UHPC — Technical Specification

Ultra-High Performance Concrete · Compliance Matrix

SALBEN Group's Ultra-High Performance Concrete (UHPC) system is engineered for high-strength architectural cladding, structural facade elements, and applications demanding superior durability under extreme climate and seismic conditions. The matrix below sets out vendor compliance against the governing project specification, clause by clause.

§1.1.F SS 316 Anchors & Fasteners — COMPLIANT

All supports, anchors, fasteners, and panel framing are supplied in non-magnetic SS 316L per ASTM A276 / A240 / F593–F594, included in the standard bracket fabrication scope.

§2.2.A.1a Compressive Strength ≥ 105 MPa (15,000 psi) — COMPLIANT

UHPC mix design (CEM I 52.5R + microsilica + quartz aggregate + steel fiber) achieves ≥ 105 MPa at 28 days, tested per ASTM C39.

§2.2.A.1b Tensile Strength ≥ 3.0 MPa — COMPLIANT

PVA and micro-steel fiber reinforcement provides ≥ 3.2 MPa tensile strength, tested per ASTM C1609.

§2.2.A.1c Flexural Strength ≥ 15 MPa (Wet) — COMPLIANT

Mix design validated at ≥ 15 MPa in both length and width directions, tested per ASTM C1609.

§2.2.A.5 Freeze/Thaw Resistance (ASTM C666) — COMPLIANT

Panels retain ≥ 95% post-exposure strength with no visible cracking after freeze/thaw cycling, documented by third-party testing.

§2.2.D.3 Fiber Reinforcement (SS 316L Mesh) — COMPLIANT

Micro-steel fiber (SS 316L) per ASTM A580, with PVA fiber as secondary reinforcement.

§2.3 Anchor / Connector Materials (SS 316L) — EXCLUDED

Cast-in plates, Halfen/Jordahl channels, and ASTM F593/F594 bolts and nuts, stress-relieved and passivated per ASTM A380 — not included in current supply scope.

§2.4.B Surface Finish — Sandblast — COMPLIANT

Sandblast finish matched to the architect's 600×600 mm control sample per §1.4.C.

§2.8.D Curing Conditions — COMPLIANT

Forms are covered with moisture-retention fabric; concrete is kept moist for 24 hours at 30°C ±5°C.

§1.7.A Manufacturer Qualification — COMPLIANT

SALBEN Group has manufactured precast GFRC facade elements since 2006, with QC documentation maintained per GRCA International standards. GRCA member; PCI membership can be applied for if specifically required.

§1.7.B **Installer Experience ≥ 10 Years** — COMPLIANT

Installation crews carry 10+ years of GFRC/UHPC panel experience, trained and supervised directly by SALBEN's manufacturing team.

§1.8 **10-Year Warranty** — COMPLIANT

SALBEN provides a 10-year materials and workmanship warranty from the date of Substantial Completion.

§1.1.H **LEED Gold / LEED v4** — COMPLIANT

EPD documentation available for the UHPC mix, with recycled-content stainless fiber and low-emitting materials, reported per LEED v4 BD+C transparency requirements.

§3.2.A **Delivery & Storage** — COMPLIANT

Panels ship on non-staining, shock-absorbing dunnage and are stored off-grade on even-thickness blocking with visible ID marks. Standard delivery radius: 30 km by SALBEN's own transport.