



relinea®

Reliable, Resourceful.

Is GRP Really Sustainable?

The Environmental Case for Glass Reinforced Plastic

The Real Question



No manufactured material is impact-free

Every production process carries an environmental cost — the question is how we account for it.

Ask the right question

Not "Is GRP green?" — but "**What is the whole-life environmental impact of this solution?**"

Lifecycle thinking changes the calculation

Sustainability decisions made at the point of specification must account for the full service life.

What Is GRP?

Material Composition

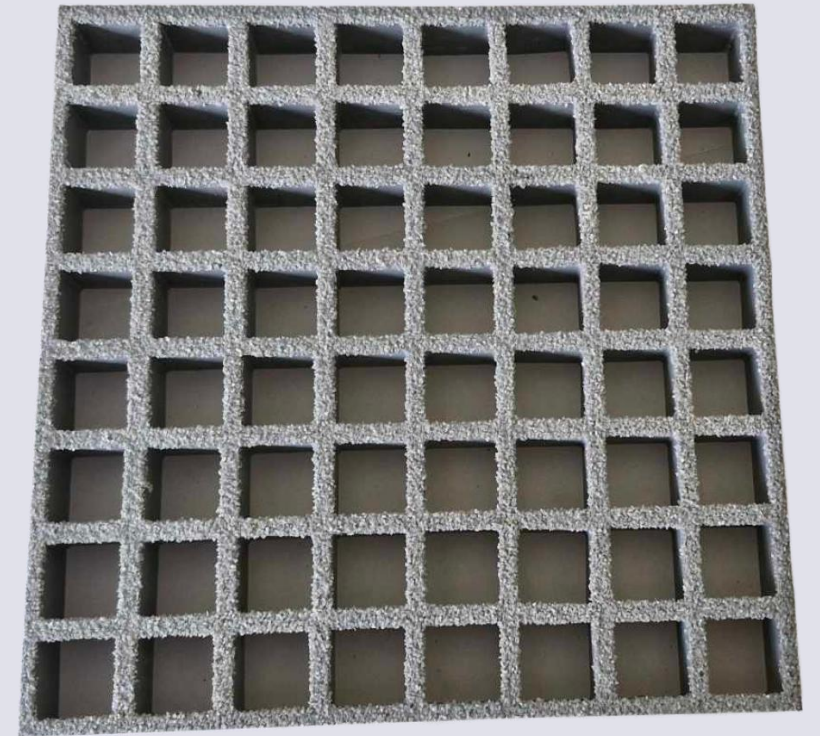
Glass Reinforced Plastic: a composite of glass fibres embedded in a polymer resin matrix.

Typical Applications

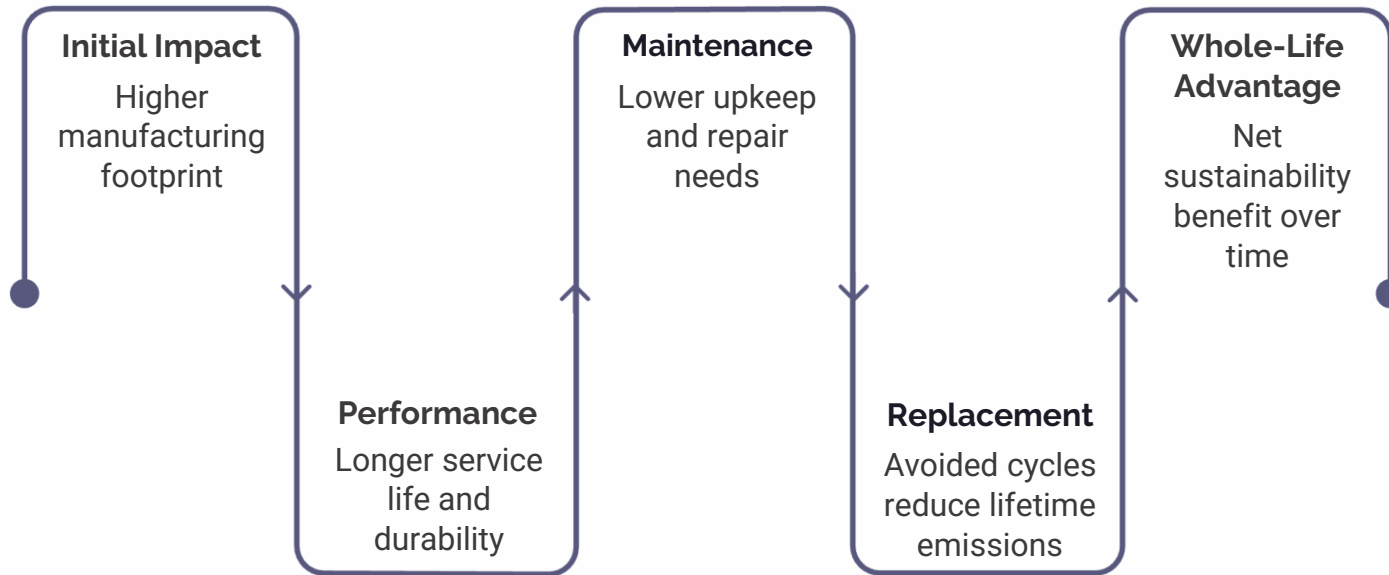
Access platforms, walkways, stairs, handrails, grating, and structural profiles across industrial sectors.

Core Properties

Combines low weight, structural strength, and inherent corrosion resistance in a single material solution.



Why Whole-Life Assessment Matters



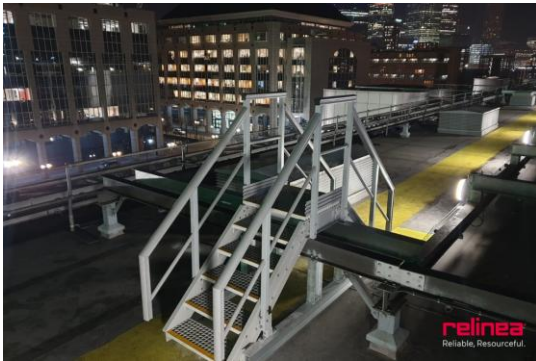
Don't judge on day one

A material with a higher manufacturing impact can still be the more sustainable choice over its service life — if it lasts longer, demands less maintenance, and avoids repeated replacement.

The only valid comparison is between **complete solutions**, assessed across their full operational lifespan — not just initial material weight or production energy.

The GRP Sustainability Case

LONG SERVICE LIFE



50-Year Reference Service Life

A longer lifespan directly reduces the number of replacement cycles over the life of an asset.



Fewer Replacements

Each avoided replacement means less manufacturing, transport, installation, and disposal — compounding environmental savings.



Durability as Sustainability

For infrastructure assets, durability is one of the single most important sustainability factors available to specifiers.

Steel Corrodes. GRP Doesn't.



The steel maintenance burden

Steel deployed in aggressive environments requires protective coatings, periodic painting, inspection regimes, and corrosion treatment — all of which carry repeated material and carbon costs.

GRP's inherent advantage

GRP is corrosion-resistant by nature in moisture, chemicals, salts, and coastal conditions. No protective coatings required, no periodic repainting — fewer maintenance interventions and lower material consumption across the asset's full life.

LOW MAINTENANCE

Less Maintenance, Lower Environmental Impact

Steel: ongoing intervention

Steel structures typically require cleaning, coating renewal, corrosion treatment, and periodic component replacement throughout their operational life.

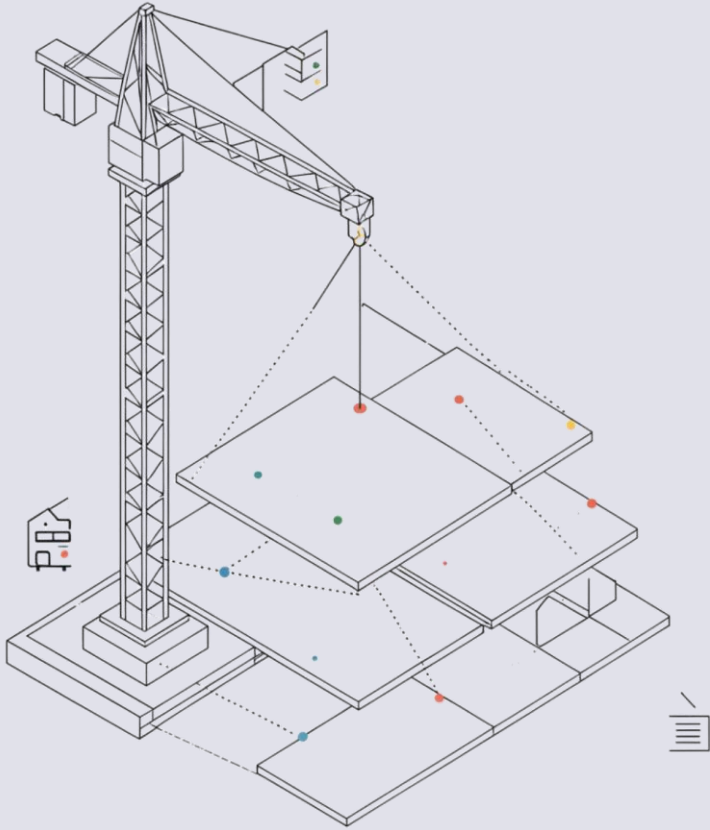
GRP: designed low-maintenance

GRP access platforms are specified as low-maintenance solutions, reducing the frequency and intensity of site interventions over decades.

Use-phase emissions matter

Fewer site visits, less labour, less materials consumption during the use phase translates directly into a lower environmental impact across the full lifecycle.

Weight Matters More Than You Think



Lower Transport Emissions

Reduced weight means less fuel per delivery – lowering the carbon cost of getting materials to site.

Smaller Equipment

Lighter components require less heavy lifting equipment, reducing energy use and site disruption during installation.

Structural Load Benefits

GRP imposes less additional load on existing structures, potentially avoiding the need for costly and carbon-intensive structural upgrades.

GRP vs Steel: Application Matters

Factor	GRP	Steel
Corrosion Resistance	Inherent	Requires protection
Maintenance Burden	Low	Ongoing corrosion work
Weight	Lighter	Heavier
Aggressive Environments	Well-suited	Vulnerable

No universal winner

The right material choice depends on environment, service conditions, and total service life. GRP delivers its strongest sustainability advantages where corrosion is a genuine operational risk.

❏ The question is not which material is universally superior – it is which solution performs best across the full life of your specific asset.

Where GRP Wins: Aggressive Environments



Water & Wastewater

Constant moisture, hydrogen sulphide, and cleaning agents make steel vulnerable. GRP performs without protective paint systems.



Chemical Processing

Exposure to aggressive chemicals and solvents that would rapidly degrade conventional steel structures and coatings.



Marine & Coastal

Salt spray, tidal exposure, and humidity create relentless corrosion challenges that GRP's inherent resistance eliminates.



Beyond Carbon: Comprehensive Environmental Assessment

A complete picture of environmental performance goes far beyond a single metric.

Multiple Indicators

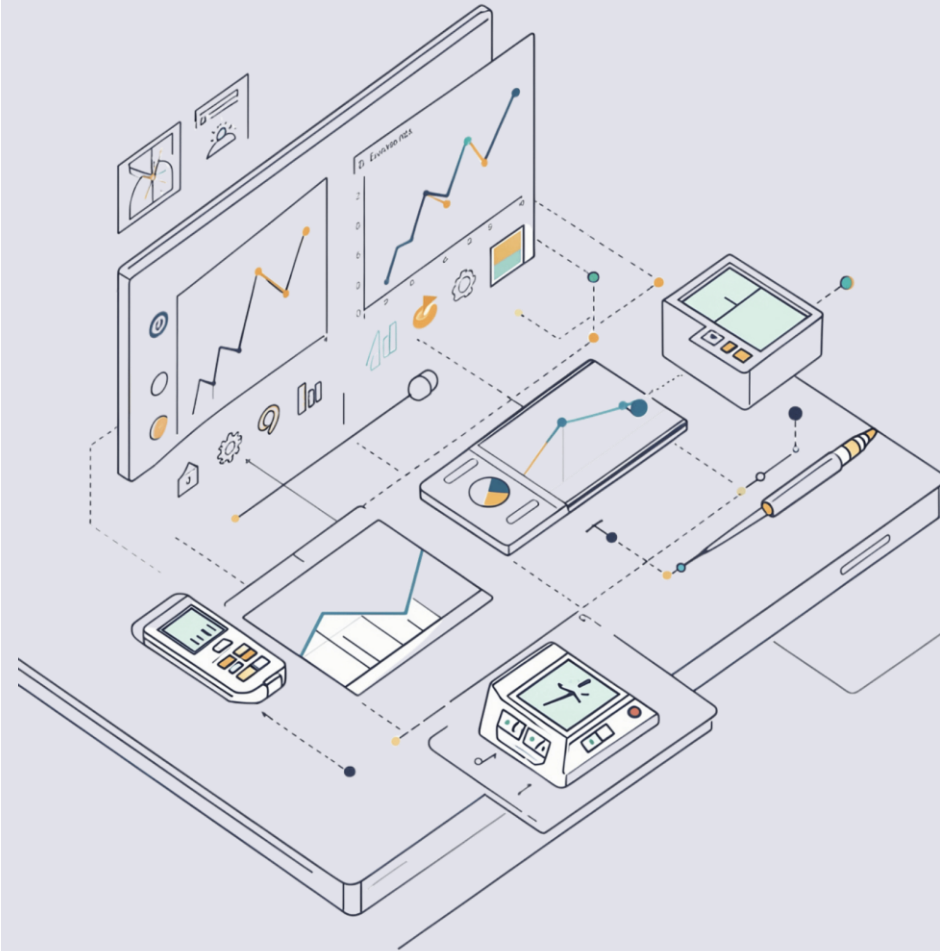
Global warming potential, energy use, water use, resource consumption, acidification, eutrophication, and waste

No Single Metric Tells the Full Story

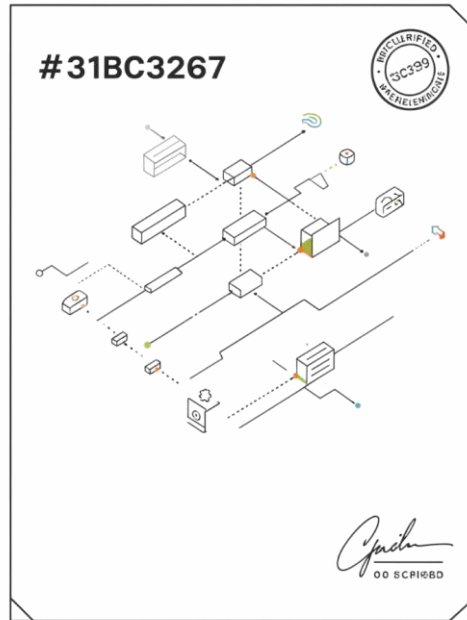
A product that performs well on carbon may not perform equally on every environmental indicator

Relinea's EPD

Includes multiple environmental metrics — not just carbon — for a genuinely comprehensive assessment



Why EPDs Matter



Evidence Over Claims

An **Environmental Product Declaration (EPD)** provides independently verified lifecycle data — replacing marketing claims with rigorous, third-party evidence.

Full Lifecycle Coverage

Manufacturing, installation, use, maintenance, and end-of-life scenarios

Specifier Confidence

Gives designers and specifiers evidence-based information instead of unverified marketing claims

Independent Verification

Data is assessed and confirmed by a recognised third-party body

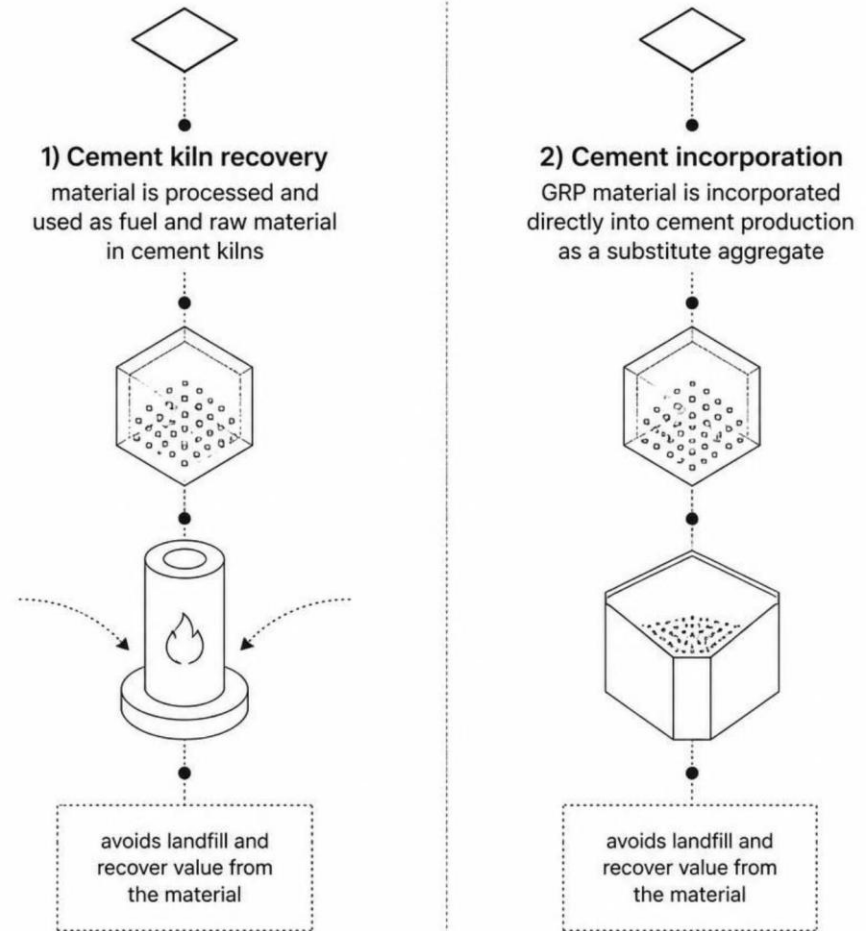
The Recycling Question

Understanding GRP End-of-Life

GRP contains polymer resin and **cannot be simply melted and remoulded** like thermoplastics — end-of-life options require careful consideration.

- End-of-life pathways include **cement kiln recovery** and incorporation into cement production
- Product-specific lifecycle information is preferable to generic recycling claims

□ Always seek product-specific lifecycle data — generic recycling assumptions can be misleading for GRP.



Specifying Sustainable GRP: A Practical Checklist

1

Service Life

Expected duration, maintenance frequency, and corrosion protection needs

2

Construction

Weight, transport requirements, lifting equipment, and site disruption

3

Environmental Data

Is an EPD available? Is it independently verified?

4

End-of-Life

What recovery or disposal routes are available for this specific product?



The Bottom Line



When GRP is the Right Choice

GRP is a **sustainable choice** when whole-life environmental performance is appropriate for the application.

→ The Case for GRP

Long service life, corrosion resistance, low maintenance, lightweight construction, and verified environmental data

→ What Sustainable Specification Really Means

Choosing the right solution based on **performance and lifecycle evidence** — not marketing claims

Contact & Resources

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