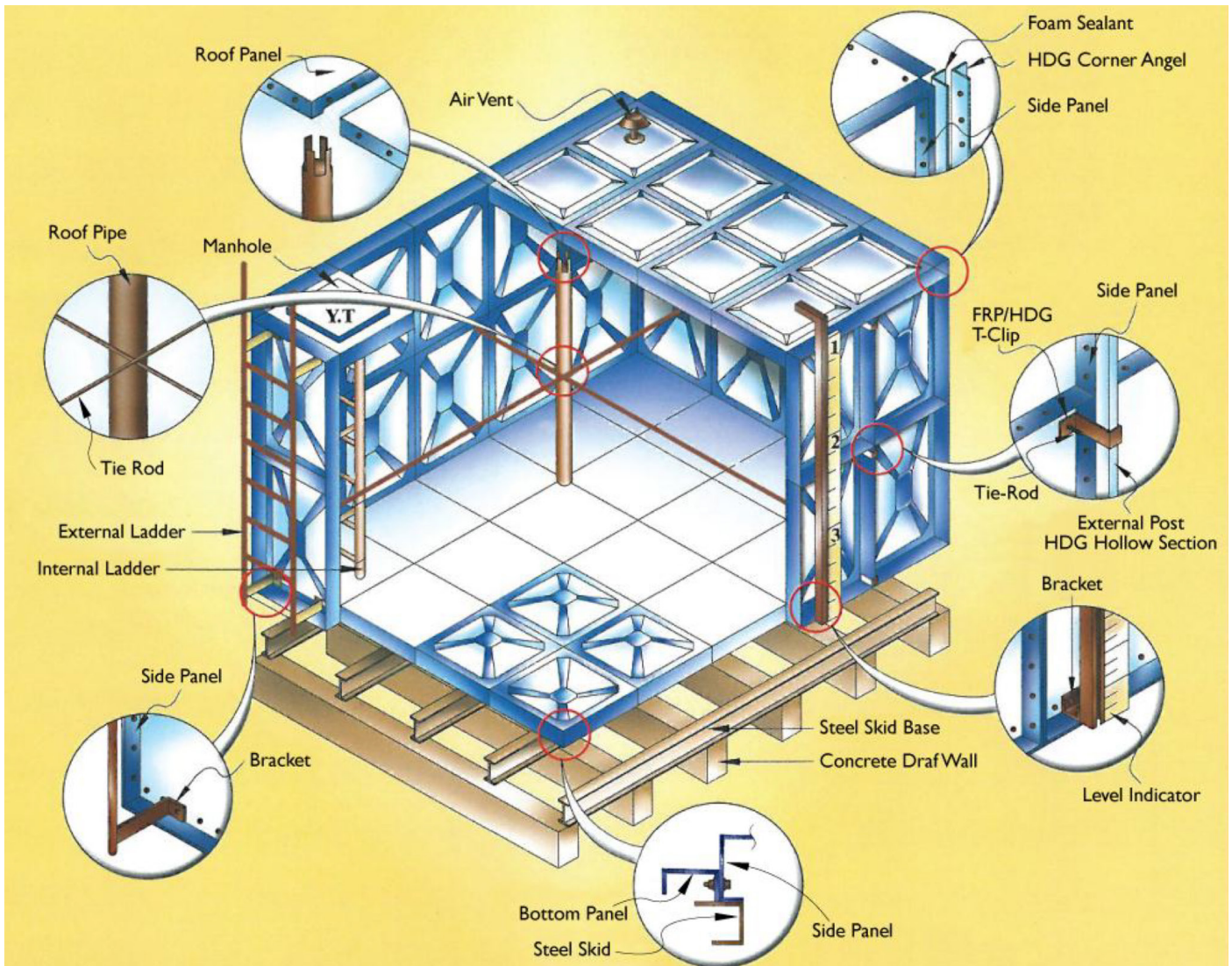
It has a specially engineered design bottom panel to utilize the water pressure to prevent water leakage.



### Approvals:

Our Panel tanks meet or complies the standards established by Singapore Standard SS245 : 1995 as endorsed by Standard and Industrial Research Institute of Malaysia.

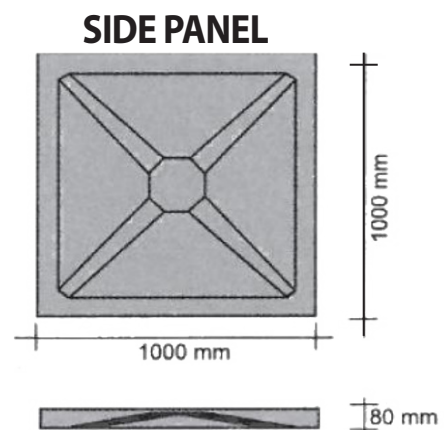
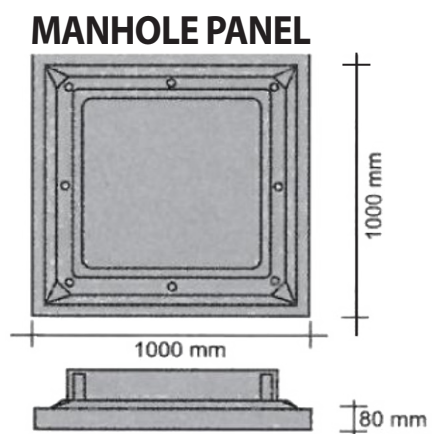
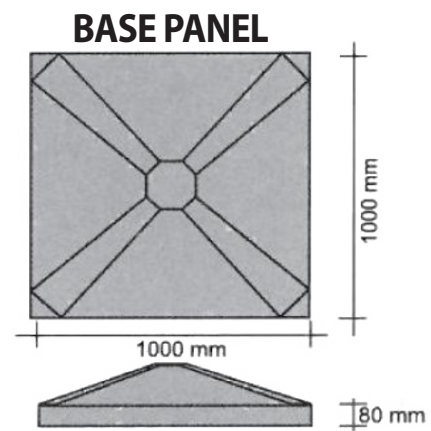
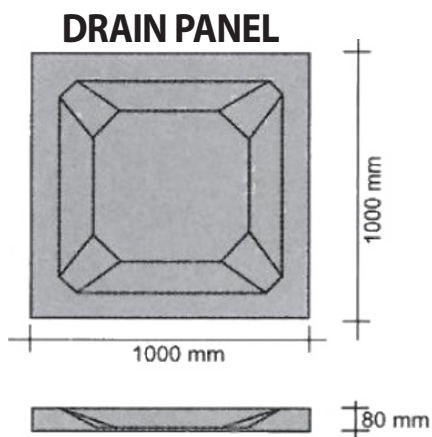
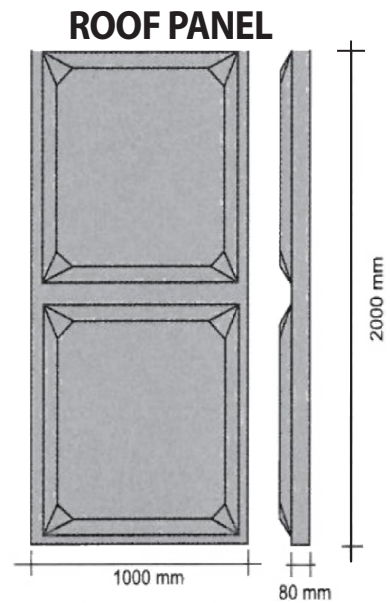
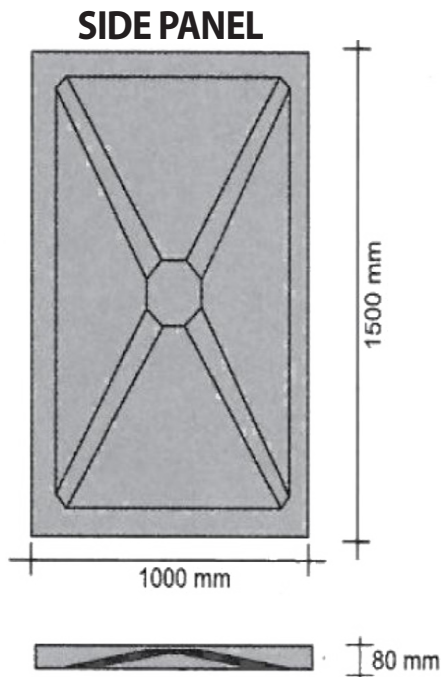
# SPECIFICATION

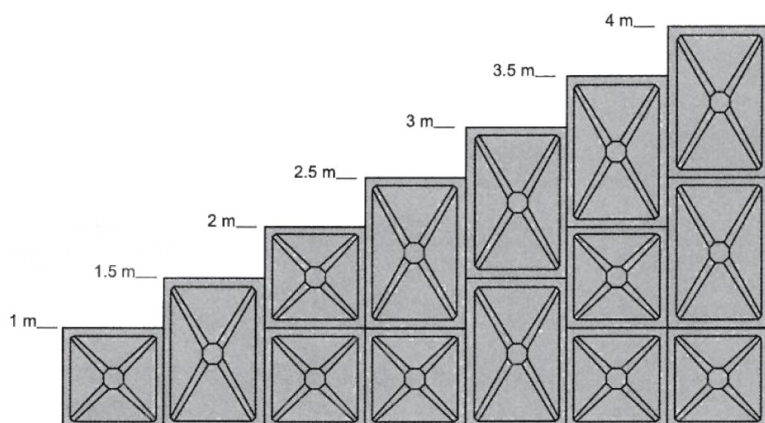




COMPONENTS	STANDARD
Tank Panels <ul style="list-style-type: none"> <li>• Roof</li> <li>• Wall</li> <li>• Bottom</li> <li>• Manhole Cover</li> <li>• Inlet/Outlet/Overfolw/Scour</li> </ul>	GRP / FRP - Riveria Blue in accordance to SS245 : 1995 & BS EN 13280 : 2001
External Reinforcement <ul style="list-style-type: none"> <li>• Bolts, Nuts &amp; Washers</li> <li>• Bracing</li> <li>• Corner Angle</li> <li>• External Post</li> <li>• Post Frame</li> </ul>	Hot Dipped Galvanised (HDG) in accordance to MS 740 : 1981 & 1981 & SS117 HDG HDG HDG
Internal Reinforcement <ul style="list-style-type: none"> <li>• Bolts, Nuts &amp; Washers</li> <li>• Tie Rod or Frame Angle</li> <li>• Bracing</li> <li>• Roof Support</li> </ul>	Stainless Steel - SS 304 Stainless Steel - SS 304 Stainless Steel - SS304 PVC Pipes
External Accessories <ul style="list-style-type: none"> <li>• Ladder</li> <li>• Air Vent</li> <li>• Level Indicator</li> </ul>	HDG in accordance to standard GRP/FRP GRP/FRP Mechanical Float System
Internal Accessories <ul style="list-style-type: none"> <li>• Ladder</li> </ul>	Aluminium
Watertightness <ul style="list-style-type: none"> <li>• Foam Sealant &amp; Black Mastic Tape</li> </ul>	Conform to SS 375

# TYPES & SIZE OF PANELS





## Two Sizes of Side Panels

Side panels are available in two size which are 1 M x 1 M square and 1 M x 1.5 M (height) rectangle. The combination of these two different sizes of panels can provide a full range of tank height to every half metre and an advantage of having less joints to the walls of tanks compared to the conventional 1 M x 1 M coupled with 0.5 M x 0.5 M side panels.

Panel Thickness	Panel Weight
• Base Panel : Min 5mm / Max 9mm	• Base Panel : Min 8 kg / m <sup>2</sup>
• Side Panel : Min 5mm / Max 12mm	• Side Panel : Min 8 kg / m <sup>2</sup>
• Roof Panel : Min 4mm	• Roof Panel : Min 6 kg / m <sup>2</sup>

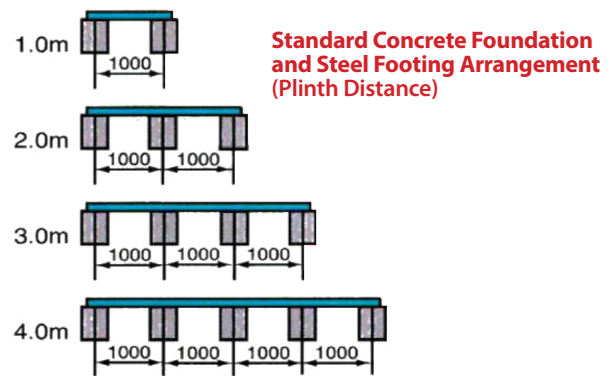
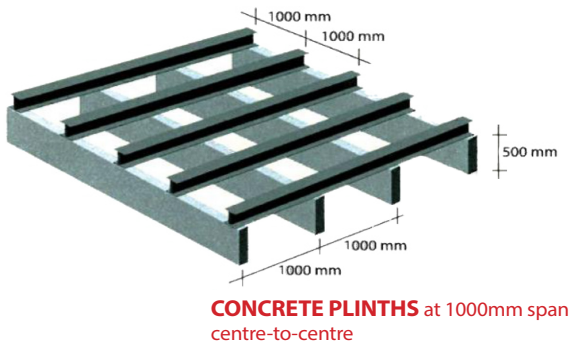
# Panel Material Characteristics

DESCRIPTION	FRP / GRP
Specific Gravity	1.8
Glass Content	more than 30%
Tensile Strength	1,020 kg / cm <sup>2</sup>
Young's Modulus	1.40 x 10 <sup>5</sup> kg / cm <sup>2</sup>
Flexural Strength	1,650 kg / cm <sup>2</sup>
Impact Strength	52.5 kg - cm / cm <sup>2</sup>
Compressive Strength	3,010 kg / cm <sup>2</sup>
Shear Strength	960 kg / cm <sup>2</sup>
Thermal Expansion	2.16 x 10 <sup>-5</sup> / °C
Coef. of Overall Heat Transmission	5.0 Kcal / m <sup>2</sup> hr °C
Thermal Conductivity	0.15 Kcal / m <sup>2</sup> hr °C
Water Absorption	Less than 0.2%
Cavity	Less than 0.2%
Light Transmittance (Riveria Blue)	Nil

## Typical Concrete Plinths Support

The concrete plinths should have :

- Width of 300mm and height of at least 500mm.
- Levelness to maximum tolerance of 5mm along and among all the plinths.



TANK HEIGHT	CONCRETE PLINTH SPAN
	1000mm
1.0 m	"C" - Channel 75 x 40
1.5 m	"C" - Channel 75 x 40
2.0 m	"C" - Channel 75 x 40
2.5 m	"C" - Channel 150 x 75
3.0 m	"C" - Channel 150 x 75
3.5 m	"C" - Channel 150 x 75
4.0 m	"C" - Channel 150 x 75

## **WARRANTY TERMS & CONDITIONS FOR YT PANEL TANK**

**YMF™** Fibreglass Industries Sdn. Bhd. provides an extensive guarantee on **YMF™** GRP / FRP sectional water tank is manufactured premium grade material and high quality control warranty of ten(10) years (warranty apply) from the date of handing over. And warranty of one (1) year on installation against leakage from the date of complete tank installation.

This guarantee does not include defects arising from improper use of the water storage tank, unauthorised repair, vandalism, failure of foundation/support and other external abuses.



## Steel Skin Base

Steel Skid Base is designed according to tank height. "C" - channels or I-beams are used depending on concrete plinth span and tank height and the recommended size are as below .

	Normal Tank size L x W (meter)	Panels In Tank (m <sup>2</sup> )				Nominal Capacity (Gallons)				Approx. Wt. Water (Tons)			
		1-m	2-m	3-m	4-m	1-m	2-m	3-m	4-m	1-m	2-m	3-m	4-m
Panel Tank Capacity Table	1 x 1	6	10	14	18	220	440	660	880	0.98	1.96	2.94	3.92
	1 x 2	1320	16	22	28	440	880	1320	1760	1.96	3.92	5.87	7.83
	1 x 3	14	22	30	38	660	1320	1980	2640	2.94	5.87	8.81	11.75
	1 x 4	18	28	38	48	880	1760	2640	3520	3.92	7.83	11.75	15.66
	1 x 5	22	34	46	58	1100	2200	3300	4400	4.90	9.79	14.69	19.58
	2 x 2	16	24	32	40	880	1760	2640	3520	3.92	7.83	11.75	15.66
	2 x 3	22	32	42	52	1320	2640	3960	5280	5.87	11.75	17.62	23.50
	2 x 4	28	40	52	64	1760	3520	5280	7040	7.83	15.66	23.50	31.33
	2 x 5	34	48	62	76	2200	4400	6600	8800	9.79	19.58	29.37	39.16
	2 x 6	40	56	72	88	2640	5280	7920	10560	11.75	23.50	35.24	46.99
	3 x 3	30	42	54	66	1980	3960	5940	7920	8.81	17.62	26.43	35.24
	3 x 4	38	52	66	80	2640	5280	7920	10560	11.75	23.50	35.24	46.99
	3 x 5	46	62	78	94	3300	6600	9900	13200	14.69	29.37	44.06	58.74
	3 x 6	54	72	90	108	3960	7920	11880	15840	17.62	35.24	52.87	70.49
	3 x 7	62	82	102	122	4620	9240	13860	18480	20.56	41.12	61.68	82.24
	4 x 4	48	64	80	96	3520	7040	10560	14080	15.66	31.33	46.99	62.66
	4 x 5	58	76	94	112	4400	8800	13200	17600	19.58	39.16	58.74	78.32
	4 x 6	68	88	108	128	5280	10560	15840	21120	23.50	46.99	70.49	93.98
	4 x 7	78	100	122	144	6160	12320	18480	24640	27.41	54.82	82.23	109.65
	4 x 8	88	112	136	160	7040	14080	21120	28160	31.33	62.66	93.98	125.31
	5 x 5	70	90	110	130	5500	11000	16500	22000	24.48	48.95	73.43	97.90
	5 x 6	82	104	126	148	6600	13200	19800	26400	29.37	58.74	88.11	117.48
	5 x 7	94	118	142	166	7700	15400	23100	30800	34.27	68.53	102.80	137.06
	5 x 8	106	132	158	184	8800	17600	26400	35200	39.16	78.32	117.48	156.64
	5 x 9	118	146	174	202	9900	19800	29700	39600	44.06	88.11	132.17	176.22
	6 x 6	96	120	144	168	7920	15840	23760	31680	35.24	70.49	105.73	140.98
	6 x 8	124	152	180	208	10560	21120	31680	42240	46.99	93.98	140.98	187.97
	6 x 9	138	168	198	228	11880	23760	35640	47520	52.87	105.73	158.60	211.46
	7 x 7	126	154	182	210	10780	21560	32340	43120	47.97	95.94	143.91	161.88
	7 x 8	142	172	202	232	12320	24640	36960	49280	54.82	109.65	164.47	219.30
	7 x 9	158	190	222	254	13860	27720	41580	55440	61.68	123.35	185.03	246.71
	8 x 8	160	192	224	256	14080	28160	42240	56320	62.66	125.31	187.97	250.62
	8 x 9	178	212	246	280	15840	31680	47520	63360	70.49	140.98	211.46	281.95
	9 x 9	198	234	270	306	17820	35640	53460	71280	79.30	158.60	237.90	317.20

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