

WHY SPECIFY GRP OVER TRADITIONAL STEEL?

A Professional Engineering Comparison & Lifecycle Value Breakdown

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Reliable, Resourceful.

1. LOGISTICS, WEIGHT & ON-SITE INSTALLATION

GRP (GLASS REINFORCED PLASTIC)

75–80% Lighter Than Steel: Drastically minimises health and safety risks involved with manual handling. Eliminates the requirement for heavy lifting gear, specialised crane rentals, and excessive site labour. Fast and seamless modification options using basic hand tools.

TRADITIONAL STRUCTURAL STEEL

Heavy & Bulky Material: Requires significantly more manual labour, heavy equipment machinery, and higher transport overheads. Slower install phase due to strict mechanical lifting protocols. Requires complex welding setups for adjustments.

2. ENVIRONMENTAL DURABILITY & ASSET LIFESPAN

GRP (GLASS REINFORCED PLASTIC)

50+ Years Asset Lifespan: Exceptional corrosion and chemical resistance. Will not rust, rot, or degrade in aggressive marine, wastewater, or coastal environments. Requires completely zero painting, premium top-coats, or restorative chemical treatments.

TRADITIONAL STRUCTURAL STEEL

Prone to Oxidation & Degradation: Highly vulnerable to severe rust and structural compromise when exposed to moist, chemical, or salt-heavy settings. Reduced operating lifespan requires regular re-galvanization or chemical protective painting layers.

3. CRITICAL SAFETY HAZARDS & RISK MITIGATION

GRP (GLASS REINFORCED PLASTIC)

Advanced Protection Matrix: Structurally non-conductive, serving as an electrical and thermal insulator—ideal for rail, utility sub-stations, and high-voltage zones. Manufactured with integral high-grit textures for leading slip resistance. Non-sparking features protect explosive hazard sites.

TRADITIONAL STRUCTURAL STEEL

Inherent Operational Risk: High electrical and thermal conductivity requires complex on-site earthing arrays. Surfaces are naturally smooth and present severe slip/trip risks unless additional grating profiles are welded. Tools dropping on steel pose an immediate spark risk.

4. COMPREHENSIVE FEATURE SCORECARD

Performance Attribute	GRP Composite Material	Traditional Steel Structure
Corrosion Resistance	Excellent Impermeable to moisture	Poor Prone to aggressive rust
Strength-to-Weight	High Lightweight yet strong	Imbalanced Ultra-heavy footprint
Electrical Properties	Insulator Non-conductive asset	Conductor Strict safety earthing needed
Maintenance Cycle	Zero Maintenance-free structure	High Ongoing coatings & treatments
Chemical Resistance	Excellent Impervious to chemicals	Vulnerable Subject to rapid chemical attack
Whole-Life Financials	Lower Cost Low lifetime overhead	Higher Cost Cumulative maintenance bills



✓ **GRP: Built to last in harsh environments**
Corrosion-resistant. Low maintenance. Long service life.



✓ **Lightweight. Strong. Safe.**
Easy to install and engineered for performance.



✗ **Steel: High maintenance. High cost.**
Corrosion leads to repairs, downtime and higher costs.

Ready to modernise your next structural engineering framework?

Swap out heavy, high-maintenance steel for Relinea's custom engineered GRP solutions.

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