

GFRP Roofing sheets

Protecting, uplifting and transforming spaces

NEWMATERIALS BUSINESS

GFRP as a material of choice

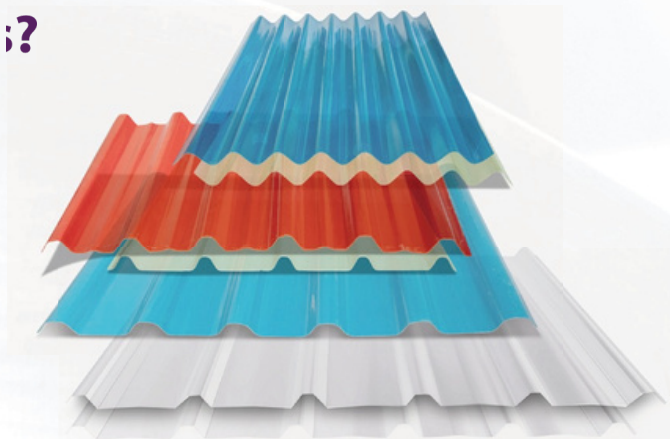
GFRP (Glass Fiber Reinforced Polymer) is a composite of high strength glass fibers interwoven in a thermoset polymer resin matrix. The products manufactured from GFRP composite are lightweight, corrosion-resistant and highly durable that can be customized to meet the specific requirements of a diverse range of industrial and engineering applications.

What are GFRP Roofing sheets? ;?

GFRP Roofing sheet is a flagship product of NewMaterial Division, Tata Steel that denotes UV stabilized corrosion-proof translucent & opaque GFRP sheets for roofing applications.

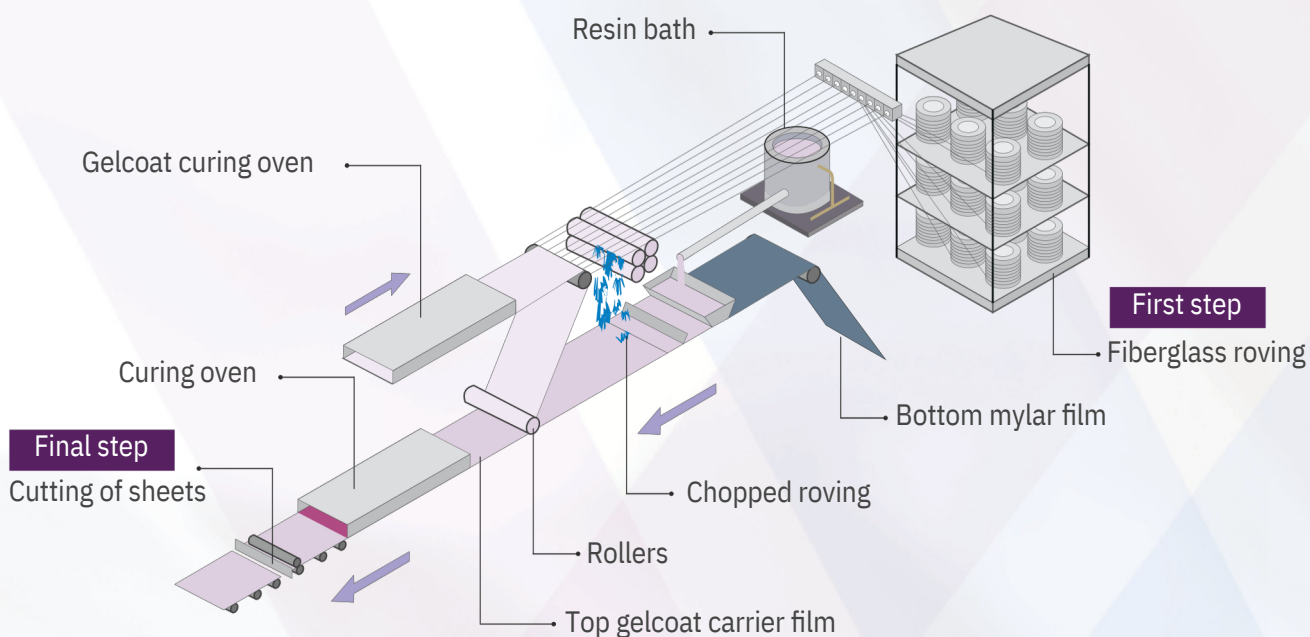
- Translucent sheets let in natural light to not only brighten your spaces but also add an aesthetic touch in a cost and energy efficient manner.
- Opaque sheets provide resistance to corrosive environments e.g., coastal areas, saline, acidic or alkaline environment.

Adhering to the highest quality standards, our durable, easy to install & maintain roofing sheets are suitable for residential, commercial & industrial applications; particularly those exposed to corrosion.



Manufacturing process

Our roofing sheets are produced in new age continuous lamination machine (CLM) with strict quality control and adhering to the highest standards of excellence. The key raw materials include high quality thermoset resins and glass fiber which provide superior mechanical strength and corrosion-proof properties compared to other conventional roofing materials.



Turning sunlight into savings

As the world moves towards more eco-friendly solutions, more industrial sheds and buildings are using skylights. Our GFRP lighting sheets can be used in both roofs and side-walls as skylights that bring in natural sunlight.

Skylights installed strategically can save energy costs by reducing the need for electric lighting during daytime without causing any heating issues.



Locking out rust, embracing trust

GFRP being a non-metallic composite material is inherently corrosion-resistant. It does not rust or degrade in aggressive environments, reducing maintenance requirements significantly.



Product features



High durability

Doesn't get brittle when exposed to sun & rain



Intact colour

Colour doesn't become yellow/ milky



Top quality & aesthetics

Has uniform thickness and nish



Highly corrosion resistance



High load & impact resistance



Easy to install & maintain



No transmission of direct heat



Our GFRP sheets used in a timber manufacturing unit, Uttar Pradesh

Technical specifications

	Physical properties	Standard	Tata Steel GFRP Roofing sheet	Conventional polycarbonate	Conventional local brand
1	Glass content (%)	IS 12866	Min 30	0	28
2	Bolt shearing (Mpa)	IS 12866	Min. 800	62	624
3	Water absorption (%)	IS 12866	Max. 0.3%	0.70%	0.80%
4	Barcol hardness (BHN)	IS 12866	25-45	86	45
5	Static load (deflection in mm)	IS 12866	Max 15	18	10
6	Tensile strength (Mpa)	ASTM D 638	Min. 80	40	120
7	Flexural strength (Mpa)	ASTM D 790	Min. 120	32	171
8	Izod impact strength (N)	ASTM D 256	Min. 80	20	46
9	Specific weight (gm/cc)	ASTM D 792	1.4 to 1.7	-	-
10	Thermal expansion coefficient (°C)*	ASTM D 696	Max. 1.92×10^{-6}	2.86×10^{-6}	1.56×10^{-6}
11	Light transmission (%)*	IS 12866	80 to 85	80 to 90	60-80
12	UV Exposure* (Delta E value after 1000 hrs)	ASTM G 154	Max 5	5 to 8	28

- The above properties can be customized as per requirement.
- The above tests have been carried out with 2mm lighting sheets across materials for like-for-like comparison.
- *Here, one time testing carried out; tests not done for every lot due to long testing time.

Fire retardant properties

Fire Retardant (FR) additives are added to opaque sheets that prevent fire from spreading i.e., slow down the spread. It burns with difficulty and requires a continuous external flame source to initiate combustion. Flammability test has been carried out as per IS 6746 and observed flammability value is low.

Without flame over fire conditions, fire will tend to extinguish itself. However, when forced to burn it will produce a sooty fire.

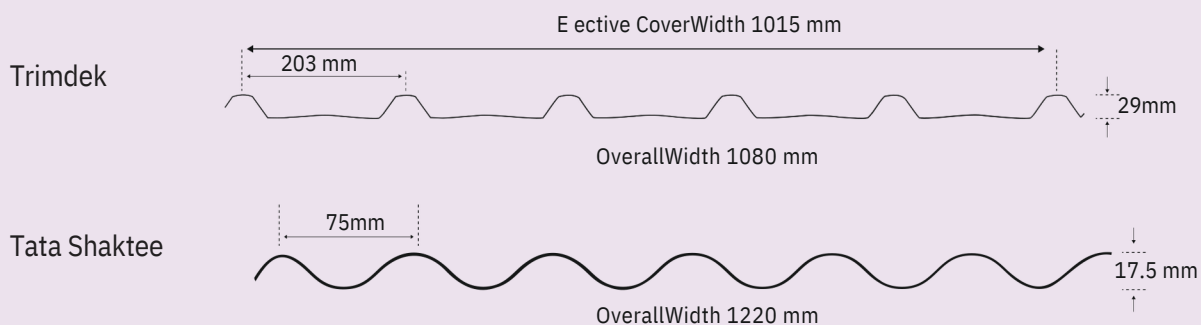


Pro le range

Pro les can be customised as per requirement*

Our top pro les include:

* Dependent on MOQ



Product specifications

1	Product name	Opagues, Translucent (>80% transparency) GFRP sheets
2	Thickness (in mm)	1.2, 1.5, 2, 2.5, 3
3	Width (in mm)	1080, 1220, 1351 (can also customize)
4	Length (in ft)	8, 10, 12, 20 (can also customize)
5	Colour	Any RAL colour
6	Pro le	Trimdek, GC Pro le (can also customize for bulk orders)
8	Tolerance	+ or – 10%
9	MOQ	Min 500 sq mt

Gaining confidence with Tata Steel's quality assurance

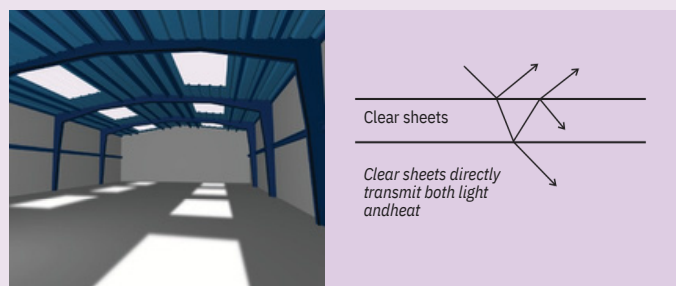
Over the past couple of decades, trust in fibre as a roofing material has eroded. This is largely because of the inferior quality of resin & fibre being used. With Tata Steel's unwavering commitment to excellence, we aim to establish trust in our customers who are seeking high quality and aesthetic appeal through our unique value proposition.



NMB GFRP Roofing sheet	Others
Machine made; have uniform thickness	Handmade; have non-uniform thickness
UV stabilized; Discoloration not an issue	Turns yellow/ milky color with time on UV exposure
Highly durable	Turns brittle over time
Keeps shed 4-5 °C cooler	Poor thermal insulation

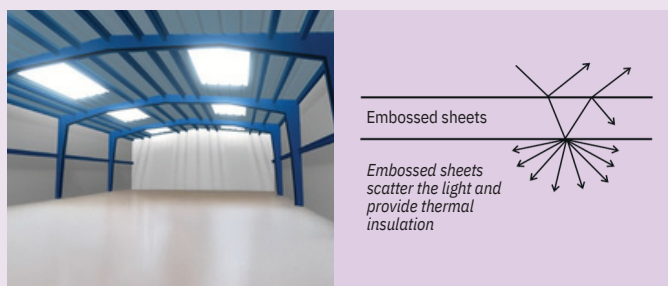
Unlike conventional skylights, glass strands in our GFRP sheets naturally disperse sunrays eliminating the issues of glare, heat, UV damage and formation of hot spots on floors.

Conventional Roofing sheet



Conventional skylights use clear sheets which directly transmit light and heat

NMB GFRP Roofing sheet



Our GFRP Roofing Sheets eliminate need for embossed sheets which scatter light and provide thermal insulation

Application areas



Warehouse,
Industrial sheds



Chemical
industries



Covered walkways
in Airports, Sport
venues, Stadiums



Restaurants



Outdoor
Poultry farms



Nurseries



Shops



Rice mills



Cottage
industry sheds



House
extensions



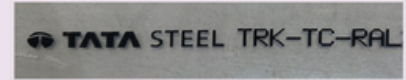
Outdoor
kitchen



Staircase top

Ensuring Product Authenticity

Each of our GFRP sheets comes with a set of symbols on its surface. It includes - 'Tata Steel' brand mark, 'Tata logo' and a QR code. Always check for these symbols and scan the QR code to be assured of the product authenticity.



(Printing as appears on the sheet)

General guidelines



During installation

- Never walk directly on sheet; always walk on purlin.
- **Cutting:** GFRP sheets can be cut using diamond impregnated or diamond bonded saws. During the process, use PPE (Personal protective equipment) i.e., safety helmets, gloves, eyeglasses, earplugs, full-body suits, safety footwear, and respiratory protective equipment. Blow off the dust after cutting.
- **Drilling:** All sheets should be pre-drilled not less than 4 cm from the sheet end and the holes drilled are to be a minimum of 1.6 mm larger than the fastener diameter.
- **Fastening:** When possible, fasteners should be installed at high point of the corrugation with spacings of 15 cm to 20 cm on the center at sheet end and 30 to 40 cm on center for immediate purlins and siding applications. Do not over tighten as this may damage the sheet. Can use self-tapping screw.
- **Installation:** Use roof ladders for installation. Never allow sheet to support undistributed loads such as the weight of a human body. Clean all waste material on the sheets after installation is complete.



While cleaning

- Always practice safety first and never step on the sheet directly; use purlin.
- Never use abrasive or high alkaline cleaners on the sheet. Use water instead.
- For large roofing applications and to reach unreachable areas, use a pressure washer with fanned nozzle and mild detergent that can help remove dirt, algae and mold build-up from the sheets.



Striding towards tomorrow

To champion a better tomorrow, Tata Steel has always been in the pursuit to be permanently future ready. We keep scanning the external context to harness possibilities way before they become mainstream. This endeavor to translate foresight into actions has pushed us to go beyond steel and create innovative solutions that make a positive difference to the society.

In 2018, Tata Steel diversified into new materials under its New Materials Business, through which we seek to create a knowledge-intensive business by exploring materials beyond steel. GFRP (Glass Fibre Reinforced Polymers) Composites is one such new material.

The portfolio of GFRP products include roofing sheets, rebars, structural sections, gratings, ladders, barricades amongst others.

The scope of this brochure is GFRP Roofing sheets.



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