

COATED-EPS ARCHITECTURAL CLADDING · GLASS REINFORCED CONCRETE (GRC)

CLADECO® VS GRC

A technical comparison of CLADECO® coated-EPS cladding and glass reinforced concrete across the criteria relevant to specification — weight, structural load, thermal performance, durability, programme and installed cost.

SUBJECT

CLADECO® coated EPS

COMPARED WITH

GRC · glass reinforced concrete

MANUFACTURER

Insutech · Egypt

DOCUMENT

Technical comparison

Material overview.

GRC — glass reinforced concrete — is an established material for cast cornices, columns and facade panels.

CLADECO® produces equivalent architectural profiles from a CNC-machined EPS core and a meshless acrylic shell, at a fraction of the weight, with thermal insulation provided by the core.



COATED EPS · CLADECO®

COATED EPS

CLADECO® coated EPS

A CNC-machined white expanded-polystyrene core, factory-coated with a 3–4 mm meshless acrylic shell that provides the surface strength, weather resistance and paint-ready finish. Profiles are cut from drawings without moulds.

Make-up	EPS core + acrylic shell
Installed weight	~3–8 kg/m ²
Fixing	Bonded + fasteners
Bespoke shapes	CNC-cut · no MOQ



GLASS REINFORCED CONCRETE · GRC

GLASS REINFORCED CONCRETE

GRC concrete

Cement, sand and alkali-resistant glass fibre, sprayed or cast into project-specific moulds and cured. A dense, rigid, mineral cladding — durable and non-combustible, but comparatively heavy and dependent on mould tooling.

Make-up	Cement + glass fibre
Installed weight	~35–55 kg/m ²
Fixing	Frame + anchors
Bespoke shapes	Mould-bound · MOQ

KEY DIFFERENCES — CLADECO® RELATIVE TO GRC

~7_x

LIGHTER

~3–8 kg/m² installed, against
~35–55 kg/m² for GRC.

~0.4–0.6_x

INSTALLED COST

~40–60% below GRC, total-
installed basis.

2–6_{wk}

LEAD TIME

From approved drawings,
against 6–12+ weeks for GRC.

0.032_λ

THERMAL INSULATION

W/m·K core conductivity; GRC
provides none.

Property comparison.

An indicative comparison of the two systems for an equivalent profile. Figures are order-of-magnitude design values for comparative study; certified project figures are issued per project.

PROPERTY	CLADECO® Coated EPS	GRC Glass reinforced concrete	ADVANTAGE
Composition	EPS core + 3–4 mm acrylic shell	Cement, sand + glass fibre	CONTEXT
Material density	~15–35 kg/m ³ typ. 24–30	~1,900–2,100 kg/m ³	CLADECO
Installed weight	~3–8 kg/m ²	~35–55 kg/m ²	CLADECO
Load on structure	Negligible · no allowance required	Significant · must be designed for	CLADECO
Handling & lifting	By hand · 1–2 crew · no crane	Crane / hoist for larger units	CLADECO
Fixing & sub-frame	Bonded + fasteners · no frame	Mechanical fixings to a frame	CLADECO
Bespoke shapes	CNC-cut · no moulds · no MOQ	Mould-bound · tooling cost · MOQ	CLADECO
Thermal conductivity	0.032–0.040 W/m·K · insulates	~0.5–1.0 W/m·K · none	CLADECO
Water absorption	Low · closed-cell core	~5–15% by mass	CLADECO
Impact & repair	Tolerant · seamless same-material repair	Can crack / chip · patch & colour-match	CLADECO
Reaction to fire	Combustible core · Euroclass E rated build-up per project	Non-combustible ≈ A1	GRC
Transport & breakage	Light · low breakage risk	Heavy · fragile edges in transit	CLADECO
Lead time	2–6 weeks	6–12+ weeks	CLADECO
Relative installed cost	~0.4–0.6× total installed	1.0× (baseline)	CLADECO

Indicative, order-of-magnitude design values compiled from published industry data and Insutech product information, for comparative study only. Project-specific certified figures are issued with the submittal package.

Fire performance

GRC is mineral and effectively non-combustible (≈A1). CLADECO® has a combustible expanded-polystyrene core (Euroclass E to EN 13501-1); the cured acrylic shell is not flammable. System fire performance is project-specific — a rated build-up should be specified where the facade design or local regulations require it. Where non-combustibility governs the specification, GRC remains the appropriate selection.

Thermal and installation economics.

Two areas where the choice of cladding affects project cost beyond the supplied unit price: energy consumption over the building life, and the labour and plant required to install the system.

A · IN SERVICE Thermal efficiency and energy cost

A CLADECO® facade insulates the building; a GRC facade does not. The white EPS core — thermal conductivity 0.032–0.040 W/m·K — acts as a continuous layer of insulation across the whole elevation, slowing the heat that passes through the wall.

Less heat through the wall means the cooling and heating systems work less to hold a comfortable temperature, so the building uses less energy — a saving that repeats every year for the life of the facade. GRC is a dense mineral material ($\lambda \approx 0.5\text{--}1.0\text{ W/m}\cdot\text{K}$) and adds no insulation of its own.

0.032 W/m·K

CLADECO® CORE CONDUCTIVITY

+0.9–1.5 m²·K/W

ADDED R-VALUE · 30–50 MM PANELS

WALL U-VALUE — WORKED EXAMPLE · LOWER IS BETTER

Wall with a CLADECO® facade

0.7 W/m²K

Bare / uninsulated wall

2.0 W/m²K

U-value is how much heat passes through the wall — a lower number is better. On an uninsulated masonry wall, adding the CLADECO® facade reduces it by an indicative 50–70%. Project figures come from thermal modelling.

B · ON SITE Installation cost and programme

Because components weigh ~3–8 kg/m² against ~35–55 kg/m² for GRC, they are handled and fixed by a small crew using hand tools and cement-based adhesive. No cranes or hoists, structural sub-frames or specialist trades are required for standard applications.

The reduction in crew size, plant hire, working-at-height complexity and number of trades shortens the installation programme and lowers the installed cost — the saving compounds with the lower supplied unit price recorded in the comparison.

1–2 crew

PER COMPONENT · VS 3–5+ FOR GRC

No crane

HAND TOOLS + ADHESIVE ONLY

INSTALLATION FACTOR	CLADECO®	GRC
Crew per component	1–2	3–5+
Lifting plant	None	Crane / hoist
Sub-frame	Not required	Often required
Tools	Hand tools + adhesive	Fixings, frame, lifting gear
Specialist trades	No	Typically yes
Programme	Shorter	Longer

Summary.

The comparison resolves into four areas where coated EPS differs materially from GRC in practice.



01 · WEIGHT & STRUCTURE

Reduced weight

At roughly 7× lighter than GRC, components are handled and fixed by a small crew and impose negligible additional load on the structure.



02 · INSTALLATION

Simplified fixing

Bonded with cement-based adhesive and fasteners directly to render, concrete, brick or block — no sub-frame and no specialist trade.



03 · THERMAL

Thermal contribution

The EPS core adds a continuous insulating layer that lowers the wall U-value — a function GRC does not perform.



04 · DESIGN & COST

Geometric freedom

Components are CNC-cut to drawing without mould tooling or minimum order, at roughly 0.4–0.6× the installed cost of GRC — about 40–60% lower on a total-installed basis.

ASSESSMENT

For most decorative and facade applications, coated EPS is an efficient alternative to GRC.

Across the criteria assessed — weight, structural load, handling, fixing, geometry, thermal performance, water resistance, repairability, transport, programme and cost — CLADECO® performs favourably against GRC for an equivalent architectural result. GRC remains the appropriate selection where non-combustibility governs the specification.

- Lower weight, installed cost and programme
- Any profile, custom-cut without mould tooling
- Continuous thermal insulation across the elevation
- GRC retained where non-combustibility governs

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