BFRP Technologies Strength Forged by Nature

SPECIFICATION / DESIGN REVIEW / SITE PLANNING

BFRP reinforcement Technical guide

A practical framework for evaluating basalt FRP reinforcement and preparing a project-specific technical submission.

Specify clearly.
Review evidence.
Plan delivery.



For project teams, specifiers and construction coordinators.
Use alongside approved drawings, supplier instructions and the engineer's requirements.

Build the project brief

Record the conditions that drive reinforcement selection before comparing products.

01

Structure and exposure

Identify the member type, marine or de-icing salt exposure, moisture conditions and required service life.

02

Performance criteria

Record load cases, crack-width and deflection criteria, fatigue demands and fire requirements.

03

Project constraints

Confirm geometry, cover, congestion, access, lifting arrangements and the construction sequence.

04

Acceptance route

Identify the engineer, owner requirements, applicable standards and any project-specific approvals.

Deliverable: a written design basis and material schedule. BFRP is basalt fibre-reinforced polymer; glass-FRP evidence should not be treated as interchangeable product qualification.

Ask for traceable evidence

Evaluate the exact proposed product rather than a generic FRP performance claim.

01 Product identity

Fibre and resin systems, manufacturer, bar size, surface profile, straight or bent configuration and production-lot identification.

02 Mechanical properties

Declared tensile strength, elastic modulus, ultimate strain, bond performance and properties relevant to bends or transverse shear.

03 Durability evidence

Relevant moisture, alkaline exposure, sustained-load and temperature test information, including test conditions and acceptance criteria.

04 Quality records

Qualification reports, sampling and inspection arrangements, dimensional tolerances, certificates and traceability to supplied material.

Check behaviour, not just strength

FRP is essentially linear elastic to failure and does not provide the yielding behaviour of steel reinforcement.

01

Serviceability

Review stiffness, cracking, short-term deflection and long-term deflection under the specified service loads.

02

Strength and bond

Review member resistance, development, anchorage, lap locations and reinforcement detailing.

03

Sustained loading

Assess creep rupture and sustained-stress limits using evidence and provisions applicable to the product.

04

Environment and fire

Review exposure reductions, fatigue where relevant, cover and fire-performance requirements.

Do not use research test values as design allowables. The responsible engineer establishes project-specific design values and acceptance criteria.

Resolve the details early

Coordinate drawings, fabrication schedules and supplier information before ordering.

01 Geometry and bar schedules

Confirm sizes, quantities, spacing, laps, anchorage and required shapes against the approved design.

02 Bends and special shapes

Agree available shapes, bend geometry, fabrication tolerances and supporting qualification evidence with the supplier and engineer.

03 Placement coordination

Review supports, ties, cover and congestion with the concrete placement sequence and adjacent trades.

04 Substitutions and changes

Route changes in product, size, surface treatment or detailing through the project's technical review process before use.

Prepare for receipt and placement

Use an approved method statement based on the selected product and project requirements.

01

Receiving checks

Match delivery labels, bar dimensions, shapes and quantities to the approved schedule. Record discrepancies.

02

Storage and handling

Agree storage, support, protection and handling methods with the supplier. Inspect for damage before placement.

03

Cutting and adjustments

Confirm permitted cutting methods, equipment and worker protection. Obtain approval for proposed field adjustments.

04

Before concrete placement

Verify reinforcement position, cover, supports, ties and cleanliness against the approved drawings and inspection plan.

Hold point: resolve damaged material, missing documentation or unapproved changes through the project team before incorporating the reinforcement.

A clear record of acceptance

Use this checklist at the technical-submission and pre-placement review stages.

- [ ] Application, exposure and service-life requirements recorded
- [ ] Proposed product and production traceability confirmed
- [ ] Material qualification and durability evidence reviewed
- [ ] Design properties and applicable provisions agreed by the engineer
- [ ] Bar schedules, bends, anchorage and laps coordinated
- [ ] Storage, handling and installation instructions available
- [ ] Inspection and independent-testing requirements agreed
- [ ] Changes, non-conformances and approvals documented

Project: _____ Reviewer: _____

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BFRP TECHNOLOGIES

Turn technical evidence into a project-ready plan.

Bring together the design basis, material submission and installation plan to support an informed reinforcement decision.

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USING THIS GUIDE

This guide is a coordination and review aid. It does not supply design equations, universal material properties, installation tolerances or product certification.

Use the current applicable standards, approved project drawings, product-specific documentation and qualified engineering review. Research background reflects information available in April 2023.