

## Durability & Maintenance

- **Engineered for Strength That Stays**

With up to 3x the tensile strength of steel, GFRP doesn't just start strong — it stays strong throughout the life of the structure.

- **Twice the Lifespan of Steel**

While steel lasts 40–50 years (with maintenance), GFRP can push beyond 80–100 years — making it the smarter long-term choice.

- **Corrosion-Proof**

Unlike steel, GFRP rebars never rust — even in salty coastal air, chemical-rich zones, or underground water-prone areas.

- **Low Thermal Conductivity**

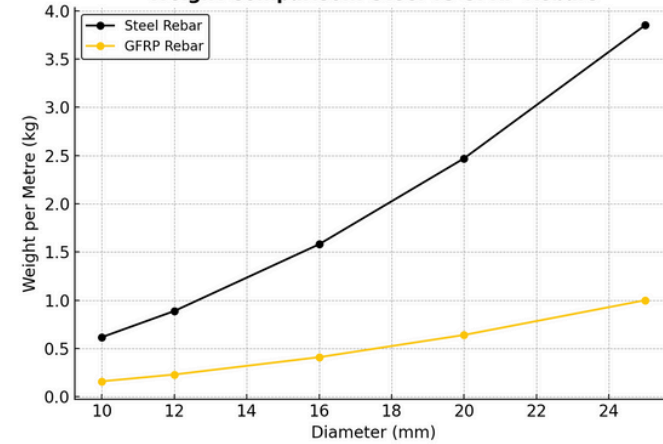
Doesn't transfer heat like metal. Ideal for extreme temperature zones and insulated structures.

- **Chemically Inert**

Resistant to acids, salts, chlorides, and alkalis — perfect for aggressive environments and long-term durability.

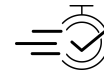
## Lightweight

Weight Comparison: Steel vs GFRP Rebars



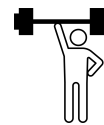
- **Lightweight & Easy to Handle**

Just one-fourth the weight of steel. Move, cut, and install it with ease — no heavy lifting equipment required.



- **Faster Construction, Less Labour Fatigue**

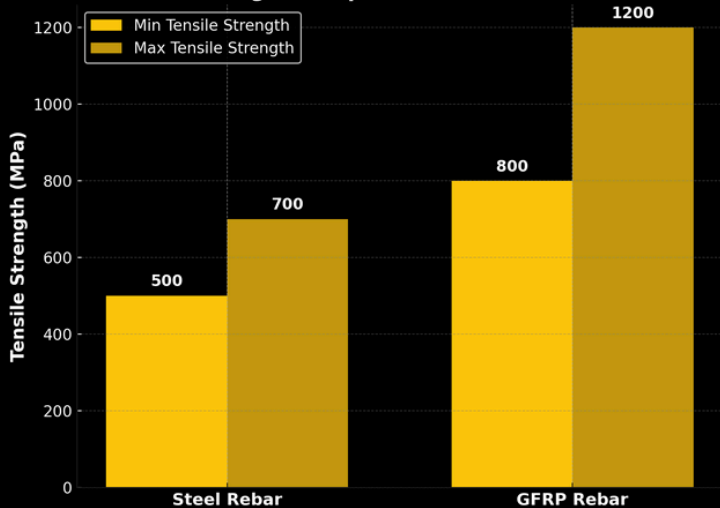
Workers can move and install GFRP rebars more quickly, reducing fatigue and boosting on-site productivity.



- **Easier for Complex Sites**

Perfect for difficult terrains, remote locations, or confined spaces where moving steel would be a challenge.

Tensile Strength Comparison: Steel vs GFRP Rebars



## Cost Efficiency



- **10-25% Overall Cost Savings**

Projects using GFRP rebars typically see a 10-25% reduction in total construction cost when factoring in transport, labour, and long-term maintenance.

- **No Need for Protective Coatings**

Unlike steel, GFRP rebars don't require epoxy coatings or corrosion inhibitors, reducing upfront material and treatment costs.

## Steel Vs GFRP

	Steel Rebar	GFRP Rebar	Excellence of GFRP rebar
Corrosion Resistance	Prone to rust and corrosion	100% corrosion resistant	Longer lifespan, especially in harsh environments
Tensile strength	500 - 700 MPa	800 - 1200 MPa	3 times stronger for the same size
Bond strength	10-13 MPa	14-25 MPa	Better grip with concrete
Life time	40-50 years	80 -100 years	Longer-lasting structures
Thermal Conductivity & EM Interference	Conducts heat & EMF	Non-conductive	Ideal for structures near sensitive equipment
Sustainability	High CO <sub>2</sub> emissions	~75% less CO <sub>2</sub>	Eco-friendly and supports green construction
Handling	Requires cranes and heavy equipment	Can be carried by hand	Safer, faster on-site work

## Sustainable by Design



- **Ideal for Low-Carbon Projects**

Perfect for green-certified buildings, sustainable infrastructure, and government tenders prioritising eco-efficiency.

- **Eco-Friendly**

Produces ~75% less CO<sub>2</sub> compared to steel rebars, supporting green construction goals.

# Applications and Approvals

## Bridges & Flyovers



- Approved under IS 18256:2023 for all structural uses
- IRC:137:2022 covers design for road bridges
- MoRTH permits non-load applications (barriers, railings)

## Retaining Walls

- Approved via IRC:137:2022 & IS 18256:2023 for retaining and breast walls



## Highways & Roads



- Use in rigid pavements, culverts (IRC:137:2022)
- MoRTH: Recognised as a durable alternative

## Tunnels & Underground

- Used in Delhi, Mumbai metro TBM shafts
- Suitable for buried tanks & concrete



## Marine & Coastal Structures



- Ideal for jetties, wharfs, coastal durability (IS 18256 + IRC:137)

## Parking Structures

- Ideal for ramps, slabs, corrosion-prone zones
- Design possible using ACI 440.11



## Industrial Structures



- IS 15988:2013 allows FRP for RC retrofits

## About us

At NJVB, we believe that strong foundations don't just support structures — they shape a stronger, more sustainable future. Based in Pune and proudly led by two dynamic women directors, NJVB is a female-driven company redefining the construction landscape with a fresh, conscious perspective.

Our mission is to manufacture high-quality GFRP (Glass Fiber Reinforced Polymer) rebars that are eco-friendly, sustainable, and built for the future. Every bar we produce reflects our commitment to environmental responsibility — without compromising on strength, durability, or performance.

With a strong focus on innovation, quality, and green engineering, NJVB is dedicated to supporting developers, builders, and infrastructure projects that share our vision of building a better, corrosion-free world.