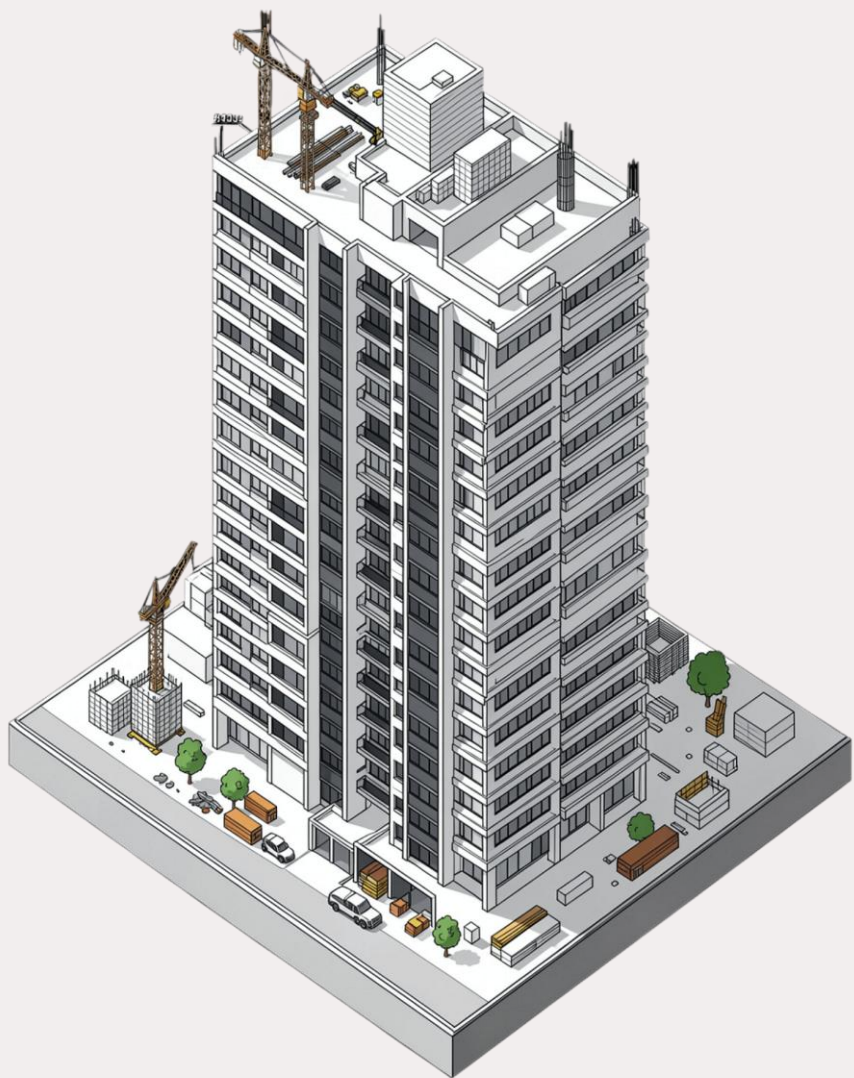




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Designing Riser Void Protection for Higher-Risk Buildings

A Technical Guide to Permanent GRP Solutions for Architects, Structural Engineers & M&E Consultants

The Regulatory Shift: Why Riser Design Matters Now

The Building Safety Act 2022 has fundamentally changed how riser protection must be approached — early, documented, and traceable from RIBA Stage 2 onwards.

Regulation	Key Requirement	Impact on Riser Design
Building Safety Act 2022	HRBs (18m+, 7+ storeys) require documented, traceable decisions	Riser protection must be specified at RIBA Stage 2–3 with full design approval
Gateway Approvals	Construction cannot proceed without BSR approval	Late riser changes create regulatory delays and cost overruns
CDM 2015	Safe access designed out; permanent collective protection prioritized	Permanent GRP flooring eliminates temporary site measures

📌 Early-stage specification at RIBA Stage 2–3 is now a regulatory necessity, not a design preference.

The Fall-from-Height Crisis

Unprotected riser voids represent some of the most critical fall hazards on multi-storey construction sites — demanding permanent engineered solutions, not temporary workarounds.

Hazard Type	Risk Level	GRP Solution
Unprotected Riser Openings	CRITICAL – Vertical fall hazards across dozens of storeys	Permanent GRP flooring provides instant safe platform
Temporary Scaffolding	HIGH – Requires ongoing inspection, maintenance, removal	Eliminates temporary edge protection costs entirely
Construction Phase Access	HIGH – Multiple trades working at height simultaneously	Safe, stable platform for all trades without harnesses



Riser Voids: A Multi-Discipline Bottleneck

Riser design sits at the intersection of every major discipline on a higher-risk building — demanding coordination from the earliest design stages.

Structural Frame

Concrete/steel deck must support all services and personnel loading

M&E Services

Ducts, pipes, cable trays compete for limited vertical space

Fire Compartmentation

Penetrations must maintain slab integrity and prevent smoke/fire spread

Health & Safety

Live loads, maintenance access, and worker safety during construction

Why Traditional Solutions Fall Short

When assessed across weight, installation, maintenance, and flexibility, GRP consistently outperforms conventional riser materials.

Material	Weight	Installation	Maintenance	Flexibility
Timber Covers	Variable	Manual	Combustible; removed during M&E	Poor – creates fall hazards
Steel Grating	30–40 kg/m ²	Hot works, crane lifts, earth-bonding	Rust, galvanizing touch-ups	Poor – difficult to modify
GRP (Relinea)	12–18 kg/m ²	Manual, no hot works	Zero	Excellent – easily modified

- ✔ GRP is 50% lighter than steel, requires no hot works, and delivers a 50+ year zero-maintenance lifecycle.

The GRP Riser Solution: Key Advantages



Lightweight

12–18 kg/m² —
manual handling by
two operatives, no
crane required

Non- Conductive

No earth-bonding
complexity; non-
sparking prevents
accidental ignition

Corrosion- Resistant

Zero maintenance
over 50+ year
lifecycle; no rust,
paint, or galvanizing

Fire-Rated

BS 476 Class 1 / BS EN 13501 Part 1 Fire classification

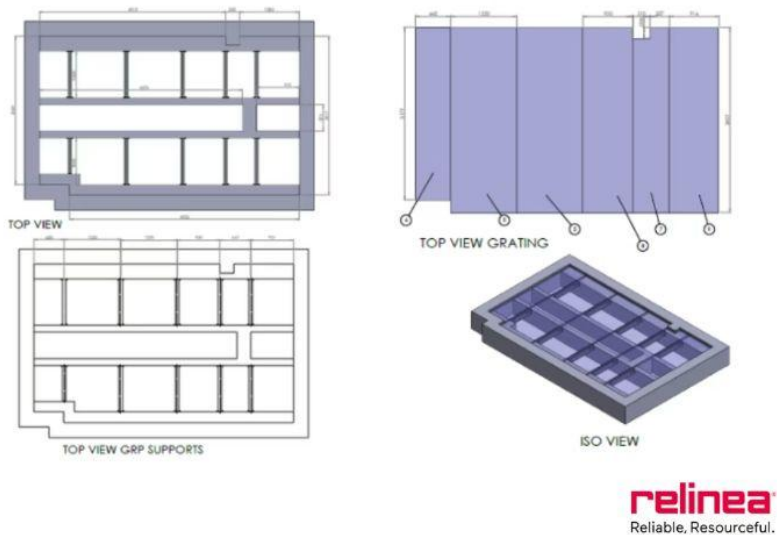
Structural Performance & Fire Safety: Meeting Design Standards

Structural Performance

Parameter	Standard	GRP Capability
Design Standards	BS EN ISO 14122, BS 4592	Fully compliant with Chartered Engineer calculations
Point Load	1.5–2.7 kN	Engineered to specification
UDL	2.5–5.0 kN/m ²	5.0 kN/m ² industrial rating standard
Weight	Steel: 30–40 kg/m ²	GRP: 12–18 kg/m ² (50% lighter)

Fire Safety: Vertical Shaft Protection

Criterion	Standard	GRP Specification
Reaction to Fire	BS 476 Part 7	Class 1 flame spread (Class 0 available)
Fire Propagation	BS 476 Part 6	Euroclass EN 13501-1 compliant
Electrical Safety	BS 7909	Non-conductive; eliminates earth-bonding
Penetration Integrity	BS EN 1366	Supports fire-batt, seals, pipe collars



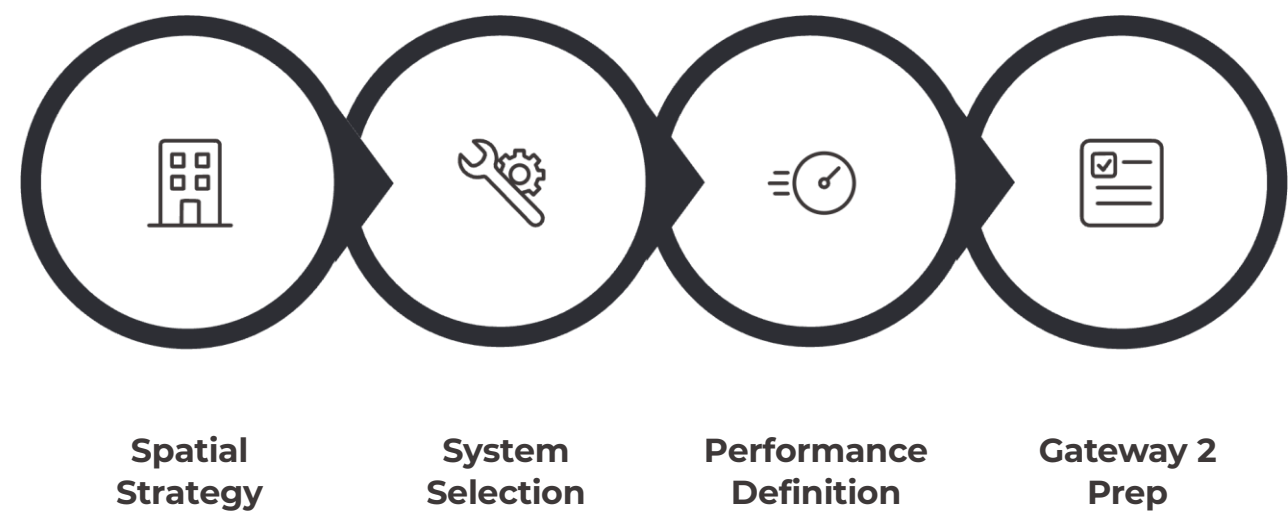


Three Critical Project Phases

GRP riser flooring delivers value across the full building lifecycle — from first slab pour through to operational FM access.

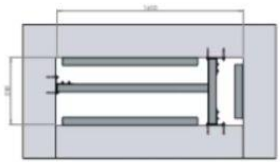
Phase	Timeline	Key Need	GRP Solution
Phase 1: Shell & Core	Weeks 1–12	Immediate fall protection as slabs poured	Cast-in or post-fixed same day; instant safe platform
Phase 2: M&E First-Fix	Weeks 12–24	Safe platform for installers; service access	Lightweight lift-out panels; no temporary scaffolding
Phase 3: Operational Life	50+ years	FM maintenance access; zero corrosion	Corrosion-resistant; zero maintenance; safe access

Design Integration: RIBA Stage 2 – Concept Design

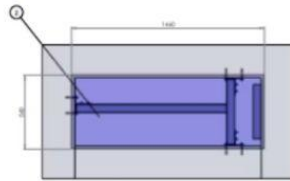


Design Task	Deliverable	Relinea Support
Spatial Strategy	Identify vertical riser zones across all floor plates	Preliminary layout advice; spatial coordination
System Selection	Specify permanent GRP flooring; eliminate temporary budgets	Product selection guide; cost comparison
Performance Definition	Set loading (2.5–5.0 kN/m ²) and fire classification	Technical specification template
Gateway 2 Prep	Outline Building Safety Risk Strategy alignment	Compliance checklist; documentation roadmap

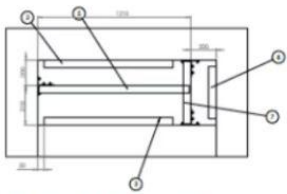
Design Integration: RIBA Stage 3 – Spatial Coordination



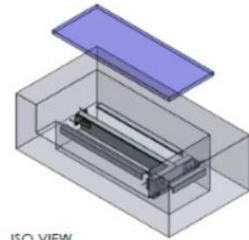
TOP VIEW M&E LAYOUT



TOP VIEW GRATING



TOP VIEW GRP SUPPORTS



ISO VIEW

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Design Task	Deliverable	Relinea Support
M&E Clash Detection	Overlay M&E layouts with riser structural framing	3D BIM coordination; clash resolution
Fixing Method Selection	Cast-in frame vs. retrofit/post-fixed brackets	Technical comparison; installation sequencing
Structural Calculations	Detailed load analysis; cut-out provisions	Chartered Engineer calculations; 3D FEA
Gateway 2 Submission	Complete design package with fire certification	Pre-prepared documentation; BSR compliance



Stage 3 is where GRP's engineer-backed documentation gives projects a decisive advantage at Gateway 2 submission.

Specify Early. Build Safely. Comply Confidently.

Permanent GRP riser flooring is the only solution that simultaneously satisfies structural, fire, M&E, and safety requirements — specified at the right stage to avoid costly regulatory delays.

RIBA Stage 2

Engage Relinea for spatial strategy, system selection, and performance definition

RIBA Stage 3

Complete BIM coordination, structural calculations, and Gateway 2 documentation

Gateway 2

Submit a fully compliant, engineer-certified riser protection package to the BSR

Operational Life

50+ years of zero-maintenance, fire-rated, FM-accessible riser flooring

Relinea — Technical enquiries: info@relinea.co.uk | www.relinea.co.uk



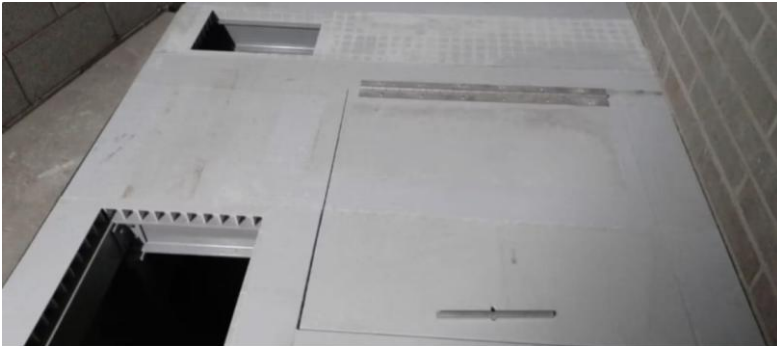
Modular Access & Maintenance

GRP riser void protection engineered for safe FM access, zero maintenance, and 50+ year lifecycle performance.

Feature	Specification	Benefit
Lift-Out Panels	Custom-sized sections; hand-removable; reinstallable	Safe access for pipe/cable pulling; no tools required
Anti-Slip Surface	BS 7976-2 rated; PTV > 36 (wet & dry)	Superior grip for construction and FM personnel
Corrosion Resistance	GRP material; no rust or degradation	Zero maintenance over 50+ year lifecycle
Material Lifecycle	50+ years; no painting, galvanizing, or touch-ups	Lowest total cost of ownership vs. steel

Case Study: Loft Lines, Belfast

778-UNIT BTR DEVELOPMENT



Project Overview

778 apartments across 3 residential blocks; 627 build-to-rent units. Practical completion summer 2026.

Scope

319.7 m² of Re-Grid 38mm GRP riser flooring; 3kN UDL over 2m²; mechanical, electrical, and smoke extract risers.

Solution

Lightweight GRP with continuous front beam and angle supports — non-conductive, corrosion-resistant, with integrated grit surface.

Results

- Efficient installation in confined riser spaces
- Zero maintenance over 50+ year lifecycle
- Safe, compliant platform for construction and FM access

Common Pitfalls & Solutions

Avoid the design decisions that create risk, cost, and delay on site.

Pitfall	Consequence	GRP Solution
Timber covers	Removed during M&E; fall hazards; combustible	Permanent, non-combustible flooring specified at early design stage
Heavy steel grating	Hot works, crane lifts, earth-bonding, late alterations	Lightweight; no hot works; easily modified on site
M&E designed in isolation	Clashes force unsafe field cutting	Coordinated BIM with exact penetration zones pre-defined
Incomplete cut-out calcs	Weakened grating integrity	Secondary support beams engineered upfront

Contact & Resources

Get in Touch

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