

TECHNICAL DESIGN GUIDE

Technoblock

Moulded EPS permanent shuttering for rib-and-block suspended concrete slabs



Technoblock #190 — moulded flame-retardant EPS block with three longitudinal cores, laid between pre-cast concrete ribs in place of cement blocks.

This guide covers Technopol's **Technoblock** range — moulded flame-retardant (FR) EPS permanent-shuttering blocks for rib-and-block (beam-and-block) suspended concrete slabs. The blocks are laid between pre-cast concrete lintels/ribs in place of cement "ash" blocks; the structural topping is cast over them and the EPS stays in the slab as lightweight void fill, thermal insulation and acoustic damping. The block itself is **non-structural** — the concrete ribs and topping carry the load, designed by the project structural engineer.

Suspended ground floors

First-floor slabs

Double-storey slabs

Balconies

Cut void formers

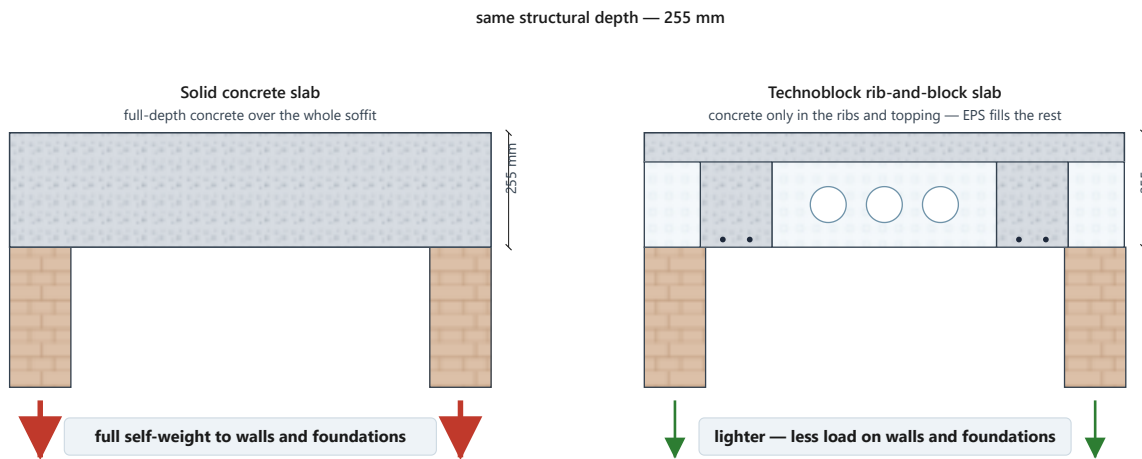
Thermal & acoustic

1 • Why rib-and-block — the lightweight-slab principle

A rib-and-block slab puts structural concrete only where it works — in the ribs and the topping — and fills the space between with a permanent shutter block. Substituting moulded EPS for the traditional cement "ash" block keeps the same engineered slab, but with a filler block that weighs a small fraction of concrete: **less load on the foundations and load-bearing walls, less concrete cast into the slab, and far less labour** lifting blocks onto the deck. The EPS then stays in the finished floor as built-in thermal insulation and acoustic damping.

The lightweight-slab principle

Same depth, less concrete — EPS permanent shuttering replaces dead weight, not strength



In the typical 660 x 255 module the EPS block occupies over half of the section — concrete stays only where it works, in the T-beam ribs and the 65 mm topping.
Geometric comparison only: Technopol publishes no kg/m² slab-weight figures — the responsible engineer quantifies the dead-load saving per design. EPS also adds thermal insulation and acoustic damping.

Same structural depth, far less self-weight: the EPS block replaces non-working concrete between the ribs. The brochure claim is qualitative — Technopol publishes no kg/m² comparison figures; the slab engineer quantifies dead load per project.

Where Technoblock wins

- Suspended ground floors over service voids or fill
- First-floor slabs in double-storey housing (#190)
- Balconies and low-bearing grounded areas (#120 solid)
- Slabs needing built-in thermal / acoustic performance
- Sites without cranes — blocks are placed by hand

What you gain

- **Handling** — far lighter than cement blocks; quicker laying, less labour time
- **Walkable deck** — the moulded top face is safe to walk on during installation
- **Services** — moulded electrical passage through the block
- **Finishes** — plastering grooves moulded into the soffit for direct ceilings
- **Insulation** — EPS stays in the slab as thermal and acoustic filler

Design responsibility in one line. The Technoblock is non-structural permanent shuttering: the pre-cast ribs and the cast in-situ topping carry all load. Rib spacing, reinforcement, topping thickness, propping and allowable spans are set by the project structural engineer — Technopol supplies the block schedule to suit.

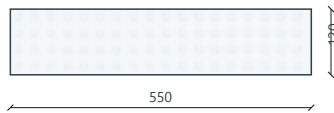
2 • Range & dimensions — moulded blocks

Two moulded Technoblocks are catalogued: the solid **#120** for balconies and low-bearing ground-floor slabs, and the three-core **#190** for double-storey and constant-load slabs, where reinforcing rods can pass through the cores. Extenders stack onto the #190 to deepen the void for thicker slabs.

Block types and accessories

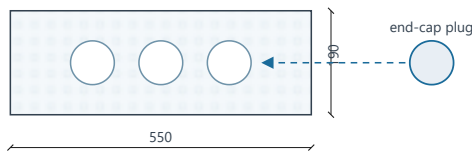
#120 solid · #190 three-core · end caps · stacking extenders

#120 Technoblock — solid



Balconies and low-bearing / ground-supported slabs; no constant load on top. 550 x 320 x 120 mm.

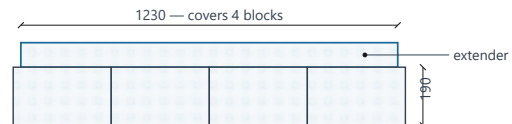
#190 Technoblock — three-core



Double-storey / constant-load slabs; steel rods pass through the 3 cores (~80 dia). 550 x 320* x 190 mm. Free end caps: 6 per 5 blocks.

- Moulded features: walk-safe top face; faces moulded to fit tight against the lintels; moulded electrical passage; plastering grooves on the soffit.
- Blocks are non-structural permanent shuttering — the concrete ribs and topping carry all load; block selection and slab design per the engineer.
- Moulded from flame-retardant (FR) EPS; keep away from open flame during storage and installation, before casting.
- * #190 plan width: 320 mm (brochure / pricing) vs 315 mm (dimensioned CAD drawing) — confirm with the factory.

Extenders — deepen the void (#190 only)



Thicknesses: 60 / 80 / 90 / 175 / 260 mm — stack on the #190 to deepen the slab void without extra concrete.
(Extender cross-section width not published — confirm with factory.)

Packaging: 30 blocks per bundle (#120 and #190).

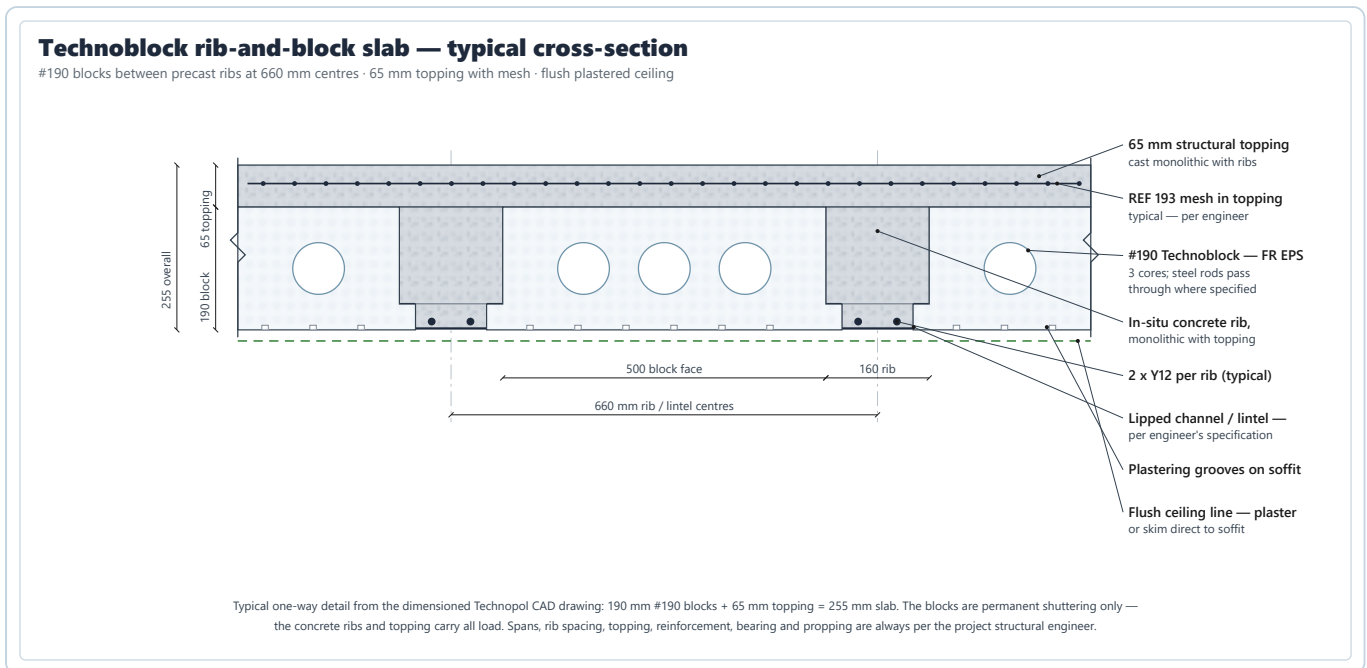
Block types and accessories. Note the plan-width discrepancy: the dimensioned CAD drawing shows the #190 at 315 mm wide against 320 mm in the brochure and pricing sheets — confirm with the factory before detailing tight layouts.

Property	#120 Technoblock	#190 Technoblock
Overall size (L × W × H)	550 × 320 × 120 mm	550 × 320 × 190 mm (CAD top view: 315 mm wide)
Form	Solid moulded FR EPS	3 longitudinal circular cores (~80 mm dia)
Typical duty	Balconies; grounded / low-bearing areas with no constant weight on top	Double-storey slabs with constant load; reinforcing rods pass through the cores
End caps (plugs)	—	6 supplied free per 5 blocks — close the cores at slab edges so concrete cannot run in
Extenders	—	1230 mm long, one covers 4 blocks; thicknesses 60 / 80 / 90 / 175 / 260 mm
Packaging	30 per bundle (bundle 1630 × 730 × 550 mm)	30 per bundle (bundle 1670 × 780 × 550 mm)
Moulded features	Top face safe to walk on · faces moulded to fit tight against the lintels · moulded electrical passage · plastering grooves on the soffit	

Block coverage: approximately 4.8 blocks per m² of slab, derived geometrically from the 660 mm rib module and 315 mm block width — a derived figure, not a published one; confirm quantities with Technopol at order stage. Block weight is not published.

2 • Range & dimensions — typical slab cross-section

The dimensioned CAD detail below shows the typical one-way-spanning #190 arrangement: blocks between pre-cast lintels/ribs at 660 mm centres, a 65 mm structural topping with REF 193 mesh, and a 255 mm overall structural depth.



Typical one-way-spanning rib-and-block section (from the dimensioned Technopol CAD drawing). All structural sizing is a typical detail, not a design chart — the project engineer confirms every value.

Typical detail values (190 block)

Block depth	190 mm
Concrete topping	65 mm, with REF 193 mesh
Total structural slab depth	255 mm
Block soffit face between ribs	500 mm
Rib width / rib pitch	160 mm / 660 mm centres (500 + 160)
Rib reinforcement (typical)	2 × Y12 bars per rib
Rib support	Lipped channel / lintel, as per engineer specification
Bearing	Block ends to bear on wall sides at the slab edge

Span guidance. Technopol publishes **no span/load tables or design charts** for the #120/#190 catalogue. The block is non-structural: rib spacing, topping thickness, reinforcement and allowable spans are set by the project structural engineer for each floor. Treat the values above as a verified typical detail only.

2 • Range & dimensions — cut EPS slab blocks & void formers

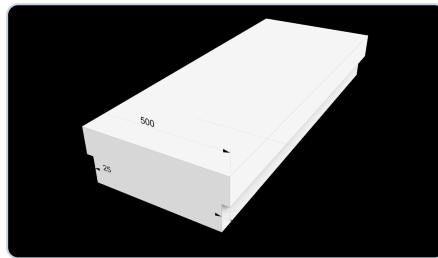
Alongside the moulded catalogue, Technopol cuts engineer-specified EPS slab blocks and void formers to order — rebated rib-slab blocks, biaxial ("bubble-deck"-style) void formers, thermally-broken (TASS) rib-slab formers and chamber fillers — in graded densities from 12SD to 30DV. The standard cut slab block is 550 mm wide × 1200 mm long:

Thickness range	Top width	Length	EPS grade
110–150 mm (10 mm steps)	550 mm	1200 mm	20DV
160–180 mm	550 mm	1200 mm	15SD
190–350 mm (10 mm steps)	550 mm	1200 mm	12SD

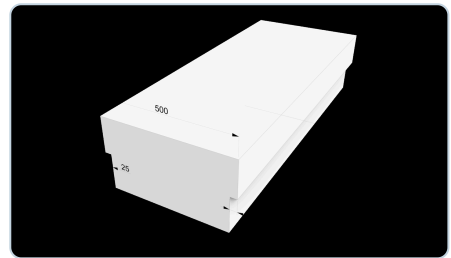
Optional rebate cut-outs are produced per block. Cut profiles are made to the engineer's schedule — sizes on application.



120 mm rebated slab block



195 mm rebated slab block



280 mm rebated slab block

Dimensioned renders of rebated cut slab-block profiles (500 mm top / 450 mm bottom / 25 mm side rebates) — produced to the engineer's specified depth and profile.

EPS grade properties (cut void-former material)

Technopol grade	30DV / EHD	24DV / HD	20DV / SD	16DV	15SD	12SD
Nominal density (kg/m ³)	30	24	20	16	15	12
Thermal conductivity λ , max (W/m-K)	0.033	0.034	0.035	0.038	0.040	0.045
Compressive stress @10% (kPa, min)	200	160	110	80	65	60
Cross-breaking strength (kPa, min)	250	205	150	140	100	80
Safe working load @1% strain (kPa, min)	100	70	45	21	17	15

Verified Technopol EPS physical properties. Highlighted row = safe working load at 1% strain — the sustained-load design limit that keeps creep negligible. All grades: dimensional stability max 1% (7 d @ 80 °C); service temperature 80 °C long-term / 100 °C short-term.

Grade selection for structural void formers. Size the foam on the **safe working load @1% strain** values (15–100 kPa), not the 10% compressive stress, to control creep. Heavy structural duty — e.g. carrying wet concrete plus service load — uses 27DV–30DV (≥ 100 kPa @1%). Grades map to ASTM C578 / EN 13163.

3 • Design & site considerations

Block-type selection

Use the solid **#120** only for balconies and grounded / low-bearing areas with no constant weight on top. Use the three-core **#190** for double-storey slabs with constant load; reinforcing rods pass through the cores, and end caps close the cores at slab edges so concrete does not run in (6 supplied free per 5 blocks).

Thicker slabs — extenders

Stack **extenders** (1230 mm long, one covers 4 blocks; 60 / 80 / 90 / 175 / 260 mm thick) on the #190 to deepen the void without casting extra concrete. Extenders apply to the #190 only.

Propping & casting

Prop only as the slab engineer directs. Technopol publishes no generic propping, back-propping or casting-rate rules for rib-and-block decks — the engineer's method statement governs temporary works, pour sequence and when props may be struck. Place concrete evenly; do not heap wet concrete on unpropped spans.

Handling & storage

Blocks are far lighter than cement "ash" blocks — placed by hand, no crane, less labour time. The moulded top face is **safe to walk on** during installation. Store off the mud, weighted or strapped against wind, and **keep EPS away from open flame and ignition sources** during storage and handling before casting.

Services & finishes

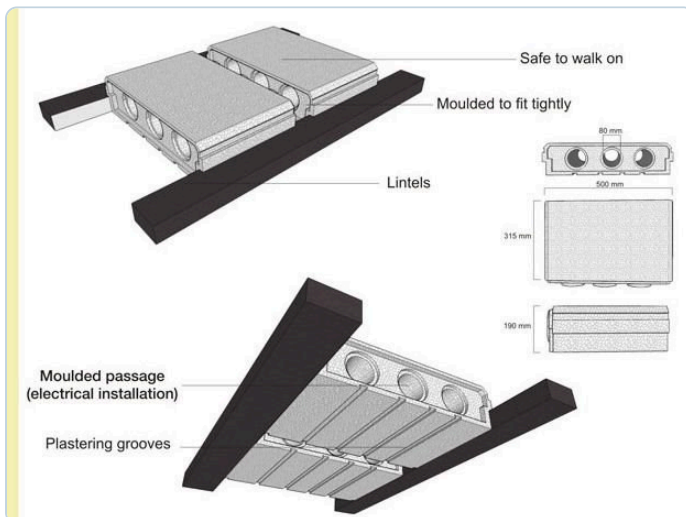
A **moulded electrical passage** runs through the block for conduits; the soffit carries **plastering grooves** so ceilings can be plastered direct or skimmed. Faces are moulded to fit tight against the lintels for a clean, flush soffit line.

Structural design

No span/load tables are published for the moulded catalogue. Every deck — rib spacing, topping, mesh, rib steel, bearing and props — is designed and signed off by the project structural engineer.

Fire. Moulded from flame-retardant (FR) EPS; the FR-EPS grade holds a current **SANS 53501-1** reaction-to-fire classification of **B-s1,d0** (report IT 23-08-00009). Reaction-to-fire is **not** a fire-resistance rating; no FR-minutes rating is claimed for the block itself, and fire resistance of the finished floor is a property of the complete engineered slab. In the finished slab the EPS is fully encased in concrete. All EPS is combustible — keep blocks away from open flame before casting.

Certification honesty. Technoblock is not an Agrément-certified line — Agrément SA certificate 2020/609 applies to a different Technopol product (LiteCore) and is not claimed here.



Moulded features at a glance — walk-safe top face, tight lintel fit, moulded electrical passage and plastering grooves.

Site checklist

- Right block for the duty — #120 solid vs #190 three-core
- End caps fitted at every slab edge (#190)
- Extenders (if specified) stacked and secured before mesh
- Blocks tight against lintels; ends bearing on wall sides
- Props per the engineer's method statement
- Conduits routed through the moulded passages
- No open flame or hot works near stored or laid blocks
- Concrete placed evenly — no heaping on unpropped spans

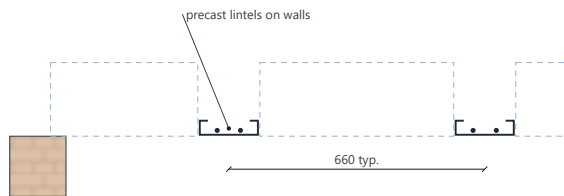
4 • Application details

4.1 Installation sequence

Installation sequence

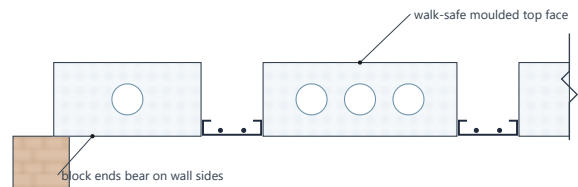
Lintels · blocks · mesh and services · structural topping — four steps to a suspended slab

1 Place the precast lintels



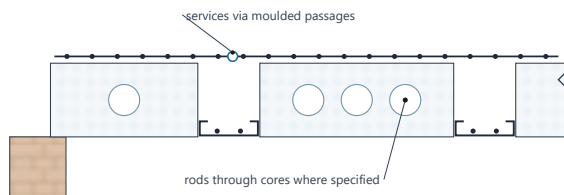
Lintels span between supporting walls; 660 mm centres on the typical detail.
Temporary propping only as the slab engineer directs — no generic rules are published.

2 Lay the Technoblocks



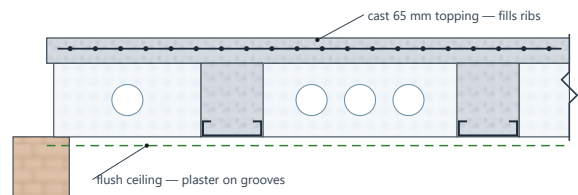
Light EPS blocks drop in between lintels — moulded faces fit tight, far faster than ash blocks.
Fit the free end-cap plugs at slab edges so concrete cannot run into the #190 cores.

3 Mesh, services and steel



Lay REF 193 mesh (typical) over the blocks; route conduits through the moulded passages.
Where specified, steel rods pass through the three cores of the #190.

4 Cast the structural topping

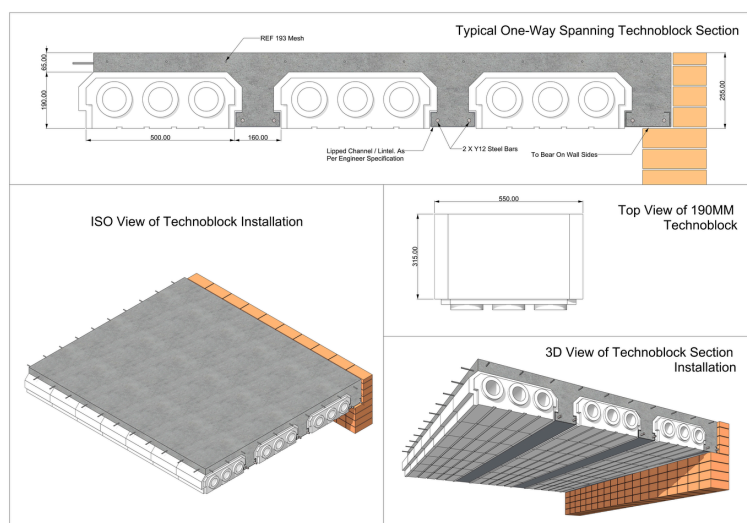


Cast the 65 mm topping; concrete fills the ribs monolithically around the Y12 bars.
After curing, plaster or skim direct onto the grooved soffit for a flush ceiling.

Keep EPS away from open flame before casting. All propping, casting rates and curing are per the project structural engineer and concrete specification.

Four-step sequence: set the lintels/ribs; lay blocks tight with end caps at edges; place mesh, services and rods through the cores; cast the 65 mm topping and plaster the grooved soffit. Propping only as the slab engineer directs.

4.2 Manufacturer's installation drawing



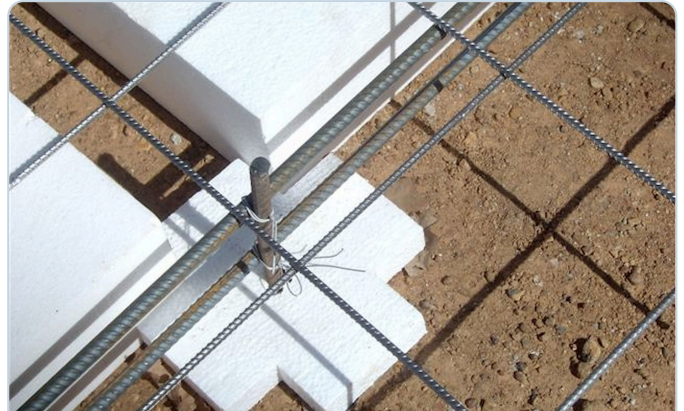
Technopol CAD sheet for the 190 mm Technoblock: typical one-way-spanning section, isometric installation view, top view and 3D section — issued for coordination; structural values per the project engineer.

5 • Technoblock & structural EPS in the field

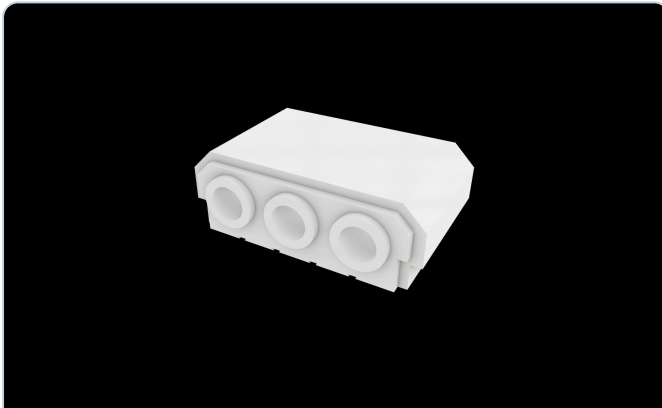
Moulded Technoblocks, cut EPS slab blocks and engineer-specified void formers from the same FR-EPS production line — handled by hand, laid between pre-cast ribs or under rebar, and cast permanently into the slab.



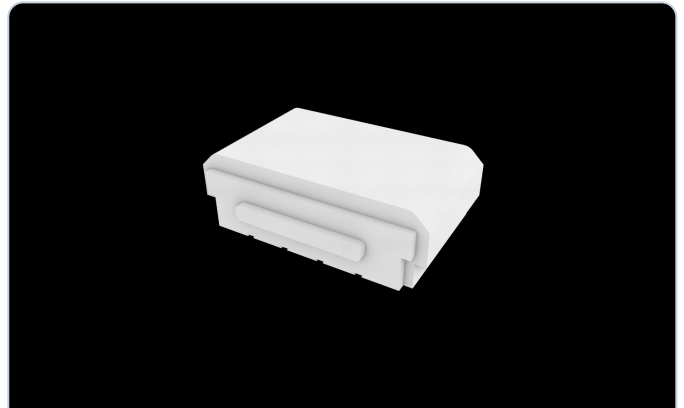
On site — stacked Technoblocks showing the stepped edge profile that fits tight against the lintels.



Structural EPS void formers — engineer-specified formers laid under steel reinforcement before the pour, from the same cut void-former line.



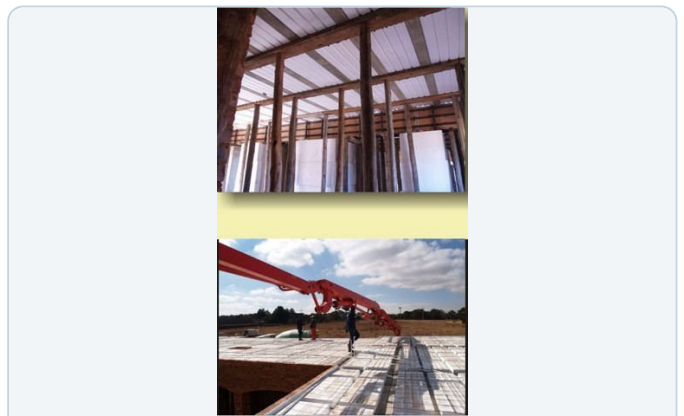
#190 Technoblock — three longitudinal cores for reinforcing rods; end caps close the cores at slab edges.



#120 Technoblock — solid block for balconies and low-bearing ground-floor slabs.



Brochure archive — white moulded three-core Technoblock, 2021 brochure product photo.



In the works — rib-and-block soffit from below and the topping pour over the deck (archive photos).

Block schedules, cut void-former quotes & project support — info@technopol.co.za · (011) 363-2780/1/2 · technopol.co.za