

WE LEAD AND OTHERS FOLLOW
IN

Metal, FRP, Polycarbonate, PVC Building & Industrial Roofing Products



ROOFING DIVISION

- Color Coated Metal Profile Roofing Sheets
- FRP Skylights Roofing Profile Sheets
- FRP Chemical Resistant Profile Sheets
- FRP Panel Sheets for Cooling Tower (CTI - 131)
- FRP Chemical Lining
- FRP Rain Water Gutter for Roofing
- FRP Gratings
- Wind Driven Roof Turboventilators with Matching FRP Base Plate in any profile
- Polycarbonate Skylight Roofing Profile Sheets
- Polycarbonate Multiwall Sheets



DOOR DIVISION

- FRP Door Shutter - Panel Type
- FRP Door Shutter - Flush Type
- FRP Door Shutter Frame / Chowkhat
- FRP Chajja
- PVC Solid Foam Sheet Door & Frame
- PVC Solid Foam Profile Door & Frame
- UPVC Hollow Profile Door & Frame

Above Door & Frame are as per CPWD- DSR, DGMAP, Railways
SOR, AWHO, CGEWHO, PWD & Customized Specification

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Leaders in FRP & Polycarbonate Roofing & Building Products

About Us

We are pleased to introduce ourselves as the leading manufacturer of **Fiberglass Reinforced Plastic (FRP), Polycarbonate & PVC Roofing & Building Products**. We at “**Fibreways Technology**” are committed to manufacture and deliver high standard quality Products at low cost to the complete satisfaction of the customer.

Fiberglass reinforced plastic and Polycarbonate offers almost unlimited possibilities for shape, size and color and can be produced with a variety of surface finishes and is known for its aesthetic appeal, strength, durability, water proof, light weight, dimension stability, high resistance to corrosion, weather resistant and easy to install, maintain and repair. FRP/PC products combine these outstanding characteristics with total freedom of design in endless application, be it Engineering / chemical industry, building and construction, architectural design and custom made products.



Vision

- To become the World's Leading Company for Complete Roofing Systems, FRP Doors & Frame and Gratings by year 2020.
- To adopt World Class State-of-the-Art Manufacturing Facility using the latest and competitive Technological Methods.
- To cater to all building sectors where there is a demand for Roofing, Door & Composite based products.
- To create value for our customers through our products and services.
- Continue to grow as people's company and make environment Green.



Mission

Fibreways strives to provide high quality FRP & Polycarbonate Roofing & Door Products at competitive prices with on time delivery.

Fibreways believes in doing business with ethics.

Fibreways is committed to deliver continual progress by adopting new technologies and practices for sustainable development.

Fibreways fosters health & well being of their employees.

Quality Assurance

Being an ISO 9001 Certified Company, we strongly believe in maintaining high quality Standards towards procurement of raw material and manufacturing of final Products. With well established and dedicated quality assurance department and Quality Assurance Plan (QAP) for each product, all defined parameters are followed to ensure product conformity and timely delivery of the material.



Team

We at Fibreways has an amalgamation of qualified, committed, experienced and dedicated team striving to work together with the prime objective of providing best of the products over minimum period of time at competitive prices along with best of after sales service.



**Approvals, Product Incorporation and Major Application
Sectors & Users**

Approvals & Product Incorporation

- Directorate General Married Accommodation Project
E-in-C's Branch, Army HQ
- CPWD – DSR
- DDA
- PWD
- Railways – SOR
- CGEWHO
- AWHO

Major Application Sectors & Users

CPWD, DDA, MES, PWD, Mecon Ltd., EIL, PSU- Steel, Mining & Power Sector, AWHO, CGEWHO, UPHSDP, AIIMS, DUSIB, Airport Authority of India, Ministry of Defense, World Bank Funded Projects, DRDO, State & Central Govt. Hospital Projects, RITES, National & International Stadium Projects, CRPF, BSF, Railways, MTNL, BSNL, DSIDC (Delhi Govt.), Automobile Sector, Pharmaceutical and Various Renowned Architects and Builders.

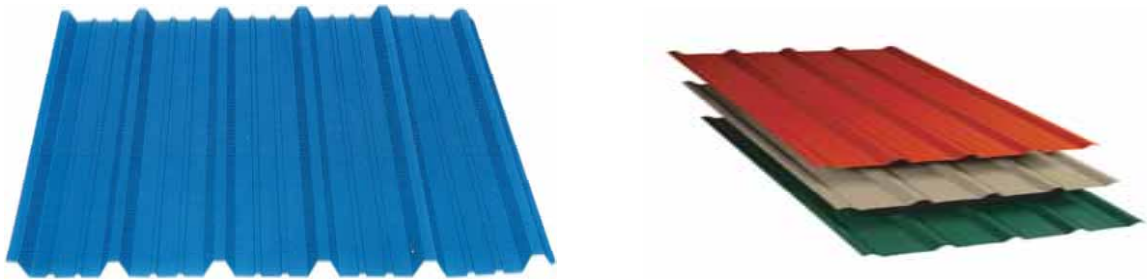
ROOFING DIVISION

3.1 Color Coated Metal Profile Roofing Sheets

Fibreways Technology has complete expertise in sourcing of quality color coated coils to manufacture and profile durable roofing and cladding system that are well versed with the specification and environment.

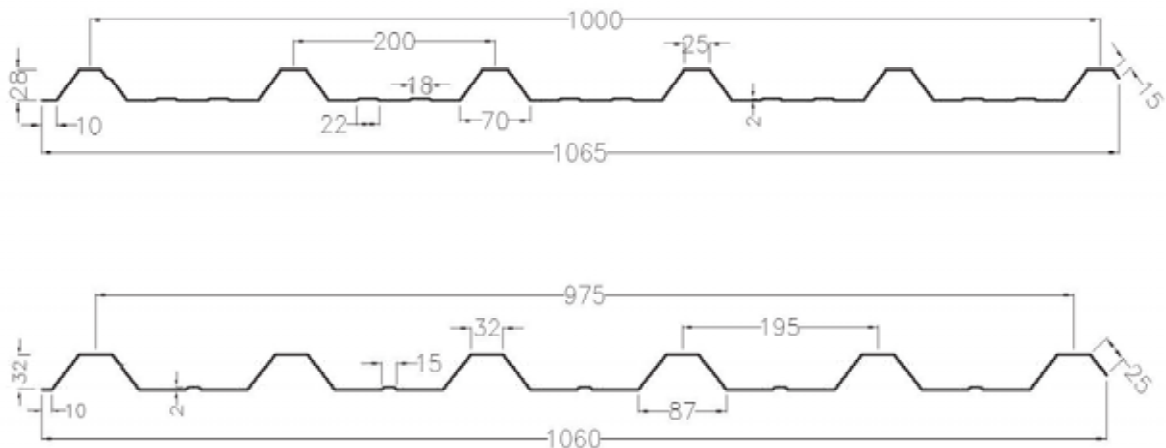
METAL HI-RIB TRAPEZOIDAL PROFILE ROOFING & CLADDING SHEETS

With high precision roll-forming machines, Roofing / Cladding Profile Sheets are manufactured from the finest high quality rolled sheets having excellent corrosion, weather resistance and long life.



HI-RIB PROFILE

Trapezoidal Profile Drawing



Types of Color Coated Metal Sheets

1. Pre-Painted Galvanised Steel Sheets (PPGI)
2. Pre-Painted Galvalume Steel Sheets (PPGL)
3. Bare Galvalume (Without Color)

Types of Final Top Coatings in Desired Color

1. Regular Modified Paint (RMP)
2. Silicon Modified Paint (SMP)
3. Poly Vinylidene di-Fluoride (PVDF2)

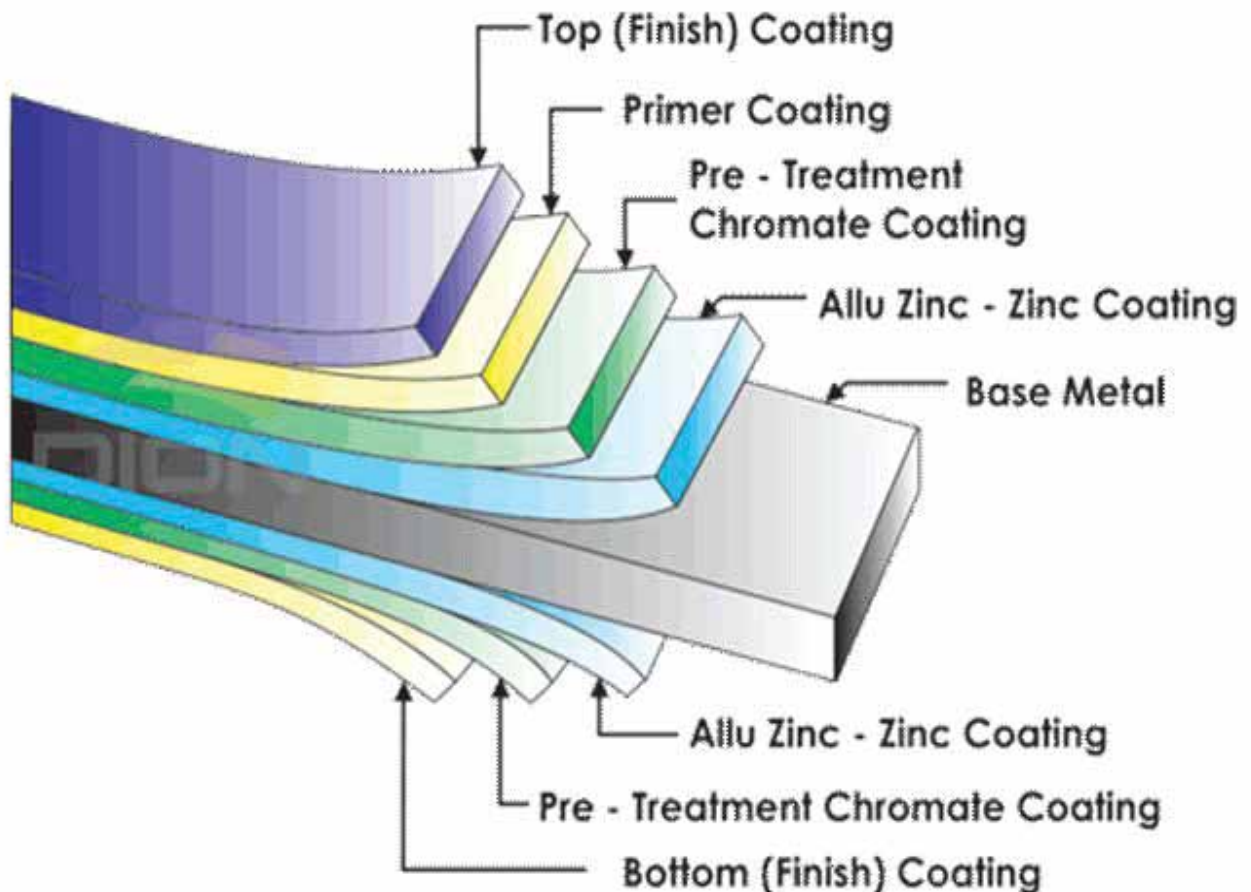
Color Shade: Colors can be provided as per Standard RAL Shade Card subject to availability.

Widely used colors as per RAL Shade Code are as follows:

| | |
|-------------|----------|
| Light Blue | RAL 5012 |
| Off White | RAL 9002 |
| Leaf Green | RAL 6002 |
| Grass Green | RAL 6010 |

References Codes

- ◆ Galvanising IS : 277
- ◆ Substrate IS : 513
- ◆ Pre-Painting IS : 14246
- ◆ ASTM : A653, A755



Leaders in FRP & Polycarbonate Roofing & Building Products

| Technical Specifications of Pre-Painted Galvanised Steel (PPGI) | |
|---|--|
| Substrate | IS : 513 Cold Rolled Steel Coils |
| Tensile Strength | 240 Mpa |
| Galvanising | IS : 277 / IS : 3302 |
| Zinc Coating | Pure lead free Zinc 120 GSM (Both side mass) |
| Pre Painting | IS : 14246 / JIS 3312 |
| Type of Coating | RMP / SMP |
| Total Coated Thickness | 0.40 mm - 0.80 mm |
| Tolerance | ± 0.03 as per IS : 513 |

| Technical Specifications of Aluminium Zinc Alloy Coated Steel (Galvalume) | |
|---|--|
| Combination | 55% Aluminium, 43.4% Zinc & 1.6% Silicon |
| Coating Standard | As 1397 - 1993 |
| Material | Bare Galvalume - ASTM A792M |
| Coating Mass | AZ 150 |
| Base Metal | High Tensile Steel |
| Tensile Strength | 550 Mpa |
| Total Coated Thickness | 0.40 mm - 0.60 mm |
| Tolerance | ± 0.04 as per AS / NZS 1397 |

| Materials | | | |
|-----------|------------------------|---------|----------------|
| 1. | PPGI | 240 Mpa | 0.40 – 0.80 mm |
| 2. | Bare Galvalume | 550 Mpa | 0.40 – 0.60 mm |
| 3. | Color Coated Galvalume | 550 Mpa | 0.40 – 0.60 mm |

Tolerances

1. Length ± 20 mm.
2. Diagonal difference ± 20 mm.
3. Width ± 25 mm.

Key Features

1. Accurate thickness, width & length helps to give the perfect fit for any roof.
2. Resistance to extremity of weather.
3. Excellent Corrosion Resistance.
4. Very low maintenance.
5. Attractive colors & flexible design
6. Unique profile having high strength to weight ratio.
7. Can withstand wind speed of approx. 200 kmph fixed with SDF screws.
8. Excellent coverage of space.
9. Strong, durable and total safety.

Technical Details

Load Chart

| Sheet TK mm | Load Case | Purlin Spacing Meter | | | | | | | | | | |
|-------------------|--------------|----------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | 1.0 | 1.1 | 1.2 | 1.3 | 1.4 | 1.5 | 1.6 | 1.7 | 1.8 | 1.9 | 2.0 |
| 0.35 | Udi-DLLL | 306.4 | 230.2 | 177.3 | 139.5 | 111.7 | 90.8 | 74.8 | 62.4 | 52.5 | 44.7 | 38.3 |
| | Udl- wind | 574.6 | 431.7 | 332.5 | 261.5 | 209.4 | 170.2 | 140.3 | 116.9 | 98.5 | 83.8 | 71.8 |
| 0.4 | Udi-DLLL | 395.7 | 297.3 | 229 | 180.1 | 144.2 | 117.2 | 96.6 | 80.5 | 67.8 | 57.7 | 49.5 |
| | Udl- wind | 741.8 | 557.4 | 429.3 | 337.7 | 270.4 | 219.8 | 181.1 | 151 | 127.2 | 108.2 | 92.7 |
| 0.47 | Udi-DLLL | 521.6 | 391.9 | 301.9 | 237.4 | 190.1 | 154.6 | 127.4 | 106.2 | 89.4 | 76.1 | 65.2 |
| | Udl- wind | 978.1 | 734.8 | 566 | 445.2 | 356.4 | 289.8 | 238.8 | 199.1 | 167.7 | 142.6 | 122.3 |
| 0.5 | Udi-DLLL | 574.4 | 432.3 | 333 | 261.9 | 209.7 | 170.5 | 140.5 | 117.1 | 98.7 | 83.9 | 71.9 |
| | Udl- wind | 1078.9 | 810.6 | 624.4 | 491.1 | 393.2 | 319.7 | 263.4 | 219.4 | 185 | 157.3 | 134.9 |
| 0.6 | Udi-DLLL | 736.8 | 553.6 | 426.4 | 335.4 | 268.5 | 218.3 | 179.9 | 150 | 126.3 | 107.4 | 92.1 |
| | Udl- wind | 1381.6 | 1038 | 799.5 | 628.8 | 503.5 | 409.4 | 337.3 | 281.2 | 236.9 | 201.4 | 172.7 |

Note:

DLLL

Dead Load + Live Load (Deflection Limitation : Span/180)

UDL-Wind

Uniform Distributed Load - Wind (Deflection Limitation Span / 120)

| Full Properties | | | | | Reduced Properties | | | |
|-----------------|-----------------------------|-------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Thick mm | Weight Kg/m ² | Area Cm ² | Ixx Cm ⁴ | Zxx Cm ³ | Small Flange in Comp | | Large Flange in Comp | |
| | | | | | Ixx Cm ⁴ | Zxx Cm ³ | Ixx Cm ⁴ | Zxx Cm ³ |
| 0.55 | 5.393 | 6.875 | 10.849 | 5.095 | 10.060 | 4.088 | 6.814 | 3.583 |

| | |
|---------------------------------------|---------------------------------------|
| Ixx Cm ⁴ Moment of Inertia | Zxx Cm ³ = section Modulus |
|---------------------------------------|---------------------------------------|

| 30mm Deep Profile – 1000mm Cover Width | | Applied Load in kN/m ² | | | | | | |
|---|--------------|-----------------------------------|------|------|------|------|------|------|
| Thick mm | Load Type | Span in Metres | | | | | | |
| | | 1.2 | 1.4 | 1.6 | 1.8 | 2.0 | 2.2 | 2.4 |
| 0.55 | Dead+Super | 4.49 | 2.84 | 1.88 | 1.31 | 0.94 | 0.70 | 0.52 |
| | Wind Suction | 4.19 | 2.66 | 1.80 | 1.28 | 0.94 | 0.72 | 0.57 |
| Deflection: Dead + Super Loads = L/200 Deflection: Wind Suction Loads = L/150 Note: All Intermediate values within the limits of the table may be obtained by linear interpolation. | | | | | | | | |

CLIP LOK PROFILE

Clip Lok Profile is a strong, durable, versat and long-length roof. It combines the strength of st with smart fluted pans and a lock-action rib design.

Even for roof pitches as low as 20 where no ends laps are used, the interlocking ribs, together with concealed fastening, ensure weather resistance. It is designed particu- larly for low-pitch roof application. **Clip Lok Profile is a screwless roof with unmatched performance.**



CLIP LOK PROFILE

STANDING SEAM ROOF SHEET

Standing Seam Roof System is steel roofing like membrane structure covering the entire building with panels joint together with a double lock standing seam and a uniquely designed clip like, formed into the seam at site in a unique fixing style that requires no drilling of holes. The panels are joint and are permanently seamed together with a full 360° double lock seam to prevent 100% moisture / water leakages making it dust free with no overlapping joints along the slope or holes unlike other fixing methods adopted for sheet roofing.



STANDING SEAM PROFILE

The unique feature of standing seam roof is its ability to accommodate thermal expansion and contraction. This fixing arrangement system allows for the roof to practically float over the structure without being affected by temperature variations and it also allows the roof to withstand high wind uplift loads.

Advantages

- ◆ No overlap joints along the span of the roof hence completely eliminating water leakages.
- ◆ Requires lighter support structure as compare to other metal roofing profiles and systems.
- ◆ Standing Seam Roofing sheets can be fabricated at site in desired length of any size as per site conditions hence eliminating cost of transportation and damages.
- ◆ As the sheets are seamed hence there is no physical damage in terms of puncturing the sheets for making holes making provision for fixing as done in other roofing system, eliminating leakages and corrosion.
- ◆ The fixing arrangement is so technically designed having provision for thermal expansion and contraction hence no warping or bending of sheets due to extremes of weather and temperature.
- ◆ With no perforation or exposed fasteners, standing seam roofing offers an exceptionally durable and maintenance free roof for years.

STEEL DECKING SHEET

Our range of steel decking profiles made out of Plain Cold Rolled (CR) steel, Galvanized Steel (GP), and Colour Coated Steel (CCS) with yield strength ranging between 240 to 550 Mpa.

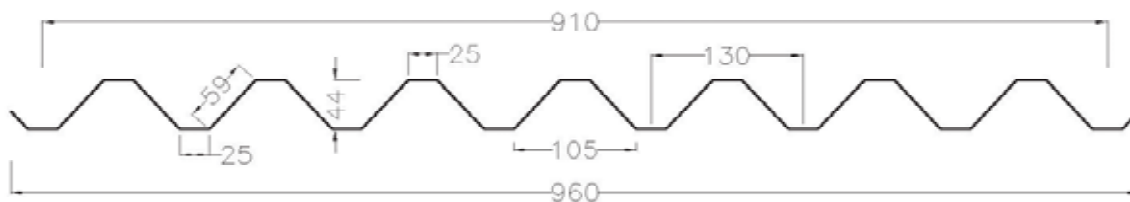
Details of Base Material

| | |
|---------------------|--------------------------------|
| Cold Rolled Steel | As per IS 513 |
| Galvanized Steel | As per IS 277 (120 to 450 Gsm) |
| Colour Coated Steel | As per IS 14246-95 |

Specification

| | |
|-----------------|---------------------|
| Input Width | 1220 mm \pm 20 mm |
| Overall Width | 960 mm \pm 10 mm |
| Effective Width | 910 mm |
| Pitch | 130 mm |
| Depth | 44 mm |

Leaders in FRP & Polycarbonate Roofing & Building Products



Note:

1. All dimensions are in mm.
2. Dimensional tolerance are as per IS-277-2003 (Av. of measurements).
3. Yield strength of steel sheet shall be 250 Mpa minimum.
4. Base metal thickness 0.80 mm - 2.0 mm.

Load Chart

| BMT | Yield Strength | Total Uniform Distributed Load kg.m ² (For 1 m Width) | | | | |
|------|----------------|--|-------------|-------------|-------------|-------------|
| | | Max permissible span in meters | | | | |
| mm | mpa | 1.0 m ms | 1.5 m ms | 2.0 m ms | 2.5 m ms | 3.0 m ms |
| 0.63 | 220 | 1375 | 610 | 340 | 220 | 150 |
| 0.63 | 550 | 1830 | 810 | 455 | 290 | 200 |
| 0.8 | 220 | 1740 | 770 | 435 | 275 | 190 |
| 0.8 | 550 | 2325 | 1030 | 580 | 365 | 255 |
| 1.0 | 220 | 2165 | 960 | 540 | 340 | 235 |
| 1.0 | 550 | 2890 | 1280 | 720 | 460 | 315 |

Advantages

- ♦ It will reduce the shuttering time and cost.
- ♦ It will enable fast construction of building roofs and floors, thereby saving up to 50% of construction time of the slab and roof.
- ♦ Once designed as composite structural, it will allow either to reduce or to eliminate the structural steel used in RCC slabs.
- ♦ Internal plastering of roofs can be eliminated because steel roof decking gives aesthetic look internally also.

Product Applications

- ♦ Roof Decking range offers a variety of metal thickness (0.50 mm to 1.00 mm) profile and finish to meet differing requirements regarding span, insulation, water proofing, imposed load, and any other considerations.
- ♦ It can be used as a permanent structural support member for slab.

RIB TILE PROFILE

Our colour metal roofing is the most versatile product in the market and offers you both elegance and flexible design for any building need.

Material Specifications

Pre-painted Galvanized Steel Sheets (GI-Base)
Hot dipped galvanized pre-painted steel sheet.
Zinc Alum Steel Sheet (Galvalume) Non-colour
(55% Aluminium 43% Zinc 1.6% Silicon)
Alu Zinc Coating : AZ 150 (Option AZ 100)



RIB TILE PROFILE

Advantages

- ◆ Economical Roof Profile with excellent design flexibility.
- ◆ 250 mm pitch for easy water shedding.
- ◆ Available in 0.47, 0.50, 0.55, 0.60 mm thickness.
- ◆ Cover width Rib in 1010 mm available upto 13 m in length.
- ◆ Special side lap corrugation gives extra support at panel overlap.

WAVE TILE PROFILE

Our colour metal roofing is the most versatile roofing product in the market and offers you both elegance and flexible design for any building need.

Material Specifications

- ◆ Maximum pitch 200 mm.
- ◆ Minimum crest 33 mm.
- ◆ Depth with cover width of 1000 mm.
- ◆ Using 0.3-0.6 mm colour coated steel as per IS – 14246.
- ◆ Zinc coating of 120 Gsm/m².
- ◆ Top organic coating of polyester paint 16-18 microns.
- ◆ Over 5-7 microns epoxy primer.
- ◆ Back coat of 7-10 microns epoxy paint.
- ◆ Sheet to be longer in required length up to 13 meters.
- ◆ Fixed using self drilling and self tapping screws of size 12 x 14 x 25 mm.
- ◆ Sealed with integrated EPDM rubber washer for water tight fixing.
- ◆ Side laps to be stitched using Aluminium pop rivets.



WAVE TILE PROFILE

Key Features

- ◆ Architecturally attractive, durable and add aesthetic look to the building.
- ◆ Strong, resistant to fire and to all weather conditions.
- ◆ Easy to assemble. Saves time and labour cost.
- ◆ Light, easy to handle and store.
- ◆ Does not brake, crack or leak.
- ◆ Environment friendly.
- ◆ Thickness available 0.3-0.6 mm.
- ◆ Length any size from 1 mtrs. to 13 mtrs.
- ◆ Offers the beauty of clay tile with minimal dead weight on the roof.
- ◆ Unbeatable hurricane, hail and all-weather resistance.
- ◆ It also eliminates problems of pest infestation and rot that occur with wood and clay roofing material.

CURVED PROFILE SHEET

Metal Profile Sheets are available in round (Concave/Convex) curved sheets to match the structural design giving architectural features to the building. The span (radius) are as per your requirement down to minimum recommendation of 500 mm.



CURVED PROFILE



Accessories

'Z' & 'C' PURLINS

'Z' & 'C' Purlins are structural members designed and produced using the advanced technology, quality and customer oriented services, for use as secondary supports for economical roof sheeting and wall cladding systems in any type of building with following added advantages:

1. Continuous splay or splicing for better structural strength, stability & economy.
2. 45° Lip for better sectional modulus and easy nesting. These are supplied in required length with pre-punched holes for quick bolting. The system gives an excellent strength to weight ratio with flexibility for specific size requirement.

Surface Treatment

'Z' & 'C' purlins are made of Hot Rolled Coils are degreased, phosphated and then primer finished with Zinc Chromate Red Oxide Paint-matching test requirement of IS : 4777 and IS : 2074.



'Z' & 'C' PURLINS



SCREWS

SCREWS



SCREWS

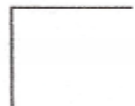

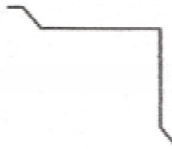










LOUVERS

LOUVERS

Leaders in FRP & Polycarbonate Roofing & Building Products

Special treatment to combat severe atmospheric corrosion can be offered...
Metal Flashing, Ridge & Gutters

| FLASHINGS & GUTTERS | |
|---|---------------------------------|
|  | INTERNAL CORNER FLASHING |
|  | EXTERNAL CORNER FLASHING |
|  | REVERSE CORNER FLASHING |
|  | BOTTOM FLASHING |
|  | APRON FLASHING |
|  | RIDGE CAP |
|  | BARGE FLASHING |
|  | FLASHING GUTTER |
|  | VALLEY GUTTER |
|  | EAVES GUTTER |
|  | U - GUTTER |

3.2 FRP Skylight Roofing Profile Sheets **As per IS 12866**

“Fibreways” has been manufacturing superior grade Fiberglass and Polycarbonate roofing and Cladding products, translucent, clear and opaque finish for all kinds of Industrial Warehouse, Residential, Commercial buildings and open sheds.

A naturally well lit building of any kind that is bright and with full of soothing light seems more in touch with Mother's Nature, when you allow all the natural Sunshine goodness inside the building. Natural light is very important in creating conducive environment for educational, residential & industries, always resulting in better achievements and higher productivity.

In short, it is an undisputed fact, that people are – more happier and productive in buildings that are naturally lit. Moreover, with the recent focus on sustainability



and reduction of every day consumption and CO₂ emission, the benefits of roof lighting have become compelling and forms very important part of any building in terms of utility, application, architectural and aesthetic looks along with sustainability and durability of the Skylight Product being used.

Hence, the selection of rooflight product becomes very important and sometimes an architectural choice, but is usually more influenced by the roof system in terms of geographical location, application, durability, looks and environment.

Types of different Durable Rooflight Products:

1. **FRP Roofing** Products- Available in Clear & Color Translucent Sheets and opaque Sheets in plain & embossed finish.
2. **Polycarbonate Roofings** products – Clear & Color Translucent Sheets in plain & embossed finish.

FRP Roofing System

FRP Skylight Sheets is a wonder composite material consisting of Fiberglass reinforcement in a matrix of UV Stabilized unsaturated polyester sheet grade resin system forming a tough laminate in desired profile having exceptional strength to

Leaders in FRP & Polycarbonate Roofing & Building Products

weight ratio. FRP offers almost unlimited possibilities for shape, size, profile and color and known for its high strength, durability, water/chemical proof, dimensional stability, high resistance to environmental corrosion due to extremes of temperature and weather including emission of natural and Industrial Chemical fumes. FRP Sheets are light in weight, good aesthetic appeal, easy to install and maintain.

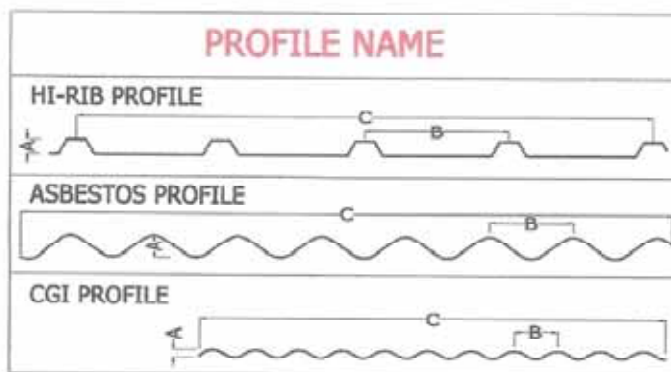
We at “**Fibreways**” are manufacturing FRP Sheets using State-of-the-Art sandwiched molding process resulting in excellent smooth glossy surface finish.

Range & Types of FRP Roofing Sheets UV Stabilized:

1. FRP Translucent Skylight Roofing & Cladding Sheets for **industrial Building** as per IS 12866
2. FRP Translucent or Pigmented Opaque Chemical resistant Sheets for **Chemical Industry**.
3. FRP Translucent or Pigmented Opaque Sheets for **Buildings in Corrosive Environment of Coastal Area**.
4. FRP Weather Resistant sheets & panels for **Cooling Towers as per CTI – 131**
5. FRP Weather Resistant & Fire Retardant Gelcoated Sheets in desired color for any **customized roofing or other application**.

Note: We at “**Fibreways**” have Complete Technical expertise to manufacture FRP Sheets customized to match the requirements, specifications & applications in any profile.

Annual Capacity: With dedicated and motivated skilled force, having state-of-the-Art manufacturing facility and factory area spread over more than 30,000 sq. ft., annual capacity for manufacturing of any kind of FRP Sheet is 250,000 sq. mtr. Approx.



Standard Technical Specification of FRP Roofing Sheets

- Standard Length: Any Length as per Transportation facility.
- Profile: Any profile according to requirement
- Thickness: 0.8 mm to 3.00 mm
- Standard Colour: Translucent/ Opaque- As per RAL Colour Shade
- Surface: Top Anti-aging U/V Resistant film Bottom- Optional
- Density: 1.60 - 1.65 kg/m² per 1 mm (± 5%) for Profile Sheets.

Leaders in FRP & Polycarbonate Roofing & Building Products

- Temperature: -50° C to +120° C
- Bending Strength: ≥ 105 Mpa
- Tensile Strength: ≥ 60 Mpa
- Modulus of Elasticity: ≥ 4500 Mpa
- Thermal Linear Co-efficient of Expansion: $6.7/^\circ\text{C} \times 10^{-5}$
- Barcoal Hardness: > 40 Barcoal
- Self Ignition Temperature: 485° C
- Glass Content: $>25\%$
- Light Transmission: Max. 85%
- Water Absorption: Max. 0.2%
- Flamability as per UL-94

Properties & Features at a Glance

- Very high mechanical strength
- Shatter Resistance
- Light Weight
- Maintenance Free
- Size Flexibility
- Environment Friendly
- Excellent Corrosion Resistance
- Ease in handling & Installation
- Excellent Light Diffusion & Light Transmission
- Excellent Weather & Temperature Resistance
- Thermal Movement matching to any kind of RCC or Pre-Engineered Building system
- UV Resistant
- High Impact Resistance
- Hail Storm Resistant Sheets
- Resistant to Chemicals
- Durable & Long Life
- Dimension Stability
- Low Thermal Conductivity

Applications

- Industrial Building Roofing/ Cladding for Natural lights.
- Architectural Building/ Institutions/ Airport for natural lights & aesthetic look.
- Industrial Roofing/ Cladding of Chemical Plants using special surface coatings in Translucent & opaque finish.
- Cladding/ Louvers Sheets for cooling towers against harsh weathering & corrosive environment.
- Green House Roofing sheets.
- Parking areas/ Walkways/ Garages.
- Roofing/ Cladding & Buildings for coastal areas to protect against harsh corrosive environment.

Selection from Range & Types of FRP Roofing Sheets is very important and should be done based on its application and utility for best outcome and performance.










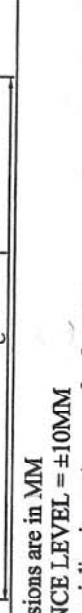

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Advantages of FRP Sheets over other Roofing Material Sheets

| S. No | Parameters | FRP Sheet | Acrylic Sheet | Polycarbonate Sheet |
|-------|---|---|----------------------|---|
| 1. | Shatter Resistance | Yes | No | Yes |
| 2. | Impact Resistance | Very High | Low | Good |
| 3. | Light Diffusion | Excellent | Glaring | Glaring |
| 4. | Corrosion Resistance | Excellent | Poor | Good |
| 5. | Thermal Insulation | Excellent | Poor | Average |
| 6. | Maintenance | Free | Frequent Replacement | Periodical Replacement |
| 7. | Weight | Very Light | Light | Light |
| 8. | U/V & anti aging film | Yes | No | U/V Yes Anti aging film- no |
| 9 | Whether Resistant | Excellent | Very Poor | Medium |
| 10 | Colour & Design | Many/ Versatile | Very Limited | Limited color option |
| 11. | Life | Min. 10 Years | Not Recommended | 3-4 Years |
| 12. | Co-efficient of expansion & contraction- vis-à-vis PEB/ M.S structure | Good Compatibility with existing structure | Very Poor | Compatible under normal weathering conditions |
| 13. | Tensile Strength | $\geq 1050 \text{ kg/cm}^2$ | - | $< 676 \text{ kg/cm}^2$ |
| 14 | Co-efficient of Thermal Expansion | $0.9-1.8/^\circ\text{C} \times 10^{-5}$ | - | $6.7/^\circ\text{C} \times 10^{-5}$ |
| 15 | Fire Performance (Opaque sheets) | Fire Retardant/ Optional | Highly Inflammable | Fire Retardant/ Optional |

FRP Sheet Drwaing

FRP ROOFING PROFILES

| S. NO | PROFILE | TROUGH DEPTH A | PITCH C/C B | WIDTH C | PROFILE NAME |
|-------|--|-------------------|----------------|------------|---------------|
| 01 |  | 32 | 250 | 1087 | NATIONAL 1000 |
| 02 |  | 28 | 353 | 1126 | NATIONAL 1060 |
| 03 |  | 30 | 250 | 1020 | MULTI-RIB |
| 04 |  | 31 | 195 | 855/1050 | UNIMET |
| 05 |  | 32 | 186 | 930 | MULTI-CLAD |
| 06 |  | 38 | 190 | 1060 | ISPAT |
| 07 |  | 44 | 130 | 694/824 | UNIMET DECK |
| 08 |  | 28.5 | 177.5 | 987 | UNIMET TILE |
| 09 |  | 41 | 215 | 430 | MULTI-LOK |
| 10 |  | 18 | 75 | 810 | GC |
| 11 |  | 50 | 146 | 1050 | ASBESTOS |

All Dimensions are in MM

TOLERANCE LEVEL = ± 10 MM

We also specialize in custom-made sheets to your requirements and specifications.

3.3 FRP Chemical Resistant Sheet For Roofing & Cladding

Technical Note on FRP Chemical Resistant Sheets for Industrial Building Roofing or Cladding

Industrial Roofing and Cladding are exposed to extremes of weathering conditions, water, chemical fumes or chemical environment and constant exposure to humid conditions. Under these conditions Roofing & Cladding are prone to corrosion and selection of Roofing material should be done accordingly.

Normally, Color Coated Profile Metal Sheets in 0.5 mm thickness are used for roofing in combination with FRP Skylights, FRP Gutter, Turbo Ventilator and Accessories under normal weathering and environmental conditions. In general, Mild Steel are highly corrosive material even under normal environmental conditions but the same is color coated with few microns of weather resistant paints which has very limited self life. But in presence of harsh weathering, chemical fumes or coastal environments, the M.S. Color Coated Profile Sheets are under constant threat of corrosion and not recommended for Roofing taking into consideration of minimum 10 years self life.

FRP Skylight / Chemical Resistant Sheets is a Fiber Glass Reinforced u/v stabilized unsaturated Polyester resin system composite material consisting of a network of reinforcing glass fibers embedded in a matrix of thermosetting resin. FRP offers almost unlimited possibilities for shape, profile, size and color, which is known for its high resistance to wreathing & environmental corrosion, chemicals, fumes with inherent property of high strength, durability, water, chemical proof, light weight, dimensional stability, aesthetic appeal and easy to install and maintain.

At **“Fibreways”** we are India’s First Manufacturer to have developed special process for manufacturing of FRP Chemical Resistant Sheets, in which two step special coating is done to provide maximum resistance against most of the harsh chemicals at elevated temperatures and retaining the mechanical properties of the sheet. The said sheets are custom made in any required profile and in transportable length. Due to two step protection against corrosion the sheet has enhanced life of more than 15 - 20 years and are best suited and recommended roofing sheets under these circumstances and to replace the conventional roofing system which used to weather out and corrode very fast and required heavy maintenance periodically.

Life cycle costs of FRP Chemical Sheets are very economical as compared to other conventional roofing material due to above said properties of the sheets.

Properties & Advantages

- a. **Excellent corrosion resistant** from all kind of alkali, acid, chemical fumes, coastal environment, water and extremes of weather & temperature.
- b. **Superior Tensile Strength** – FRP Sheets has very high tensile strength to weight ratio.
- c. **Thermal Properties** – FRP Sheets have a low co-efficient of thermal expansion with compatible co-efficient of expansion and contraction vis-à-vis PEB/M.S. Structure.

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- d. **Dimensional Stability** – FRP Sheets do not shrink or stretch within the limits of their strength even during long period of use.
- e. **Electrical Characteristics** – FRP Sheet has high di-electric constants.
- f. **Considerable Design Versatility** – Can be molded to match your profile in any transportable length.
- g. The said FRP Chemical Resistant sheets are available in Translucent & Opaque colors.
- h. Barcoal Hardness, water absorption, Fiberglass content & light transmission as per IS – 12866.
- i. Shatter and hail storm resistance sheet.
- j. High impact resistant sheet.
- k. Light weight and unbreakable.
- l. Environment friendly.
- m. Flexibility in sizes, color and thickness (as per span of Purlins)
- n. Maintenance free, easy to handle and install.
- o. Fire-retardant properties if required.
- p. Very long life — 15-20 years with anti-ageing film.



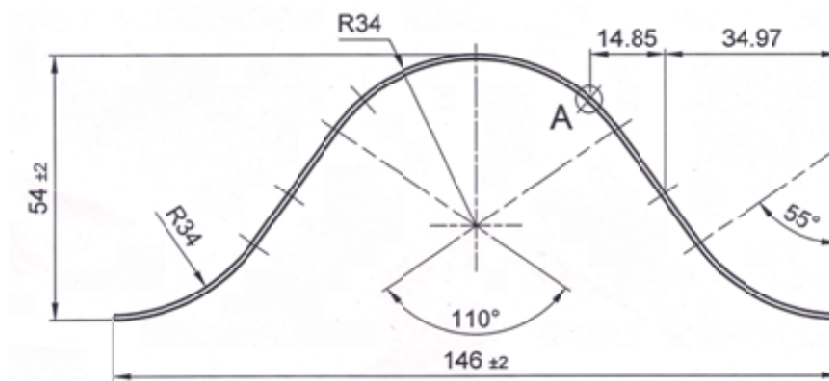
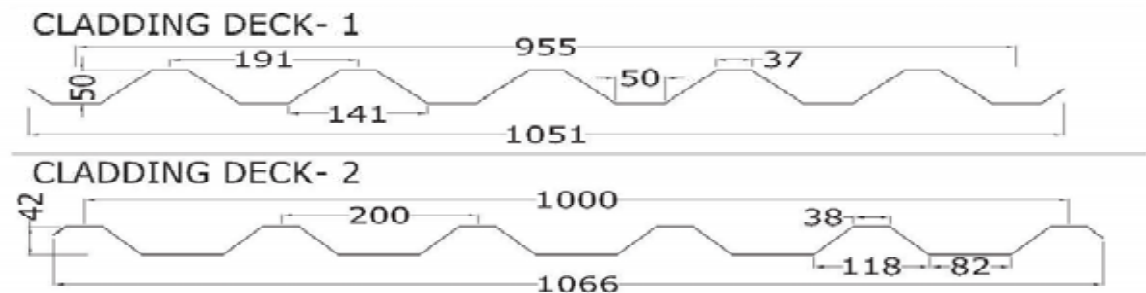
FRP CHEMICAL RESISTANT CLADDING SHEETS FOR CHEMICAL TREATMENT PLANT

3.4 FRP Panel Sheet for Cooling Towers

Cooling Tower Institute, an International body constituted to lay down the complete standards for various parts and products to be used in various kind of Cooling Towers. CTI - 131 is the standard for manufacturing of FRP Panels and sheets for Cooling Towers and we at “Fibreways” are the pioneers in making of high quality GRP/FRP Panels in required profile and length strictly in compliance with drawings and specification provided and in accordance with CTI - 131 standard.

APPLICATIONS IN COOLING TOWERS

1. Fiberglass Reinforced Plastics profile Panels as Louvers.
2. Fiberglass Reinforced Plastics profile Panels as Cladding.
3. Fiberglass Reinforced Plastics profile Panels as Internal / Partition Walls between the fills.
4. Fiberglass Reinforced Plastics Wave Drift Eliminators



Wave Drift Eliminator

DRAWING & LAYOUT

Standard Louver / Cladding Panel Profile Sheets

Fiberglass Reinforced Plastic Panels are manufactured in accordance with standards like IS: 12866 / CTI – Std. 131 as agreed with the clients in their respective standard profile drawing and specifications including material of construction. The relevant tolerances are as per standards or in case of any deviation shall be in agreement with the said manufacturer. Most commonly used standard drawings are given above, as Cladding Deck Profile 1 & 2 and if required we are competent to develop and supply the product in any profile and length as desired/ specified by the manufacturer.

Tolerance on length and width shall be $\pm 6\text{mm}$

Tolerance on given dimension shall be $\pm 1.5\text{mm}$

Tolerance in density $\pm 5\%$ (from the mean density)

Tolerance in pitch and depth of the profile $\pm 1.5\text{mm}$ (per foot of panel width)

Complete approved BOQ along with detailed specification and drawing to be provided by the manufacturer before start of manufacturing. If required one sample to be approved for all parameters before start of bulk production which will be in accordance with the approved sample and specifications.

THICKNESS & WEIGHT

Thickness and Weight of the FRP Cladding Panels shall have values as per below details :

Nominal Thickness : 1.5 mm (Minimum, Based on flat material)

Nominal Weight : 8 oz/sq. ft or 2.44 kg /m² (Minimum, Based on flat material)

Tolerance on weight shall be $\pm 5\%$.

The above given thickness and weight requirement are applicable for a support structure having span dimension less or equal to 2000 mm and max wind pressure less or equal to 1.3 kN/m². FRP Panels are available from 1 mm thickness to 3 mm thickness maximum.

The thickness of sheet and corresponding weight are customised corresponding to structure span, wind pressure and geographical location and the selection for the same shall be in mutual agreement with the Cladding manufacturer and the Client. The complete drawing and specification shall be duly approved by the end user before fabrication of the said material.

GENERAL INFORMATION & SPECIFICATION

1. Panel Construction: Material for reinforcement can be Chopped Strand Mat / Owen Roving Glass using suitable grade UV stabilised Isophthalic Gelcoat (optional)

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and impregnated with UV stabilised FR grade Isophthalic Polyester Resin and permitted fillers.

2. Flame Spread : FRP Cladding Panel with flame spread rate less or equal to 25, according to ASTM E-84 (any customised requirement shall be communicated to the panel manufacturer with complete specification).

3. Panel Configuration : As per Client's drawing. Lead time for making of mould for any new profile is maximum 15 days.

4. Color : Normally preferred color is light grey as per RAL 7035. Any color of your choice can be given as per RAL color shade card.

5. Finish : Surface finish shall be smooth and glossy. Embossed surface can also be supplied.

6. Nominal Weight and Thickness :

***Note:** Above Sheet thickness in profiled formation are average thickness corresponding to the said weight.

7. Glass Content : Minimum 25%

8. Extreme Ambient Properties : Extremes of temperature, weathering condition, exposure to chemical fumes, geographical location (coastal areas), sun radiation, etc. to be informed with details of temperature, humidity, pH value and environmental conditions so that the panels can be manufactured accordingly.

9. Light Transmission : The nominal light transmission factor of opaque cooling tower panels shall be 5 % or less (or as agreed between the manufacturer and client) when tested in accordance with ASTM D-1494 or similar norms.

10. UV Protection : All polyester resin and gelcoat used shall be UV stabilised.

PHYSICAL REQUIREMENTS

- 1. Size:** (Length & width) – Tolerance or nominal length and width specified by the purchaser shall be ± 6 mm.
- 2. Thickness & Weight:** Tolerance on the specified weight of the panels shall be $\pm 5\%$ in accordance with CTI Std.
- 3. Profile:** Shall be as per approved drawing with tolerance of ± 1.5 mm.
- 4. Color:** Panel color shall be agreed upon with the purchaser and will be uniform throughout the panel. Minor differences in color intensity due to the disbursement of glass fibre shall not be cause for rejection. We follow color scheme of RAL shade card.
- 5. Light Transmission:** The nominal light transmission factor of opaque Cooling Tower panels shall be 5% or less or as agreed upon with the purchaser. We provide UV protection for complete panel along with anti ageing film (optional) on top for extra protection from the extremes of weather in order to provide greater protection against degradation.

- 6. Fire Properties:** The FRP Cladding Panel will have flames spread rate less or equal to 25 in accordance with relevant standards.

MECHANICAL PROPERTIES & GENERAL TECHNICAL SPECIFICATION

- Standard Length: Any Length as per Transportation facility. (40 feet or 12 mtrs.)
- Profile: Any profile according to requirement
- Thickness: 0.8 mm to 3.00 mm
- Standard Colour: Translucent/ Opaque- As per RAL Colour Shade
- Surface: Top Anti-aging U/V Resistant film Bottom- Optional
- Density: 1.55 - 1.63 kg/m² per 1 mm ($\pm 5\%$) based on flat surface material.
- Temperature: -50⁰ C to +120⁰ C
- Bending Strength: ≥ 105 Mpa
- Flexural Strength: ≥ 985 Kg/cm²
- Tensile Strength: ≥ 500 Kg/cm²
- Flexural Modulus: ≥ 60000 Kg/cm²
- Thermal Linear Co-efficient of Expansion: $6.7/C \times 10^{-5}$
- Barcoal Hardness: > 40 Barcoal
- Self Ignition Temperature: 485⁰ C
- Glass Content: Minimum 25%
- Light Transmission: 85% for Translucent Sheet & 5% or less for Opaque Sheets
- Water Absorption: Max. 0.2%
- Flame spread rate of 25 or less.
- UV Protection: on complete composite Panel / Sheet.

ADVANTAGES

- | | |
|--|-------------------------------|
| • Very high mechanical strength | • UV Resistant |
| • Shatter Resistance | • High Impact Resistance |
| • Light Weight | • Hail Storm Resistant Sheets |
| • Maintenance Free | • Resistant to Chemicals |
| • Size Flexibility | • Durable & Long Life |
| • Environment Friendly | • Dimension Stability |
| • Excellent Corrosion Resistance | • Low Thermal Conductivity |
| • Fire Retardant | • Water Resistant |
| • Excellent Light Diffusion & Light Transmission | |
| • Excellent Weather & Temperature Resistance | |

3.5 FRP Chemical Lining

Fiberglass Reinforced Plastics (FRP) lining is protective lamination on the desired surface (RCC, MS, WOOD, PLASTICS, etc.) to provide corrosion resistance against water, chemical proofing, high strength, dimension stability, and is known for its ease of application, maintain, and repair.

FRP lining is widely used in chemical industries for atmospheric corrosion resistance, weatherproofing, water, chemical proofing, and to maintain the purity of the material stored inside the containers. Further, FRP lining is used for repair and maintenance of wide range of RCC, construction like over head storage tanks, pipe lines, building construction cracks, water/chemical proofing, bridges & flyover constructions cracks etc. which provide not only corrosion resistance but also high strength and dimension stability at low cost and ease of application.



The desired reinforcement is given by use of fiberglass, which is available in various ranges and is applied as per requirement and utility. Ranges of fiberglass reinforcement are – CSM, Woven Roving, and Surface mat, Honeycomb mats. For corrosion resistance, water, chemical proofing wide range of resins like Isophthalic, Bisphenol, Vinyl Ester etc. are available and is applied as per requirement.

Raw Material used in FRP Lining

1. Glass Fiber—confirming to IS-11551-1986
2. Glass Fiber Rovings—confirming to IS-11320-1997
3. Unsaturated Polyester Resin confirming to IS-6746-1994
4. Cobalt Napthanate (Accelerator)
5. MEKP (Methyl Ethyl Ketone Peroxide)-Curing Agents.
6. N.C Thinner – for cleaning and surface preparation.

Steps for FRP Lining

1. The desired surface to be lined is cleaned properly using iron paper, grinders or sand blasting as required and proper surface is prepared free of water, grease, foreign deposition etc. The surface is checked properly to ensure excellent bonding between the surface & the FRP lining.
2. Once the surface preparation is done, as required, resin coat is applied and allowed to cure. This coat should fill up all the pinholes and the damaged area of the surface.
3. After coating, as desired, fiberglass mat (CSM)- Chopped Strand Mat is then spread on the surface and is wetted with resin and properly brushed to ensure

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minimum air trapping and good bonding with the surface. Fiberglass layers are applied depending on the thickness to be given. The lamination is allowed to cure.

4. Once the lamination is cured immediately one layer of surface mat (veil) is applied as final layer followed by one resin rich coat of resin for better corrosion resistance.
5. During lining, precaution are taken for proper bonding and if required custom-made arrangements are made like provision of inbuilt M.S/Wooden/aluminum stripe / pegs are provided.
6. Precaution is also taken at the time of surface finish as required and cracks; pits etc. are properly filled during surface preparation.
7. Good workmanship and supervision is of prime importance during execution of job, which needs technical and specialized workers to do the same.
8. FRP lining provides complete leak proofing, corrosion resistance, strength and very good life for virgin material lining as well as for old structures etc.

3.6 FRP Rain Water Gutter

Scope of Work

Supply and sealing of Fiberglass Reinforced Plastic (FRP) Gutter 4mm thick with step jointing of 50mm at site.

Nomenclature

Supply of 4mm thick FRP Gutter of **“Fibreways” brand an ISO-9001 Certified Company**, to be fabricated using two coats of Isophthalic grade UV stabilized Gel coat as top coating giving Glossy smooth surface on the top to take the extreme of weather and temperature followed by reinforcement of Chopped Strand Mat (CSM) and Woven roving (WR) duly impregnated with unsaturated polyester Isophthalic exterior grade UV stabilized resin to form tough laminate with extra reinforcement of MS strip of size 25 x 3 mm at a distance of 1000 mm c/c starting from one end of the gutter to be embedded with the gutter. The size of each gutter can be provided in 2.0-5.0 meters and color of your choice.

| FRP GUTTERS | |
|---|---------------|
|  | VALLEY GUTTER |
|  | EAVES GUTTER |
|  | U - GUTTER |

Advantages of FRP Gutter

1. Single Casted with no Joints: FRP Gutter are casted in one single piece (Monolithically casted) hence leaving no scope for any water, moisture, insects, dusts etc. to seep inside the gutter and pose problem towards maintenance, leakages or bad smell. Only FRP gutter can be made in single piece, unlike M.S., G.I. or asbestos.
2. Maintenance Free: FRP gutter are made with inbuilt color, single piece casting and smooth glossy finish hence practically requires no maintenance except for cleaning with plain cloth once in a while or cleaning with soap water. Moreover, as the gutter is made with inbuilt color, it has very long life without fading of color and requires no repainting over regular interval, unlike M.S. or G.I.
3. Very Long Life: FRP as a material is very tough & rigid and resistant to extreme of weather and there is no aging of the material as a result it retains the same luster, strength and rigidity over a very long period, unlike M.S. or G.I.
4. Resistant to weathering & UV exposure as the FRP gutter are UV stabilized.
5. Corrosion Resistant: Excellent water and chemical resistance- the gutter is constantly exposed to Water, Factory corrosive fumes and chemicals.
6. Ease of Handling: FRP gutter are tough, light weight & scratch proof hence easy to handle, transport & install at site.
7. Ease of Installation: FRP gutter is fabricated as per design and shape required and is provided with inbuilt step for ease of jointing at site.
8. Ease of Repair: FRP as a material can be very easily repaired at site for any local or major damage, if any & more over repaired area is not visible.
9. Good electrical & thermal properties.

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10. Good aesthetic appeal, strength, durability, waterproof & are termite proof.
11. Good dimensional stability at high temperature unlike MS or GI.
12. Can resist very high impact strength, which is evident by its application in various fields of automobiles, railways, boats, aircrafts and defense etc.
13. Excellent Mechanical, Physical and Biological properties.
14. Advantageous strength / weight ratio and rigidity.
15. Molding size virtually unlimited.
16. Considerable design versatility.
17. Choice of wide range of inbuilt color - maintenance free finishes.
18. Fire Retardant-if required.



3.7 FRP Gratings

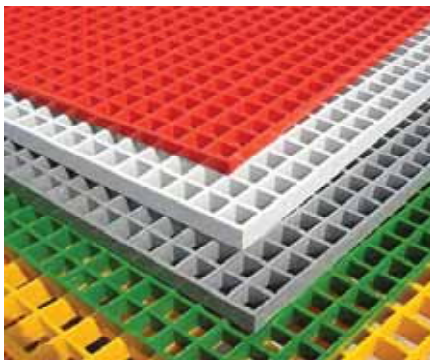
Fibreways brand FRP Gratings is the ideal solution for corrosion problem faced in Chemical Industries, Coastal & Offshore Areas.

Types of Grating

- Molded Gratings
- Pultruded Gratings

Advantages

- Anti-skid
- Fire-retardant
- Anti-corrosion and Anti-ageing
- High Strength, Light weight & Easy to handle
- Long product life & Maintenance free
- Thermal & Electrical Non-conductivity
- Easy to Fabricate & Install
- Dimensional Stability
- Chemical Resistant



3.8 Wind Driven Roof Turbo Ventilator

Nomenclature

Providing & Fixing of **“Fibreways” brand an ISO-9001 Certified Company** Wind Driven Turbo Ventilators in desired neck size (21" /24") with anodized aluminum technically designed fins with stainless steel top plate and bottom fixing rings supported with double ball bearing system mounted on monolithically casted matching profile FRP Base Plate in 2 mm thick aerodynamically designed hood, with special UV stabilized inbuilt colour, gelcoat coating to take extremes of weather/ wind velocity and continuous ventilation complete to the satisfaction of Engineer-In-Charge.

Application for Hot & Humid Areas

Industrial roofing, skylights buildings, green houses, garages / porches, commercial building, domes & canopy for industrial & commercial building, railways, school, warehouses & residential etc.

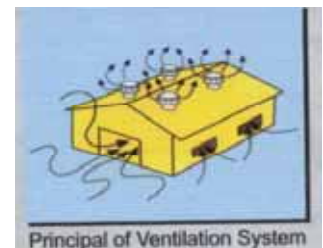
WIND DRIVEN INDUSTRIAL TURBO VENTILATORS with Matching Fiberglass Reinforced Plastic (FRP) BASE PLATE.

Ventilation is simply the process of replacing stale, hot air with clean & fresh air hence providing pleasant working environment.

We are pleased to introduce ourselves as the leading manufactures of Wind Driven Industrial Turbo Ventilator with matching FRP Base plate, which enables the fixing & installation of turbo ventilator very convenient under various site conditions. Our Turbo Ventilator and the matching FRP base plate is technically designed to suit the various site conditions and provide maximum exhaust and rotation of air continuously, hence virtually providing pleasant and fresh air for healthy work environment. Our turbo ventilator is so designed having maximum fan blade hence providing optimal exhaust and at the same time is protective towards rain and dust.

Features & Advantages

- No Electricity – Wind Driven • Maintenance Free • Fresh Air 24 x 365 Days Uniform & Continuous Ventilation • Noiseless Installation & Operation • Easy to install • No Ingress of Rain Water • Fits on Any Type of Roof Surface and Gradient • Exhaust Stale, Hot, Humid Air and Fumes/ Pollutants Nonstop • Healthy Living - Increase in Productivity



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• Environment Friendly • Payback Period is Extremely Low – Good Savings • Rigid and Technically Designed Frame Construction to Withstand Cyclone, Storm, High Wind Velocity and Twister • Turbo Ventilator are made in Aluminum and S.S. hence no Rusting • Suitable for any size Industrial, Commercial, Warehouse, Godown building.

Applications

• Automobile Industry • Food Industry • Textile (Spinning, Twisting, Sizing, Weaving, Dyeing, Knitting, Processing) • Chemical Industry • Engineering Industry
• Pharmaceutical Industry • Boiler House • Restaurants • Foundry • Generation House • Commercial building • Public Halls • Residence And Many Other Places.

Kindly provide us the following information to calculate No. of ventilators

Name of Organization: _____

Address: _____

Reference Person: _____

Designation: _____

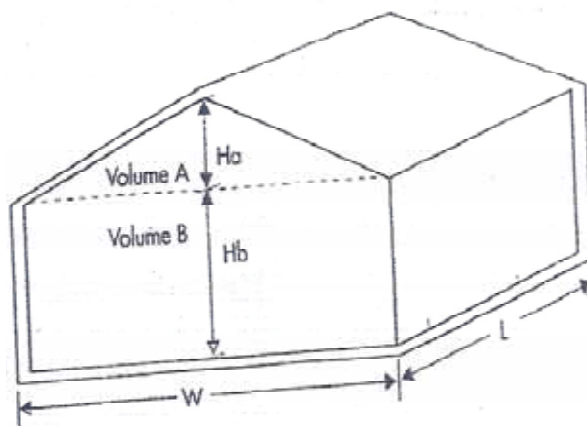
Address of Unit where to be Installed: _____

Dimensions

Length(L)_____ Width(W)_____

Height (Ha) _____ (Hb) _____

Note: All dimensions in Meters



| S. No. | Particulars | Unit | Measurements |
|--------|---|----------|--------------|
| *1 | Type of roof and make (AC Sheet /Metal/RCC) | - | |
| *2 | Size of the sheets (L x B) | Mtr. | |
| 3 | Number of air change desired per hour | Nos. /Hr | |
| 4 | Avg. wind velocity (If available) | Kms /Hrs | |
| *5 | Nature of plant activity | - | |
| *6 | Types of Machinery installed | - | |
| *7 | Number of persons working | Nos. | |
| 8 | Any Corrsivefumes or chemical discharge | | |
| 9 | Existing Exhaust system (if any) | | |
| 10 | Any special comment or requirement (if any) | | |

* Are Compulsory for our Estimation.

3.9 Polycarbonate Sheet

Polycarbonate Sheets are an excellent Roof glazing & cladding material with remarkable properties and performance making them one of the ideal choices for natural light transmitting for Roof glazing, Skylights, Pathways, Bus shelters, Shopping Archades, Canopies, Partitions, Greenhouses, Industrial glazing etc.

Polycarbonate sheets are a perfectly ideal medium for use in the Industrial, Commercial, Domestic, Govt. & Leisure Segments.



Range

Polycarbonate sheets are available in 3 different types, which can be used for various roof glazing application.

| S. No. | Type | Standard Dimension | Thickness | Color |
|---------------|--------------------------------------|---|------------------|---|
| 1. | Plain Compact Clear /Embossed Sheets | 30.0 mtrs. x 1.22 mtrs. | 1.5mm-10mm | Clear, Opal White, Grey Blue, Bronze, Green |
| 2. | Plain Compact Clear /Embossed Sheets | 30.0 mtrs. x 2.1 mtrs. (Subject to availability) | 1.5mm-10mm | Clear, Opal White, Grey Blue, Bronze, Green |
| 3. | Multi-Wall | 11.8 mtrs. x 2.11 mtrs. | 6mm-20mm | Clear, Opal White, Grey Blue, Bronze, Green |

1. Transparent Plain Compact Sheets
2. Transparent Plain Embossed Sheets
3. Multi-Wall Sheets

Profiles

Solid Polycarbonate sheets are available in any matching Customised Profile to meet your requirements.

Advantages

Light Weight
Design Flexibility
U/ V Resistance
High Impact Strength
Excellent Light Transmission
High Durability
Rust Proof
Eco-Friendly

Applications

Industrial Roofing
North Light
Parking Area
Garages & Verandahs
Porches & Walkways
Stadium
Partition & Window Glazing
Domes & Canopies

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Note: - FRP Sheets has all the above advantages with added feature of Shatter Resistance- (FRP Sheets are Hailstorm resistant), Excellent Light Diffusion & Less Heat Transmission with more Freedom in Color & Design.



DOOR DIVISION

- **FRP Door Shutter & Frame - Panel Type / Flush Type**
- **FRP Chajja**
- **PVC Solid Foam Sheet - Doors & Frames**

4.1 FRP Door Shutters & Frame - Panel Type / Flush Type

As explained earlier, our Shutter & Frame in fiberglass are for superior as compared to PVC, wood, UPVC and other material in terms of strength, durability, consumer resistance, light in weight, maintenance, aesthetic look etc.

The FRP Door Panel of Flush type are most widely used design and are available in any in built color of your choice and are manufactured.

Green Product

Wood Substitute and Green Products – Preserve Natural Resources – Save Environment

We have adopted environment management practice based on ISO - 14001 guidelines in all our business processes and activities. We encourage our suppliers and subcontractors to comply laws and follow practice that protects environment. Government initiative towards promotion of Wood Substitute and Green Building conforming Products, FRP range of Building Products - FRP Doors, Frame, Sheet, Chajja, Rain Water Gutter are the best suited for the same and excellent replacement for Mild Steel/PVC/Wood.

Applications: Toilet, bathroom, kitchen, mummy & internal doors for Housing, factories, warehouses, commercial, school & institutions.

Product Specification - FRP Door Panel

Supply & fixing of factory made 30 mm thick Fiberglass Reinforced Plastic (FRP) paneled door shutter of required colour of **“Fibreways”** brand or equivalent, made with fire – retardant grade unsaturated polyester resin, moulded to 3 mm thick FRP laminate for forming hollow rails and styles, with wooden frame and suitable blocks of seasoned wood inside at required places for fixing of fittings, cast monolithically with 5mm thick FRP laminate for panels and conforming to IS: 14856 – 2000 including fixing to frames complete as per direction of Engineer-In-Charge.

Note: As per IS : 14856, CPWD, DSR – 2014, DGMAP-E-in-C’s Branch (Defence), MES-Kolkatta Command, Kolkatta.

Product Specification - FRP Flush Door

Providing & fixing of factory made 30mm thick Fiberglass reinforced plastic (FRP) flush door shutter in different plain colour of **“Fibreways”** brand or equivalent made with fire retardant grade unsaturated polyester resin, moulded to 3mm thick FRP laminate all around, with suitable wooden blocks inside at required places for fixing of fittings and polyurethane foam (PUF) / Polystyrene foam to be used as filler material throughout the hollow panel, casted monolithically with testing parameters of FRP laminate

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confirming to table – 3 of IS: 14856 : 2000, complete as per direction of Engineer-in-charge.

Note: As per CPWD, DSR – 2014, MES- Kolkatta Command, Kolkatta.

Product Specification - FRP Frame

Providing and fixing of factory made Fiberglass Reinforced plastic (FRP) Door Frames of **“Fibreways”** brand or equivalent having three legged of cross – section 90 mm x 45 mm having single rebate of 32 mm x 15 mm to receive shutter of 30 mm thickness. The laminate doorframe molded with fire retardant grade unsaturated polyester resin and chopped mat. Doorframe laminate shall be 2 mm thick and shall be filled with suitable wooden block in all the three legs. The frame shall be covered with fiberglass from all sides. M.S. stay shall be provided at the bottom to steady the frame.

Note: As per IS : 14856, CPWD, DSR – 2014, DGMAP-E-in-C’s Branch (Defence), MES- Kolkatta Command, Kolkatta.

Advantages of FRP Door Shutter & Frame

- **Single Casted with no Joints:** FRP door shutters are casted in one single piece (Monolithically casted) hence leaving no scope for any water, moisture, insects, dusts etc. to seep inside the door and pose problem towards maintenance or bad smell. FRP doors are the only doors, which can be made in single piece, unlike PVC, wood or metallic doors.
- **Maintenance Free:** FRP door shutters are made with inbuilt color, single piece casting and smooth glossy finish hence practically requires no maintenance except for cleaning with plain cloth once in a while or cleaning with soap water. Moreover as the doors are made with inbuilt color, it has very long live without fading of color and requires no repainting over regular interval, unlike PVC, wooden or metallic door.
- **Very Long Life:** FRP as a material is very tough & rigid and resistant to extreme of weather and there is no aging of the material as a result it retains the same luster, strength and rigidity over a very long period, unlike PVC, wooden or metallic doors.
- Resistant to weathering & UV exposure as the FRP door are UV stabilized.
- Corrosion resistant: Excellent water and chemical resistance. As the toilet door shutters are constantly exposed to water & acid being used for cleaning, FRP as a material are the most suited for this, unlike PVC, wooden or metallic doors.
- **Ease of Handling:** FRP door shutters are tough, light weight & scratch proof hence easy to handle, transport & install at site.
- **Ease of Repair:** FRP as a material can be very easily repaired at site for any local or major damage if any & more over repaired area is not visible.

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- **Ease of Installation:** FRP door shutters are provided with inbuilt hinge slots & proper inserts are being provided in the door & are fixed & installed by any normal carpenter.
- Good electrical & thermal properties.
- Good aesthetic appeal, strength, durability, waterproof & are termite proof.
- Good dimensional stability at high temperature unlike PVC or wood.
- Can resist very high impact strength, which is evident by its application in various fields of automobiles, railways, boats, aircrafts and defense etc.
- Excellent mechanical, physical and biological properties.
- Advantageous strength / weight ratio and rigidity.
- Moulding size virtually unlimited.
- Considerable design versatility.
- Choice of wide range of inbuilt colour - maintenance free finishes.
- Fire retardant.
- Excellent screw holding capacity of the FRP Door Shutters due to proper wooden insert being provided in the design.

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Properties

| S. No. | Test | Test Method as Per | Acceptable Value |
|--------|---|--------------------|---|
| 1. | Fiber glass Content | IS : 1172 -1975 | Not less than 25% |
| 2. | Barcoal Hardness | ASTM: D2583-1987 | Not less than 26 BIU When tested on the face of laminate finished with gel coat |
| 3. | Ultimate Tensile Unit Strength | BS: 4994 -1973 | Not less than 150 N/mm Per Kg/m ² of glass. |
| 4. | Tensile Unit Modules | IS : 3268 –1978 | Not less them 6500 N/ mm Per Kg/m ² . |
| 5. | Flexural Strength | IS : 178 -1975 | Not less than 110 N/mm ² . |
| 6. | Flexural Modulus | IS : 178 -1975 | Not less than 7000 N/mm ² |
| 7. | Izod Impact | IS : 180 -1982 | Not less than 10 J/cm. |
| 8. | Water Absorption after seven days of immersion. | IS : 62 –1980 | Not more than 0.5 % by weight. |
| 9. | Slamming Test | IS : 4020 | No visible damage should be caused in any part of the door after 50 drops. |
| 10. | Impact Indentation Test | IS : 4020 | Indentation not greater than 0.2 mm. |
| 11. | Shock Resistance Test | IS : 4020 | No visible damage in any par t of door after Fifteen blows on each side. |
| 12. | Edge Loading Test | IS : 4020 | Deflection of the edge at 1000 N (100 Kgf,) load after 15 minutes, should not be more than 5 mm. |
| 13. | Misuse Test | IS : 4020 | No permanent deformation |
| 14. | Buckling Test | IS : 4020 | a) No deterioration b) Initial deflection not greater than 50 mm. c) Residual deformation after 15 minutes of unloading not greater than 5mm. |

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| | | | |
|-----|---|-----------|--|
| 15. | Screw Holding power Test | IS : 4020 | Load require to withdraw the screw not less than 1000 N (100 Kgf). |
| 16. | Dimensions and Defects of Squareness Test | IS : 4020 | a) Height to the accuracy of 1 mm. b) Width to the accuracy of 1 mm. c) Square ness to the accuracy of 0.1 mm. |
| 17. | General Flatness Test | IS : 4020 | Measured to the accuracy of 1 mm. |
| 18. | Local Planeness | IS : 4020 | Measured to the accuracy of 0.1 mm. |

FRP Door Drawing

DOOR

FRONT ELEVATION

FRONT ELEVATION - SECTIONAL

SIDE ELEVATION - SECTIONAL

SECTION X-X

FRONT ELEVATION

PLAN

PLAN SECTIONAL

NOTES

- Contractor to check & verify all dimensions before execution of the work.
- Figured dimensions should be followed.
- All dimensions are given in MM.
- Drawing is based on door manufactured by M/s. Fibreways Technology.
- Frame & Door Shutters made of FRP & suitable wooden insert.
- The color of door (shutter & frame) shall be as approved by Engineer in-charge.
- All Builder Hardware shall be fixed as directed by Engineer in-charge.
- Size of Stiles & Top Rail will be min. 80mm & Bottom Rail will be min. 150mm.

M/s. Fibreways Technology

Fibreglass Reinforced

Plastics (FRP) Door Shutter

Plan Elevation & other details

| DATE | DRN | CHKD | SCALE | N.T.S. | DRG. NO. |
|------|-----|------|-------|--------|----------|
| | | | | | |

SIZE OF BLOCKS

| |
|------------------------|
| A = 90x200mm |
| B = 1" Piece 150x250mm |
| C = 1" Piece 90x350mm |
| D = 250x250mm |
| E = 90mm x L |

FRP Frame Drawing

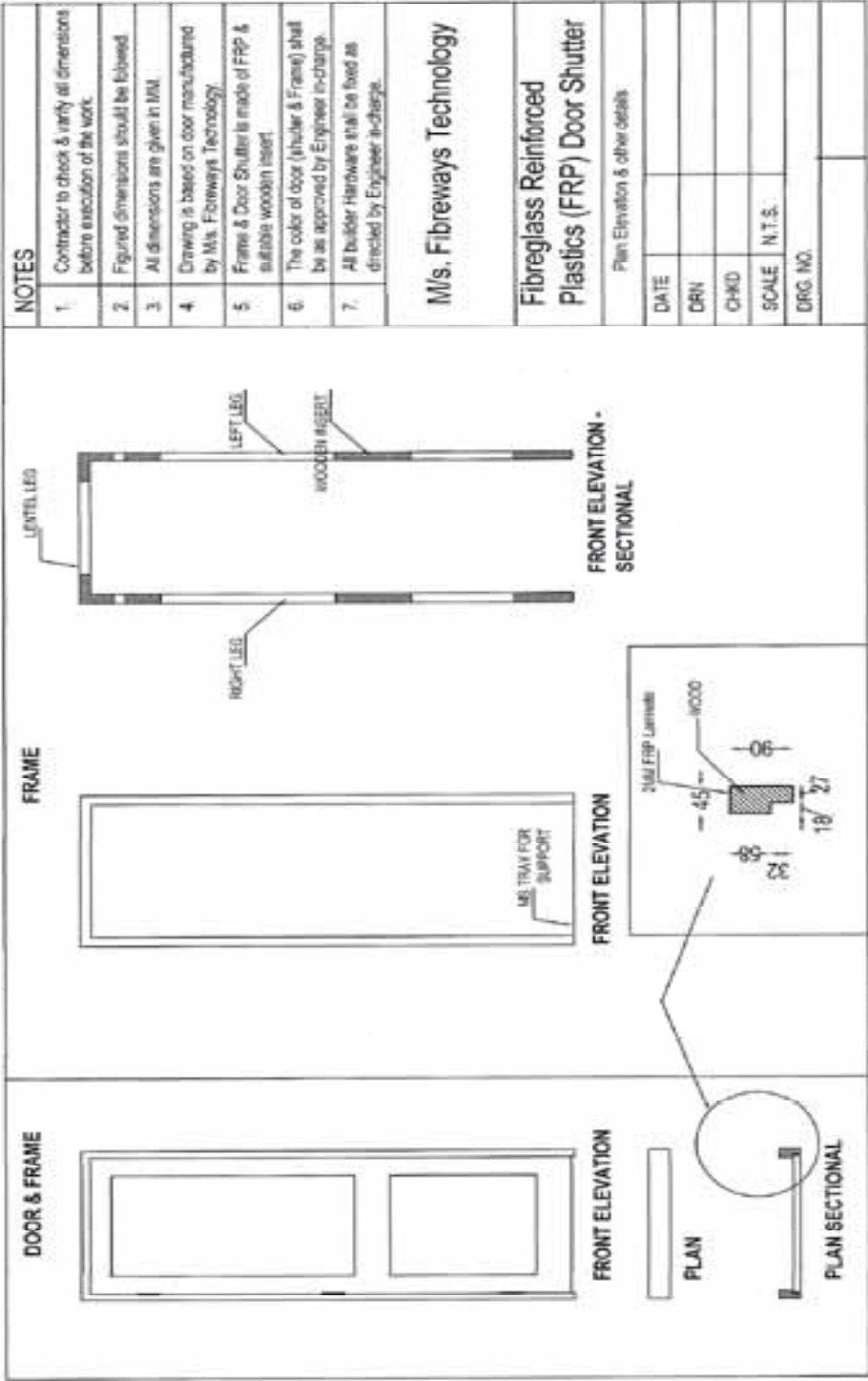
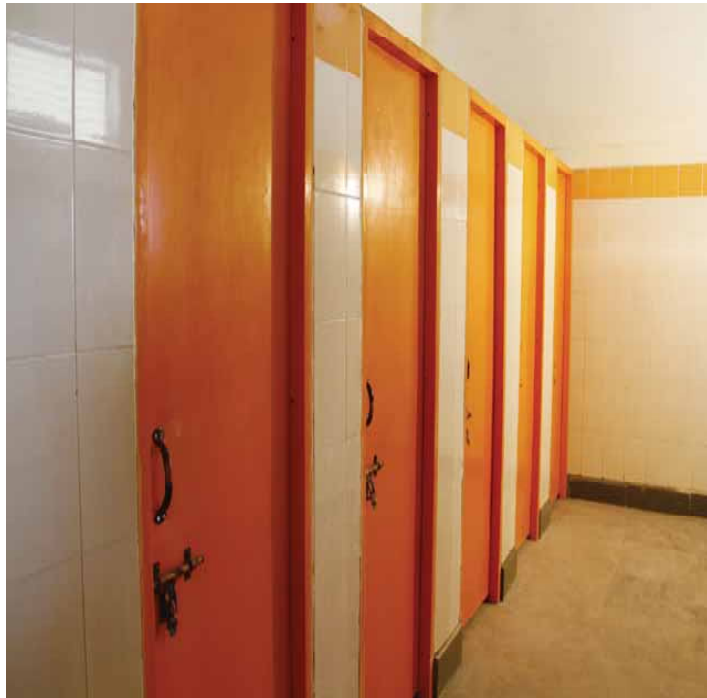


Photo Gallery



Designer Door



Flush Door



Panel Door



Panel Door -
Wood Finish

FRP Chajja

Brief Introduction

With ever growing and fast technological changes taking place in construction of buildings, concept of making buildings is fast changing from conventional labour intensive progress to pre-fabricated and modular concept in making of buildings which are less time consuming and are environment friendly including better resistance towards frequent earthquakes.

Conventional RCC Chajjas are less durable, prone to cracks and difficult to maintain hence need to have durable and prefabricated chajjas which are light in weight and eas to install and maintain over its long period of use.

Why FRP Chajja?

FRP is a wonder composite material and is generally known for its very high strength, durability, resistance to high temperature and extremes of weathering, resistance to environmental corrosion and being light in weight, hence due to above inherent properties FRP prefabricated chajjas in one single piece are the most preferred and suitable material for the said application.

Ease of Installation

Prefabricated FRP Chajja in one single piece are light in weight hence easy to lift and fix at suitable height with minimum arrangements at site. Below details for installation will further define the ease of handling and installation of FRP Chajja at site.

Installation Method

1. For Installation of FRP Chajja basic scaffolding arrangement is made for lifting and placement of the same at the required height.
2. Each FRP Chajja which needs to be fixed has a flange to be inserted inside the slot and the same is made using marble cutting machine, 5-6mm wide, 25-50 mm depth, accordingly flange is inserted inside the slot. Holes are made as per provision given for anchoring of chajja with the help of hammer drill machine in required size and depth, depending on the length of Chajja.
3. Check for alignment of FRP Chajja and fasten the Chajja using grouting bolts as per size and defined load factors.
4. All the gaps are sealed using silicon sealant from top and bottom to make it water proof.
5. FRP Chajja as evident from the drawing is designed for easy handling, fixing, load bearing and maintainence.

Product Specification

Providing & fixing of factory made Fiberglass Reinforced Plastics (FRP) “CHAJJA”- 4mm thick of “**Fibreways**” brand or equivalent in required colour, size and design made by

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Resin Transfer Moulding (RTM) Machine Technology, resulting in void free compact laminate in single piece, having smooth gradual slope curvature for easy drainage of water and duly reinforced by 2 nos. vertically and 1 nos. horizontally 50x2mm thick M.S. Flat with 12mm in built hole for grouting on the existing wall along with the 50mm flanges duly inserted and sealed in the wall complete in one single piece casted monolithically including all necessary fittings. The FRP Chajja should be manufactured using unsaturated Polyester resin as per IS: 6746 duly reinforced with fiberglass chopped strand mat (CSM) as per IS: 11551 complete with protective Gelcoat U/V coating on Top for complete resistance from the extreme of temperature, weather & sunlight.

Material for Construction

1. Process of manufacturing: RTM Machine moulding technology – FRP Chajja to be made in one single pc. With no joints. (Monolithic casting).
2. Gelcoat with desired pigment for outer coating. (U/V Stabilized)
3. Unsaturated polyester resin as per IS-6746.
4. Glass fiber reinforcement: Chopped Strand Mat (CSM) as per IS – 11551.
5. The Glass fiber roving used shall be as per IS – 11320.
6. Curing Agents-MEKP & Cobalt Napthalate.
7. Permissible fillers are French chalk powder and shall not exceed 10% by weight of unsaturated polyester resin.
8. 2mm M.S. Plate reinforcement on the backside of the FRP Chajja to be inserted between the layers of FRP Laminate.
9. Flange arrangement to be provided in the FRP Chajja for grouting inside the existing wall to make it water proof.
10. Both side smooth glossy finish.
11. Tolerance of ± 10 mm in overall size of FRP Chajja.
12. Thickness of FRP Chajja to be 4.0mm.

Applications

External protection to all windows, doors, openings, etc. in any housing, commercial, warehouses, residential buildings.

References

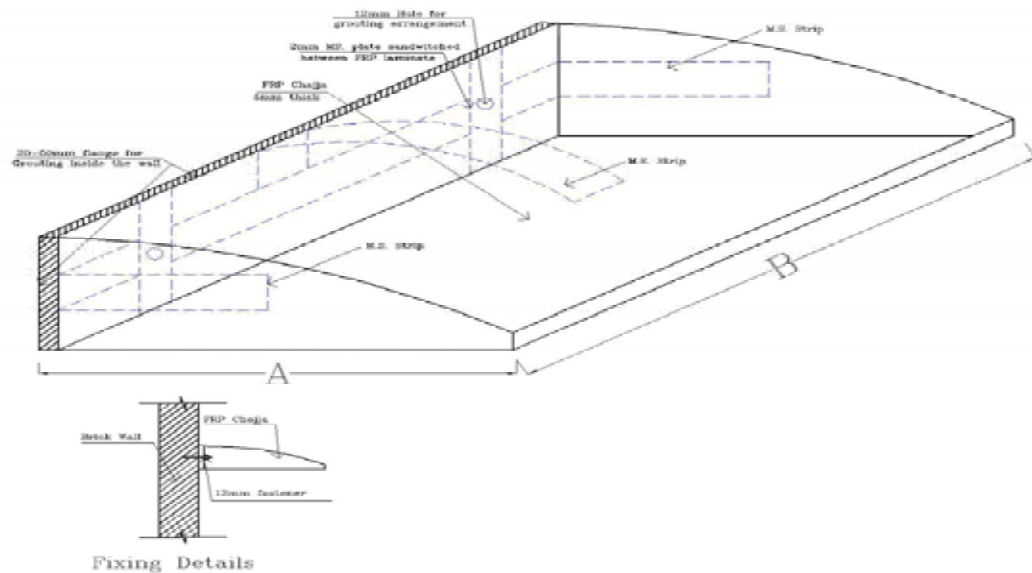
As per CPWD – DSR (2014), MES.

Advantages of FRP Chajja

- Advantageous strength/ weight ratio and rigidity.
- Moulding size virtually unlimited.
- Considerable design versatility.
- Choice of wide range of Inbuilt color-Maintenance free finishes.
- Easy to handle and install at site.
- Easy of repair and maintenance if any at site.
- Excellent water, chemical & termite resistance.
- Resistant to weathering and UV exposure (U/V stabilized).

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- Fire retardant.
- Good electrical and thermal properties.
- Good aesthetic appeals, strength, durability, waterproof & lightweight.
- Good dimensional stability at high temperatures. (Unlike PVC or MS)
- Very high impact strength -used for body covers of high-speed cars etc.
- Excellent Thermal insulation.
- Excellent mechanical/physical & biological properties.



PVC Solid Foam Sheet - Doors & Frames

Among various options for wood substitutes doors, technically Fiberglass door Shutter and frame are much superior alternative as compared to any of the wood/ mild steel substitute material like PVC, UPVC, WPVC etc. Door Shutters and frame in PVC & UPVC have emerged as second alternative to wooden doors. As PVC material can be recycled, most of the manufacturers have stopped using virgin material as a result the quality of PVC Door & Frame has deteriorated and the life and durability of the product is very poor.

Among the various materials and options available for manufacturing of PVC Door Shutter & Frame, 5 mm thick PVC foam sheets are relatively durable for manufacturing of the same. Product Specification as per CPWD, DSR/Railways are given below.

Nomenclature

PVC Solid Foam Sheet Door

Providing & Fixing 30 mm thick **“Fibreways”** brand Factory made Solid PVC Door Shutter Consisting of Frame made out of M.S. tubes of 19 gauge thickness and size of 19 x 19 mm for styles, top & bottom rails. M.S. Frame shall have a coat of steel primers of approved make and manufacture. M.S. frame covered with 5 mm thick heat molded **“Fibreways”** PVC ‘C’ channel of Size 30 mm thickness, 70 mm width out of which 50 mm shall be flat and 20 mm shall be tapered in 45° angle on either side forming styles; and 5 mm thick, 95 mm wide PVC Sheet out of which 75 mm shall be flat and 20 mm shall be tapered in 45° on the inner side to form top and bottom rail and 115 mm wide PVC Sheet out of which 75mm shall be flat and 20 mm shall be tapered on both sides to form lock rail. Top, bottom and lock rail shall be provided either side of the panel. 10mm (5 mm x 2 mm) thick, 20 mm wide cross PVC sheet shall be provided as gap insert for top rail & bottom rail. Paneling of 5 mm thick solid sheet to be fitted in the M.S. Frame welded/ sealed to the styles & rails with 7 mm (5 mm + 2 mm) thick x 15 mm wide PVC Sheet beading on inner side, and joined together with solvent cement adhesive etc. An additional 5 mm thick PVC strip of 20 mm width is to be stuck on the interior side of the ‘C’ channel using PVC solvent cement adhesive etc. complete as per direction of Engineer-in-charge, manufacturer’s specification & drawing.

PVC Solid Foam Sheet Frame

Providing & Fixing PVC Door Frame of size 50 x 47 mm with a wall thickness of 5 mm, made out of extruded 5 mm PVC sheet, miter cut at two corners and joined with 2 nos. of 150 mm long brackets of 15 x 15mm M.S. square tube. The two vertical door profiles are to be reinforced with 19 x 19 mm M.S. Square tube of 19 gauge. EPDM rubber gasket weather seal to be provided through out the frame. The door frame shall be fixed to the wall using 65/100 mm long M.S. Screws through the frame by using PVC fasteners. A minimum of 4 nos. of screws to be provided for each vertical member & minimum 2 nos.

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for horizontal member etc. complete as per manufacturers specification and direction of Engineer-in-charge.

PVC Solid Foam Profile Door

28 mm thick Door shutter made of solid PVC Foam profile with homogenous fine cellular structure having smooth outer integral skin having 71 mm width & 28 mm thick as styles and rails. Joints are made using solvent adhesive and GI 'C' sections (39 mm x 19 mm x 0.6 mm thick) or M.S. pipe (40 mm x 20 mm) stiffener frame insert & telescopic 'L' corners. The panel shall be filled with 3 mm thick high-pressure compact laminate.

PVC Solid Foam Profile Frame

Door Frame (Single Rebate) made of solid PVC Foam Profile with homogenous fine cellular structure having smooth outer integral skin having 60 mm width and 30 mm thickness and shall be fixed to wall.

UPVC Profile Door

30 mm thick Polyvinyl Chloride (PVC) Door Shutter made of styles and rails of a UPVC hollow section of size 60 x 30 mm and wall thickness 2 mm - 0.2 mm with inbuilt decorative moulding edging on one side. The styles and rails mitred and joined at the corners by means of M.S. galvanized plastic brackets of size 75 x 220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of shutter reinforced by inserting galvanized M.S. tube of size 25 x 20mm and 1mm \pm 0.1 mm wall thickness. The lock rail made up of "H" section, a UPVC hollow section of size 100 x 30mm and 2 mm \pm 0.2 mm wall thickness fixed to the shutter styles by means of plastic/ galvanized M.S. "U" cleats. The shutter frame filled with a UPVC Multi Chambered single panel of size not less than 620 mm, having over all thickness of 20 mm and 1 mm \pm 0.1 mm wall thickness. The panel filled vertically and tie bar at two places by inserting horizontally 6mm galvanized M.S. rod and fastened with nuts and washers.

UPVC Door

24mm thick PVC Door shutters made of styles and rails of a hollow section of size 59 x 24 mm and wall thickness 2mm \pm 0.2mm with inbuilt edging on both sides. The styles and rails mitred and joined at the corners by means of M.S. galvanized/ plastic brackets of size 75 x 220 mm having wall thickness 1.0 mm and stainless steel screws. The styles of the shutter reinforced by inserting galvanized M.S. tube of size 20x20 mm and 1mm to \pm 0.1mm wall thickness. The lock rail made up of 'H' section, a UPVC hollow section of size 100x24mm and 2mm \pm 0.2mm wall thickness fixed to the shutter styles by means of plastic/ galvanized M.S. 'U' Cleats. The Shutter frame filled with a UPVC multi- chambered single panel of size not less than 620mm, having over all thickness of 20mm and 1mm \pm 0.1 mm wall thickness. The panel filled vertically and tie bar at two places by inserting horizontally 6mm galvanized M.S. rod and fastened with nuts and washers.

UPVC Profile Frame

UPVC Door Frame made of UPVC extruded section having an overall dimension as below (tolerance \pm 1mm) with wall thickness 2.0 mm \pm 0.2 mm, corners of the door frame to be mitred and welded of plastic, galvanized brackets and stainless steel screws. The hinge side vertical of the frames reinforced by galvanized M.S. tube of size 19 x 19 mm and 1 mm \pm 0.1 mm wall thickness and 3 nos. stainless steel hinges fixed to frame.

1. Extruded section profile size 48 x 40 mm
2. Extruded section profile size 42 x 50 mm

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Clients



Partial List of Clients

| S. No. | Our Esteemed Clients / End Users |
|---------------|--|
| 1. | Century Metal Recycling Pvt. Ltd. |
| 2. | Mahindra & Mahindra |
| 3. | Hi Tech Competent |
| 4. | Escorts Fbd. |
| 5. | Supertech India Pvt. Ltd. |
| 6. | ATS Building Systems Pvt. Ltd. |
| 7. | Escorts Agri Machinery |
| 8. | Japan Metal Building Systems Pvt. Ltd.- Maruti, LG |
| 9. | Ingenium Infrastructure Pvt. Ltd.- Ordnance Factory, Meenakshi Power |
| 10. | Krishna Sales & Service Corporation- Tata Bluescope |
| 11. | MNF Metals & Forming – DMRC, Fedder Lloyds |
| 12. | Asian Colour Coated ISPAT Ltd. |
| 13. | Vishnu Sugar Mills Ltd. |
| 14. | Richa Industries Ltd. - DMRC |
| 15. | SModi Infrasteel Private Ltd. |
| 16. | Enviropol Engineers Pvt. Ltd. |
| 17. | Delhi Development Authority, (Dwarka, Rohini, Narela) B.G. Shirke Construction Technology Pvt. Ltd. |
| 18. | Delhi Development Authority, (Dwarka, Rohini, Narela, Jasola, Kundli, Bakkarwala) BPT Infra Projects |
| 19. | Married Accommodation Project, Kolkata East Coast Construction & Industries Limited |
| 20. | Married Accommodation Project, Lucknow M/s Ramky Infrastructure Limited |
| 21. | Married Accommodation Project, DELHI B.L. Mehta Construction Private Limited |
| 22. | Married Accommodation Project, Panchkula, M/ s Simplex Infrastructure Limited, Lucknow, G.S.J. Envo Limited, Hissar cantt. Varindra Construction Pvt. Ltd., Hissa Saraugi Builders Pvt. Ltd. Sirsa, Sarougi Builders (P) Ltd., New Delhi |
| 23. | CPWD, New Delhi, Unity Infraproject Limited , CGO Complex New Delhi, SPG Project Papanakala, M/s J.P. Gupta, New Delhi, Nirman Bhawan New Delhi, M/s Manglam Construction, Jawaharlal Lal Nehru Stadium |
| 24. | CPWD Parliament Division New Delhi, M/s Shushil Kumar, Gurgaon, M/s Surender Kumar, Pusa, M/s Ashok Garg, New Delhi, Rashtrapati Bhawan-CPWD, M/s Sudhir Bansal, M/s Rakesh Kumar, Nagarjuna Construction (P) Ltd. , GPO Building, Delhi |
| 25. | CPWD, JMC Projects India Ltd., Indira Gandhi National Stadium, Delhi |
| 26. | CPWD, Jaipur, Kota, Devli, Jila Tonk. |
| 27. | NBCC, Gahoi Buildwell Ltd., CRPF, Greater Noida |
| 28. | PWD, LNJP Hospital New Delhi, M/s D.K. Bhagat |
| 29. | PWD, Ahluwalia Contractors, Saket Court, New Delhi |

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|--------|--|
| 30. | PWD-13, Tihar Jail etc. , M/s Mool Chand, M/s Ved Sharma, M/s Gulshan, M/s Amit, M/s Rajiv Kumar Gupta, New Delhi |
| 31. | PWD, I.T.O. I.P.H. Bldg. New Delhi, M/s Mehra |
| 32. | PWD, GTB Hospital, M/s Arora Builders, New Delhi |
| 33. | PWD, Hospital Project Malviya Nagar., M/s Omaxe Construction , New Delhi |
| 34. | Centre Govt. Employees Welfare Housing Organization, Pune, M/s Era Construction |
| 35. | Centre Govt. Employees Welfare Housing Organization, Sector-82, Noida M/s Gurcharan Singh |
| 36. | Center Govt. Employees Welfare Housing Organization, Sector-82, Noida M/s. J.R.C. Grid Engg. Pvt. Ltd. |
| 37. | AWHO, Greater Noida, JRC Grid Engineer Pvt. Ltd. |
| 38. | AWHO, Greater Noida, Bahl Builder Private Limited |
| 39. | A.A.I., New Delhi, M/s Jyoti Sarup Mittal |
| 40. | A.A.I., Chennai, M/s Consolidated Construction Consortium Limited, |
| 41. | DSIDC, (Delhi State Industrial Development Corporation) (School Project):- KBG Eng., R.S. Construction, Kavinder Veer Singh, The Krishna Const. Co., R.S. Khanna & Sons, Birender Construction, Anshul Builders, Vinayak Buildcon, Narender Singh, Harish Builders, Raghav Engineers, Amit Kohli, Jyoti Const. Co, R.K. Bararia., New Delhi |
| 42. | U. P Health System Development Project, Luck now (WHO Project) |
| 43. | Bharat Sanchar Nigam Limited Sasaram Bihar, M/s Rajesh Kumar |
| 44. | IIM, Lucknow (Noida Site), Glove Civil Project Private Limited |
| 45. | Institute of Human Behaviors & Allied Science, Dilshad Garden Delhi, M/s. Naveen Jain |
| 46. | Delhi Public School Gurgaon, M/s Classic Engineers (P) Ltd. |
| 47. | Railway, Rail Coach Factory, Kapurthala, M/s Samrat Construction |
| 48. | SNS Infracon Pvt. Ltd.- Suraksha Seema Bal Bihar |
| 49. | Parnika Commercial & Estates Pvt. Ltd.- BSF |
| 50. | Varindera Constructions Ltd. - DDA Jasola |
| 51. | NCC - International Cricket Stadium |
| 52. | B L Infra Projects Pvt. Ltd. - Suraksha Seema Bal Balrampur |
| 53. | SPG Infra Projects Pvt. Ltd. - Greater Noida Authority |
| 54. | Pushapdeep Infrastructure (P) Ltd. - Greater Noida Authority |