

# LiteCore Building System — Engineering Specification & Technical Data Sheet

The LiteCore Building System is Technopol's Agrément-certified walling system: factory-cast lightweight blocks of foamed cement with EPS beads, used strictly as **non-load-bearing infill walls** inside a light-steel or reinforced-concrete structural frame. Blocks interlock tongue-and-groove, are laid in stretcher bond with LiteCore Bond thin-bed mortar and are finished with mesh-reinforced LiteCore Plast render. All values below are from **Agrément South Africa certificate 2020/609 (Amended March 2021)** and the supporting test reports cited.

## Product & dimensional data

|                      |   |
|----------------------|---|
| Product              | LiteCore Building System — non-load-bearing lightweight infill walling, certified by <b>Agrément South Africa certificate 2020/609</b> (Amended March 2021)                               |
| Form                 | Factory-cast interlocking tongue-and-groove blocks of foamed lightweight cement (CEM I/II to SANS 50197-1, fly ash, SANS 1090 sand, foaming agent) with virgin or recycled EPS beads      |
| Block face size      | 1200 mm long × 340 mm high (all blocks)   |
| External block       | 150 mm thick — moulded 60 mm CavityLite EPS core (15 kg/m <sup>3</sup> ) encapsulated by 45 mm lightweight-concrete skins, per certificate (confirm current core build-up with Technopol) |
| Internal block       | 100 mm thick, solid (no EPS core)   |
| Block density        | 400–450 kg/m <sup>3</sup> (certified nominal range)   |
| Mass per block       | 18 kg (published); measured 28-day masses 18.8–22.2 kg, mix-dependent (confirm declared mass with Technopol)  |
| Compressive strength | Lower than 5 MPa (certified) — non-load-bearing infill only   |
| Jointing             | Stretcher bond, interlocking tongue-and-groove, <b>LiteCore Bond</b> thin-bed adhesive mortar   |
| Render               | <b>LiteCore Plast</b> on woven fibreglass mesh (5 mm apertures) — external min 12 mm; internal 5 mm (internal wall 1) or 18 mm (internal wall 2)  |
| Supporting frame     | Light steel frame to <b>SANS 517</b> , or reinforced-concrete frame (rebar to <b>SANS 920</b> ; concrete to <b>SANS 10100-1/-2</b> )  |

## Certified performance (Agrément 2020/609)

|                      |   |
|----------------------|---|
| Thermal — whole wall | Certified whole external wall total R-value <b>2.30 m<sup>2</sup>-K/W</b> ; BSIMAC v9 energy model exceeds a standard brick dwelling per SANS 10400-XA 4.2.1(b); insulated ceilings mandatory in all instances                          |
| Acoustic             | Certified between-room value <b>45 dB</b> (DnT,w) — meets SANS 10218-1; panel options modelled to R <sub>w</sub> 48 dB (table below)  |
| Fire — certificate   | External walls classified <b>non-combustible (type FRR), 120-minute fire resistance</b> — the certificate's deemed-to-satisfy classification under rule TT2.1(a), SANS 10400 Section 3 (not a current independent fire-resistance test) |
| Fire — tested        | <b>FR60 load-bearing</b> (stability / integrity / insulation 60 min) to SANS 10177-2 — report FT 24-003 (2024) on the NuClad LiteCore light-steel-frame wall assembly, not the bare block wall (page 2)                                 |
| Occupancy scope      | A3, A4, B2/B3, D2/D3, F1/F2, F3, G1, H2, H3, H4; E1, E2 and Other Institutional only when used with "internal wall 2"   |
| Storeys              | Single- and multi-storey, all SA regions; multi-storey subject to an approved competent engineer and the fire cavity-break conditions (page 2)  |

## Acoustic panel options

| Panel | Wall build-up as modelled (Acusolv report G1476, 11 Mar 2021 — ISO 717 modelling)                            | R <sub>w</sub> (dB) |
|-------|--|---------------------|
| 1     | 100 mm solid block (450 kg/m <sup>3</sup> ) + 5 mm plaster both sides (110 mm overall)                       | 45                  |
| 2     | 100 mm solid block + 20 mm plaster both sides (140 mm overall)   | 47                  |
| 3     | 150 mm composite block (50 mm skins + 50 mm EPS core as modelled) + 5 mm plaster both sides (160 mm overall) | 47                  |
| 4     | 150 mm composite block (as Panel 3) + 15 mm plaster both sides (180 mm overall)                              | 48                  |

Modelled to ISO 717 by B G van Zyl PhD (Acusolv). Panels 3/4 were modelled with a 50 mm core + 50 mm skins — the certified product has a 60 mm core + 45 mm skins; confirm with Technopol before relying on those figures. Covers between-room comfort only, not noise impact on the external environment (National Noise Regulations).

## Design rules, installation & QA

### Structural & design basis

- Non-load-bearing infill **only** — always within a light-steel frame to **SANS 517** or an RC frame (SANS 920; SANS 10100-1/-2), with cast in-situ ring beams and columns supporting the roof
- Wall dimensional limit **3500 mm**; larger walls are the responsibility of a competent person
- Multi-storey permitted, subject to an approved competent engineer taking full responsibility
- The whole system designed and erected under the control of a professional engineer / approved competent person (rational design and monitoring); foundations and surface beds by a competent person
- Roofs: conventional timber or steel trusses; horizontal braces under trusses where eaves / gable walls need wind support

### Fire — certified conditions (mandatory)

- EPS is thermoplastic and forms cavities when heated: provide **horizontal cavity breaks at each floor level** and vertical breaks at least every 5 m or at each division-separating element
- Around fixed openings, remove the insulation core or seal the cavity with mortar / non-combustible material equal to the outer-skin thickness
- Back-to-back service installations are **not permitted** in any dividing wall
- H3 division separation permitted provided a door assembly of similar rating is used

### Installation & finishes

- Surface beds and edge beams on a DPM to SANS 952; DPC strip on slab with 100 mm steel starter brackets (50 × 151 × 1 mm) at 1200 mm centres, one M8 × 50 mm rawl bolt each, anchored into slab, roof and structural mullions
- Set out, plumb and level as for conventional blockwork; LiteCore Bond consumption 3 kg/m<sup>2</sup> (brochure value — confirm with Technopol)
- Chases 50 mm wide, staggered at least 300 mm apart, cut to the face of the cementitious material; refill with Styronit STY 160 or similar approved
- Fixings: light / medium fittings on spring fischer plugs with 6 mm coach screws; heavy fittings floor-mounted
- Wet rooms: two coats Elestocryl primer + two coats approved impermeable fungicidal paint; shower trays with min 150 mm upstand; junctions sealed with SANS 1305 silicone
- Do not plaster a large wall within **14 days** of construction (wet-to-dry shrinkage; QC shows ~16% moisture loss to 28 days)
- Never plaster bare over steel / RC elements — bridge with a LiteCel or Rockwool strip and strip-mesh lapped 100 mm onto each wall side; ring beams and mullions covered externally with EHD FRCEl EPS

### QA & certificate conditions

- No change to the system as certified without prior written Agrément South Africa approval
- Agrément plaque (min 100 × 75 mm) with the certificate number on an external wall of every building
- Verify the certificate's Active status at [agrement.co.za](http://agrement.co.za) before specifying
- Factory QC: wet-cast in steel moulds (CavityLite core inserted before casting), ~24 h cure, de-moulded, palletised and plastic-wrapped

## Model specification clause (edit to project)

"The non-load-bearing infill walling shall be the **LiteCore Building System**, Agrément South Africa certificate **2020/609** (Amended March 2021), comprising interlocking tongue-and-groove LiteCore blocks 1200 × 340 mm, \_\_\_ mm thick (150 mm external / 100 mm internal), nominal density 400–450 kg/m<sup>3</sup>, laid in stretcher bond with LiteCore Bond thin-bed adhesive mortar within a structural frame designed by the responsible engineer — light steel to **SANS 517** or reinforced concrete to **SANS 920 / SANS 10100-1/-2** — with cast in-situ ring beams. Wall panels shall not exceed **3500 mm** unless designed by a competent person. Walls shall be rendered both sides with LiteCore Plast on woven fibreglass mesh, minimum **12 mm** external and **5 mm** internal (**18 mm** where internal wall 2 is required). Surface beds and edge beams shall be laid on a damp-proof membrane to **SANS 952**. Chases shall be 50 mm wide, staggered at least 300 mm, and refilled with an approved filler. In multi-storey work, horizontal cavity breaks shall be provided at each floor level and vertical breaks at maximum 5 m centres, with cavities around fixed openings sealed with non-combustible material; back-to-back service installations are not permitted in dividing walls. No deviation from the certified system is permitted without written Agrément approval, and an Agrément plaque shall be fixed to an external wall."

**Certification & fire note.** Agrément certificate 2020/609 covers the LiteCore Building System only. The 120-minute non-combustible (type FRR) classification is the certificate's **deemed-to-satisfy** classification under SANS 10400 rule TT2.1(a) — not a current stand-alone fire-resistance test of the block wall. The currently valid tested result is **FR60 load-bearing (E/I/R 60) to SANS 10177-2** (report FT 24-003, 2024) for the NuClad LiteCore light-steel-frame wall assembly — it applies to that assembly only, not to the bare block wall, and may only be used within that report's scope. A SANS 10177-2 test of the LiteCore block wall itself is in progress; no result is claimed. EPS is combustible — observe the cavity-break conditions above.

Specification support, certified details & block schedules — [info@technopol.co.za](mailto:info@technopol.co.za) · +27 11 363 2780 · [technopol.co.za](http://technopol.co.za)