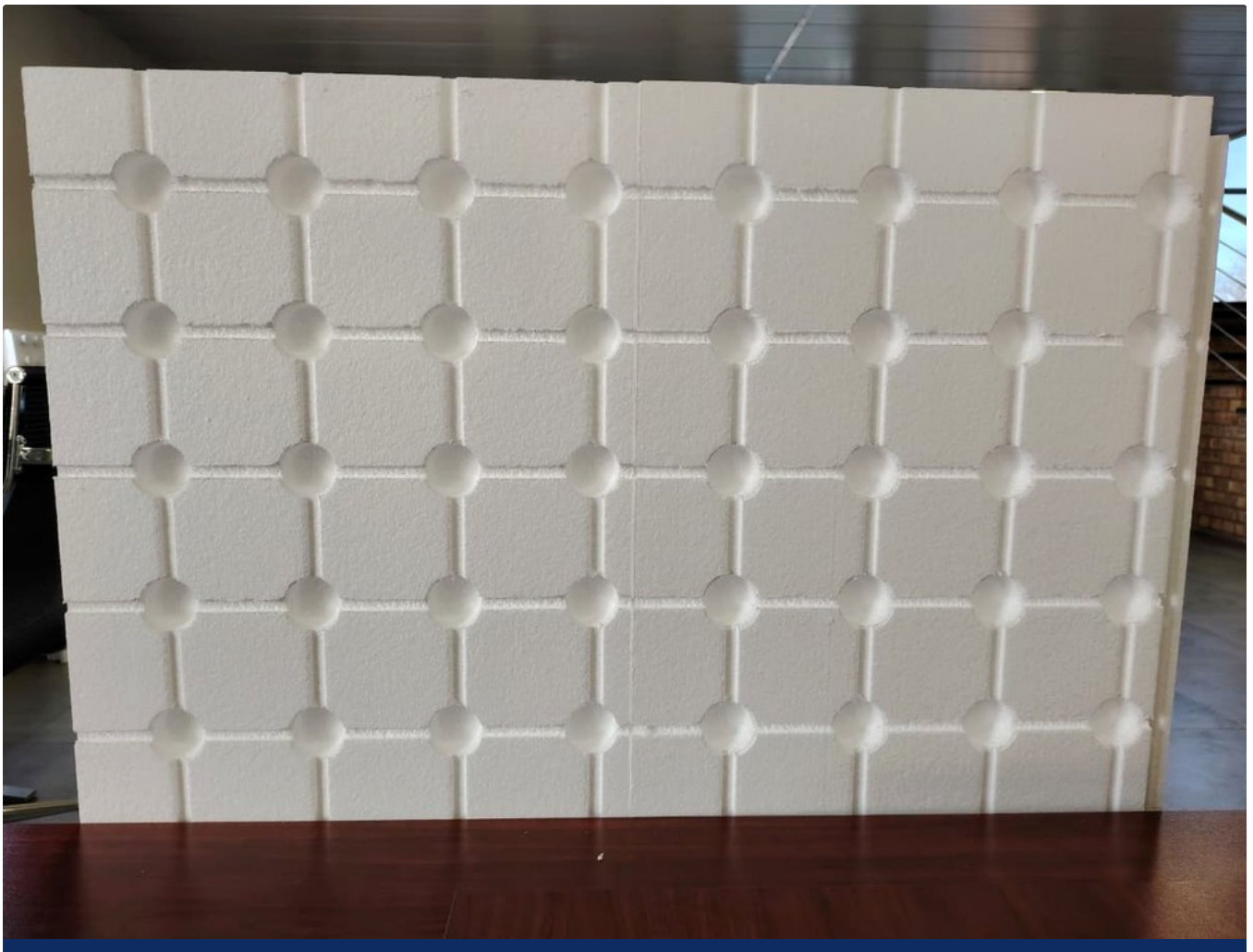


**ENGINEERING SPECIFICATION • REVISION 0**

LiteCel® CD — EPS Cavity and Drainage System

Moulded EPS cavity board with drainage knobs on one face, and the SANS 28 double-triangle tie that passes through it — insulation, a drained 25 mm cavity and the tie, specified and supplied as one system.

DOCUMENT
TP-SP-LITECEL-CD**ISSUED**
2026-07-17**PRODUCT**
litecel-cd**STATUS**
Issued for use

Engineering Specification

For inclusion in a project specification or bill. Clause numbering is this document's own.

1 SCOPE

- 1.1** This specification covers the supply and installation of the **LiteCel® CD Cavity & Drainage System** — a moulded expanded-polystyrene cavity board with integral drainage knobs, together with the metal cavity wall ties that pass through it — in the cavity of a double-leaf masonry wall.
- 1.2** The board and the tie are one system and shall be supplied by one manufacturer. They are set out together: the board height is five brick courses, which is also the tie pitch.
- 1.3** This specification does not cover the masonry, the damp-proof course, brickforce or the weep-hole formation, except at the interface. Construction of the walling shall be in accordance with **SANS 2001-CM1**.

2 MATERIALS

2.1 The board

PROPERTY	REQUIREMENT
Material	Moulded expanded polystyrene (EPS)
Nominal density	30 kg/m ³
Laying module (cover)	1 240 × 425 mm
Build-up	35 mm insulation base + 25 mm integral drainage knobs
Coverage	0,527 m ² per board
Edge profile	Half-lap on all four edges, 25 mm lap, stepped at half the base thickness
Knobs	48 per board, Ø39 mm × 25 mm high, on a 103 × 106 mm grid, set out so the grid runs continuously across a butted joint
Rear face	Drainage channel grid, with a socket beneath each knob to receive the knob of a nested board

2.2 The wall tie

PROPERTY	REQUIREMENT
Type	Double triangle, to SANS 28 table 4
Length	150 or 200 mm, selected per clause 3.3
Material, general	Hot-dip galvanised mild steel wire, 4,3 ± 0,1 mm
Material, where corrosion resistance is specified	Austenitic stainless steel wire, 4,0 ± 0,1 mm, minimum 18 % chromium and minimum 8 % nickel (SANS 28 2.3.5), supplied against a mill certificate stating the actual chromium and nickel contents
Packing and marking	Wire-secured bundles of 100 with a metal tag carrying the manufacturer's mark, the count and the nominal length (SANS 28 3.1, 3.2). One type, length and material per bundle; mixed bundles shall not be accepted

Do not specify type 316 here without checking the certificate

SANS 28 2.3.5 sets a **composition**, not a grade: minimum 18 % chromium. Type 304 (18–20 % Cr) satisfies it. Type 316 trades chromium for molybdenum and is typically 16–18 % Cr, so many heats fall below the floor. European 304 (EN 1.4301) begins at 17,5 % and is also at risk. Specify the composition and buy against the certificate.

3 DESIGN

- 3.1 Cavity width.** One board gives a 60 mm cavity. Boards nest; each additional board adds 35 mm, giving 95 mm for two and 130 mm for three. The cavity shall be not less than 50 mm and not more than 110 mm (**SANS 10400-K 4.2.1.3**). A cavity above 110 mm is outside the deemed-to-satisfy route and requires a rational design by a competent person.
- 3.2 Leaf thickness.** Where either leaf is less than 90 mm, the cavity shall not exceed 75 mm (**SANS 10164-1 5.2.1.3**).
- 3.3 Tie length.** $L \geq \text{cavity} + 100 \text{ mm}$, so that the tie is embedded not less than 50 mm in each leaf (**SANS 10164-1 5.2.1.4(a)**). A 60 mm cavity takes the 200 mm tie.
- 3.4 Tie type.** Up to a 75 mm cavity, the double-triangle wire tie. **Above a 75 mm cavity a wire tie shall not be used:** SANS 10164-1 5.2.1.4(c) requires a vertical-twist strip tie, which is **not part of this system** and shall be specified and supplied separately. Ties of the single-wire type shall not be used at any cavity width (5.2.1.4(b)).
- 3.5 Tie density.** Not less than the minimum given in **SANS 10164-1 table 7** for the leaf thickness and cavity width being built, and in no case less than the LiteCel setting-out of 425 mm vertical $\times$ 600 mm horizontal (3,92 ties/m²). **On a 65 mm leaf table 7 requires 5,0 ties/m², which exceeds the LiteCel setting-out; the table governs.** Provide additional ties at not more than 300 mm of height beside every opening and at every control joint (5.2.1.4(a)).
- 3.6 Corrosion protection.** Within 30 km of the coastline, parallel with the coastline, or at the top of the escarpment or watershed of the first inland mountain range where that is less than 30 km from the coastline, ties shall have a minimum galvanising of 750 g/m²; **in tidal splash zones ties shall be of stainless steel (SANS 10400-K 4.2.1.4).** Stainless is not otherwise a requirement of that clause.

4 PERFORMANCE

PROPERTY	VALUE	BASIS
Thermal resistance, 35 mm base	0,97 m ² K/W	estimated
Thermal resistance, 25 mm cavity (vertical, unvented top)	0,16 – 0,18 m ² K/W	estimated
Thermal resistance, board + cavity	1,13 – 1,15 m ² K/W	estimated
Typical cavity wall	R 1,6 – 1,8 m ² K/W; U 0,55 – 0,63 W/m ² K	estimated
Drainage	A clear 25 mm drained cavity, held open by the knobs, discharging at the DPC through weep holes at 600 mm centres	by design

5 INSTALLATION

- 5.1** Install the board with the **flat face against the inner leaf** and the knobs facing the outer leaf, as the outer leaf is built.
- 5.2 Check the orientation.** The printed arrow shall point up. The half-lap must shed downward; a board laid inverted turns its own joint into a leak path.
- 5.3** Butt boards tight so that the insulation and the drainage layer are both continuous. Seal the lap with a polyurethane sealant bead of a grade compatible with EPS.
- 5.4** Install the first tie above the cavity tray, then at the spacing of clause 3.5. Ties shall slope slightly **toward the outer leaf**.
- 5.5** Stop the outer leaf one course below cavity-tray level. Fill the cavity solid with mortar **below the DPC only**. Install the DPC before continuing.
- 5.6 Keep the cavity clear.** The 25 mm gap held open by the knobs is the drainage path. Mortar droppings that bridge it, or that block a weep hole, defeat the system.

6 ACCEPTANCE

- 6.1** Boards shall be free of damage that reduces the lap or breaks a knob. A broken knob is a lost cavity locally.
- 6.2** Tie bundles shall carry the metal tag of clause 2.2. Untagged or mixed bundles shall be rejected.
- 6.3** Where stainless ties are specified, the mill certificate of clause 2.2 shall be provided before the first delivery is accepted.

7 SPECIFIER'S NOTES — READ BEFORE RELYING ON THIS DOCUMENT

The thermal figures are estimates, not test results. They are calculated from the declared grade, at a λ of about 0,036 W/m·K. **No guarded-hot-box test exists for this board.** Where a SANS 10400-XA submission turns on the number, obtain confirmation from Technopol in writing.

No reaction-to-fire classification is offered for this board, and none should be inferred from classifications held on other Technopol EPS products — those were obtained on different grades and different geometry.

Clause 3.6 states the galvanising as a requirement, not as a tested result. SANS 28 2.4.1 calls for 750 g/m² of zinc. Note that SANS 935 — the standard SANS 28 cites for the test — defines no class above 290 g/m²; the classes that do reach 750 are SANS 10244-2 class A×3 and ASTM A641 class C. **Specify the wire to one of those and require the mill's certificate.** There is no certification scheme for SANS 28, and no product may be described as "certified" to it.

Standards referenced: SANS 28 (metal ties for cavity walls); SANS 10164-1 (structural use of masonry, part 1); SANS 10400-K (application of the National Building Regulations, part K: walls); SANS 2001-CM1 (masonry walling); SANS 935 and SANS 10244-2 (zinc coatings on steel wire). Standards are copyright SABS and must be obtained from SABS. No table or figure from any standard is reproduced here.