TECHNOPOL SA
ENERGY SAVING MATERIALS

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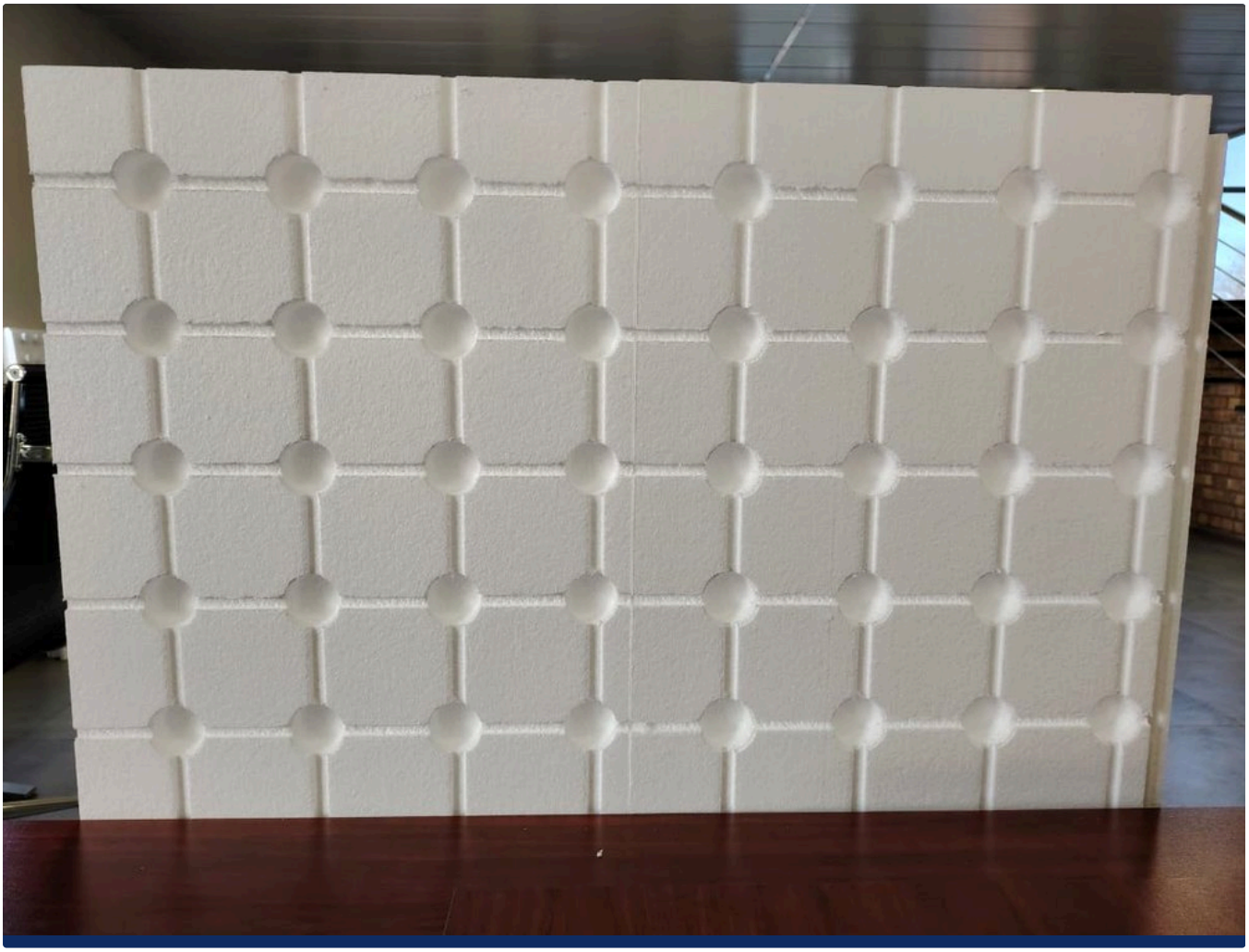


TECHNICAL DESIGN GUIDE

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	ISSUED	PRODUCT	STATUS
TP-DG-LITECEL-CD	2026-07-17	litecel-cd	Issued for use

INTRODUCTION

The board and the tie are designed together. Two things decide whether the system works: the cavity stays clear so water can leave, and the tie is long enough to cross the cavity the board creates while keeping 50 mm of embedment in each leaf. Both are code requirements, not preferences. The clauses are cited so they can be checked — SANS standards are SABS copyright, so the operative sentence is quoted and the tables are not reproduced.

DESIGN VALUES

PARAMETER	VALUE
Laying module (H × L)	**425 × 1240** mm°
Coverage per board	**0.527** m^2
Insulation base thickness	**35** mm°
Drainage cavity held open by the knobs	**25** mm°
Overall build-up — the cavity the tie must cross	**60** mm
Nominal density	**30** kg/m^3°
Thermal resistance R — 35 mm base	**0.97 (estimated)** m^2K/W°
Thermal resistance R — 25 mm drained cavity	**0.16–0.18 (estimated)** m^2K/W°
Thermal resistance R — board + cavity	**1.13–1.15 (estimated)** m^2K/W°
Implied thermal conductivity of the EPS base	**≈ 0.036** W/m·K
Tie length for the LiteCel build-up	**200** mm
Maximum cavity for a wire tie	**75** mm°
Tie spacing — LiteCel detail	**425 vertical × 600 horizontal = 3,92** ties/m^2
Minimum ties — leaf ≥ 90 mm, cavity 50–75 mm	**2,5** ties/m^2°
Minimum ties — leaf 65 mm, cavity 50–75 mm	**5,0** ties/m^2°
Minimum zinc coating on the finished tie	**750** g/m^2°
Weep hole spacing	**600** mm centres°

° Catalogue or declared value. Where a figure is load-bearing in your design, confirm it for the material supplied — on a load-bearing application, by testing the product delivered to your site.

DESIGN AND DETAILING

What the board does

The 35 mm base insulates. The 25 mm the knobs hold open drains. These are two separate functions in one board and neither is optional. Rain that penetrates the outer leaf runs down the channels between the knobs, reaches the DPC and discharges through the weep holes at 600 mm centres. Treat the drained cavity as part of the waterproofing of the wall, not as a thermal detail.

The cavity must stay clear

The single most common way this system fails is mortar droppings bridging the cavity. A bridge does two things at once: it carries water across to the inner leaf, and it takes the drainage path out of service above the blockage. Keep the cavity clean as the work rises, batten the cavity if necessary, and check at the DPC before closing up. The board holds the gap open; it cannot clear it.

Choosing the tie length

SANS 10164-1 5.2.1.4(a) sets the rule: the tie must give 50 mm of embedment in each leaf. So the tie length must be at least the cavity width plus 100 mm. The LiteCel build-up is a 60 mm cavity — 35 mm of board plus the 25 mm drainage gap. That needs 60 + 50 + 50 = 160 mm of tie, so the 200 mm tie is the LiteCel tie. The 150 mm tie suits a 50 mm cavity and is too short for this board. Do not read the tie length as the cavity width.

The cavity width limit on wire ties

SANS 10164-1 5.2.1.4(c) caps the wire tie at a 75 mm cavity. A single LiteCel board sits comfortably inside that at 60 mm. Two boards stacked do not: the build-up becomes 95 mm and a wire tie may no longer be used — that wall needs a vertical-twist strip tie. Resolve the tie before specifying a stacked build-up in a cavity wall; the stack is straightforward as a drainage or insulation layer, where no tie crosses it.

Tie spacing, and why the board sets it

The board is 425 mm high, which is five brick courses. Ties at 425 mm vertically and 600 mm horizontally give 3,92 ties/m^2. That is the LiteCel detail, and it is comfortably above the SANS 10164-1 Table 7 minimum of 2,5 ties/m^2 for a leaf of 90 mm or more in a 50–75 mm cavity. It is NOT above the 5,0 ties/m^2 the same table requires for a 65 mm leaf — on a 65 mm leaf the spacing must close up. Ties per m^2 is a property of the wall, not of the tie: take the figure from Table 7 for the wall actually being built. The same clause requires extra ties at not more than 300 mm of height beside every opening and at every movement joint; those are additional to the field spacing.

Why the single-wire type is not offered

SANS 10164-1 5.2.1.4(b) is explicit: “ties of the single wire type shall not be used” in cavity walls. A single wire has no drip and no mechanical interlock with the mortar — it can carry water across the cavity along its own length, and it relies on bond alone to develop its tie force. The double-triangle type in SANS 28 Table 4 is the type this system is detailed around. Technopol will supply the single-wire type for faced and collar-jointed walls on request, where the code permits it.

Durability, and the coastal question

SANS 28 2.4.1 sets the baseline at a minimum zinc mass of 750 g/m^2 measured on the finished tie — that is the ordinary galvanised tie, everywhere. Within 30 km of the coast SANS 10400-K 4.2.1.4 asks for 750 g/m^2, which the SANS 28 baseline already meets: a coastal wall does not on its own call for stainless. Stainless is called for in tidal splash zones. Where stainless is specified, SANS 28 2.3.5 requires austenitic wire with a minimum of 18% chromium and 8% nickel — type 304 — and it should be bought against a mill certificate showing the actual chromium and nickel contents, not against a grade name on an invoice.

Thermal values, and what they are worth

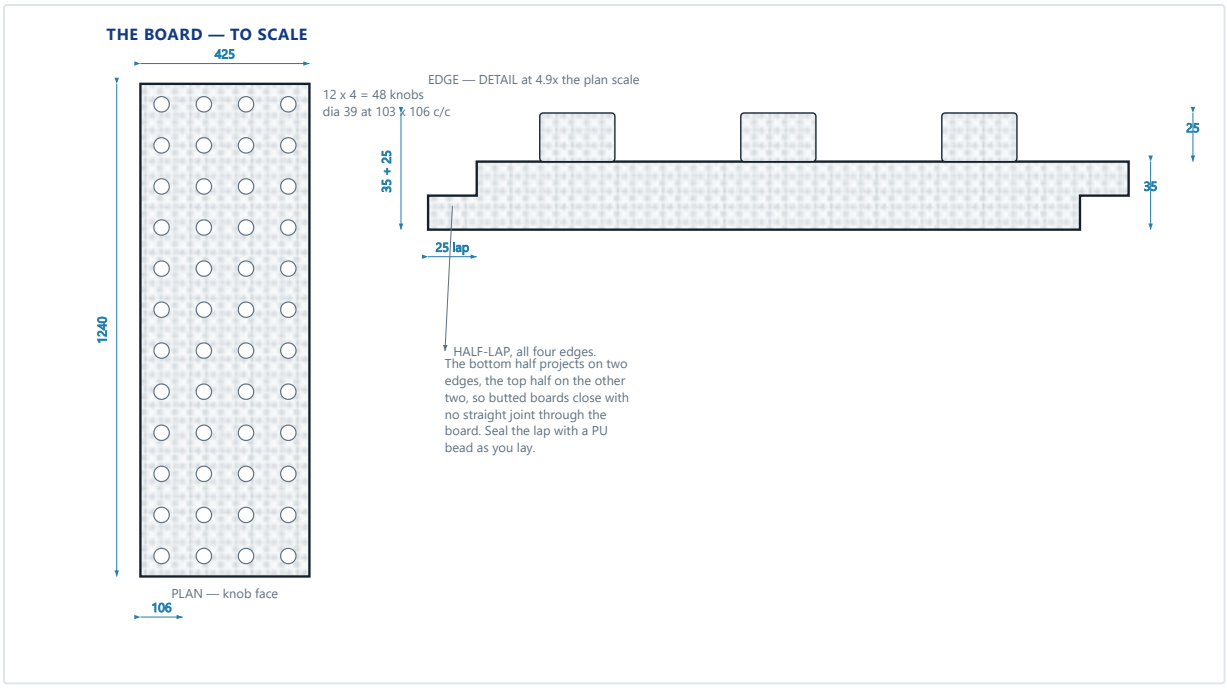
The R-values in this document are the brochure's, and the brochure heads that table “Estimated”. They are calculated figures, not measured results: 0.97 m^2K/W for the 35 mm base implies a thermal conductivity of about 0.036 W/m·K. The whole-wall figures — R 1.6–1.8, U 0.55–0.63 — describe a typical cavity wall, not the board, and the brochure scopes them explicitly as dependent on wall construction and finishes. Where a figure is load-bearing in a SANS 10400-XA submission, confirm it with Technopol in writing before relying on it.

Stacking for a higher R-value

Boards nest: the socket moulded under each knob receives the knob of the board below, coaxially. A stacked board therefore adds its 35 mm base and not a second 60 mm, so the build-up runs 60, 95, 130 mm and the drained 25 mm cavity is preserved at the face throughout. Add the base's R for each added board and keep the cavity's R counted once. Before stacking inside a cavity wall, read the 75 mm tie limit above.

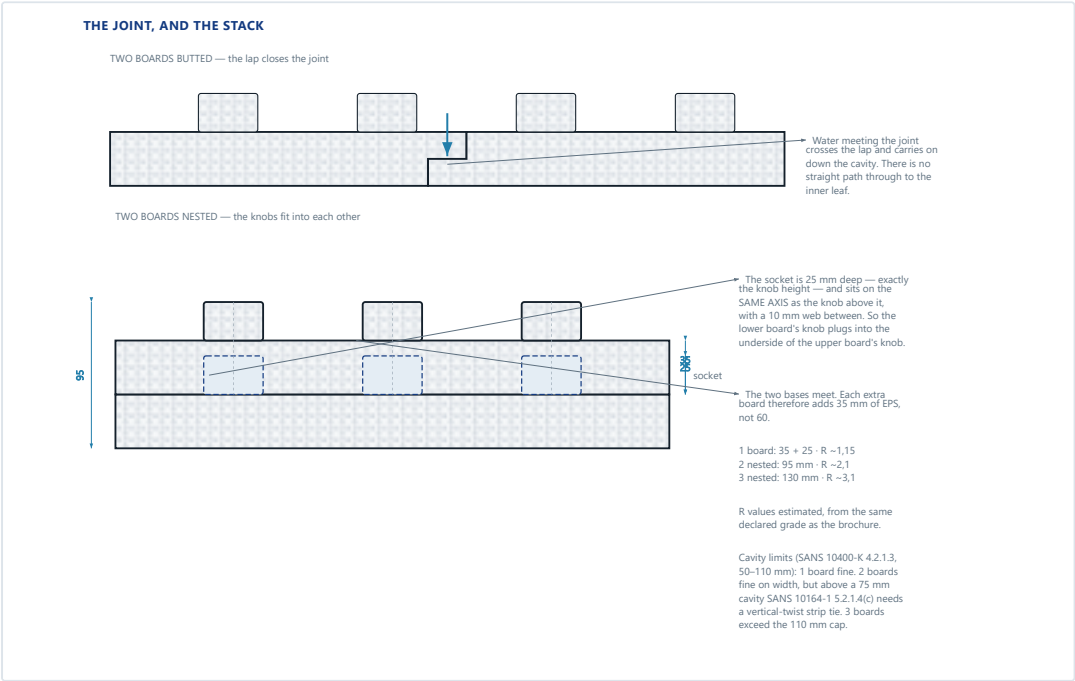
WHERE NOT TO USE THIS PRODUCT

- As a cavity fill. The drained 25 mm gap is the point of the board.
- In a cavity wider than 75 mm tied with wire ties — including a two-board stack at 95 mm. That wall needs a vertical-twist strip tie (SANS 10164-1 5.2.1.4(c)).
- With the 150 mm tie. It is 40 mm short of the embedment the 60 mm LiteCel cavity requires.
- As a structural or load-bearing element.
- Where the R-value is quoted into a SANS 10400-XA submission without first confirming the estimated figures with Technopol.



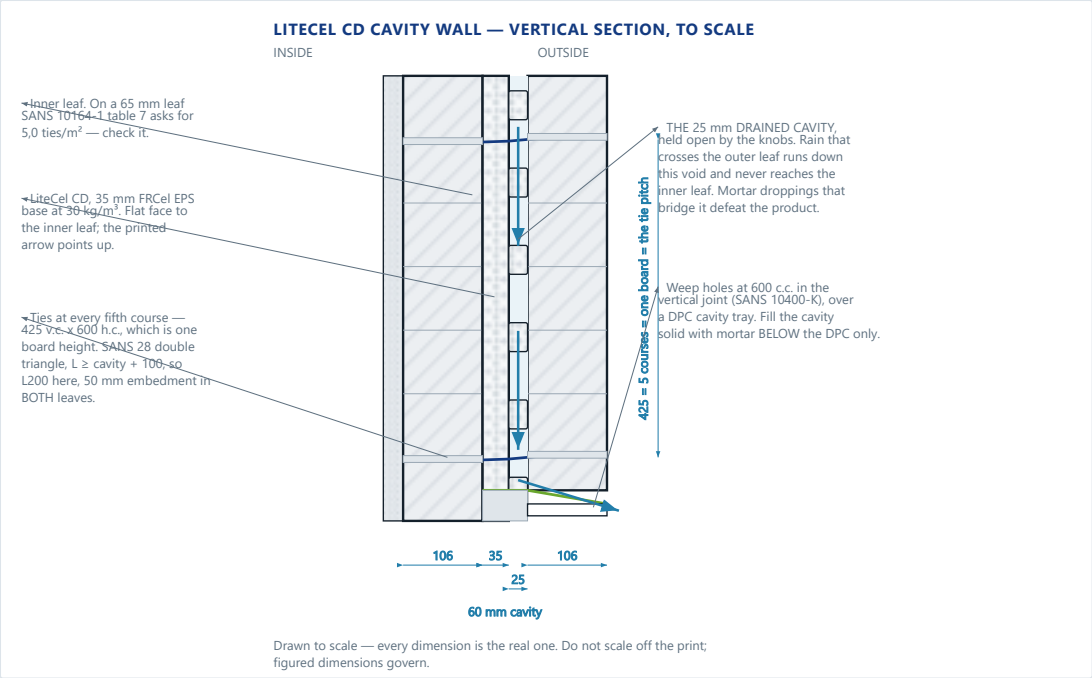
The board

The 1240 x 425 mm laying module: a 35 mm EPS base carrying 48 moulded knobs that stand 25 mm proud, and a 25 mm half-lap on all four edges. Plan and section are drawn 1:1 against the scale bar.



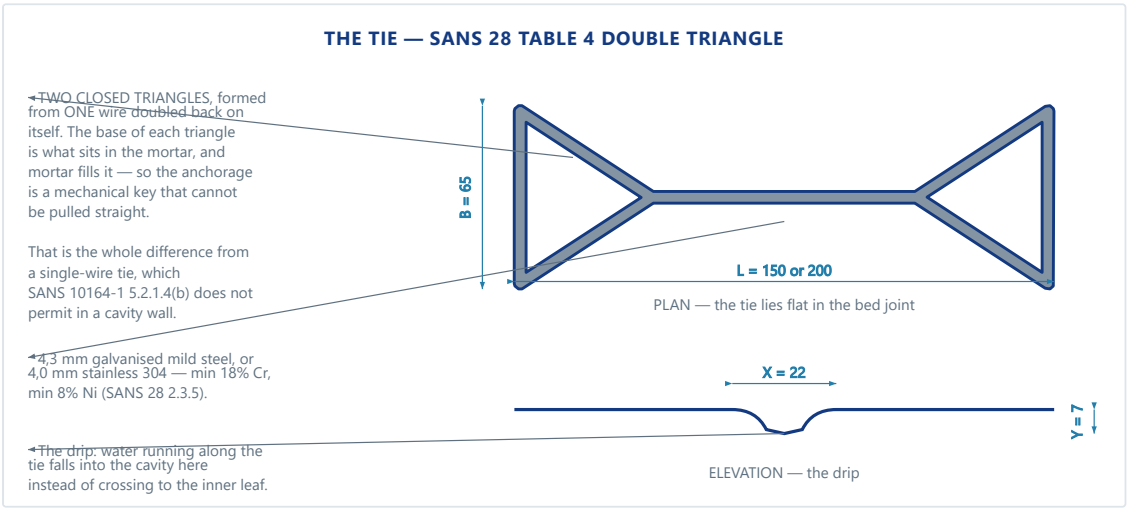
Board-to-board joint, and stacking for a higher R-value

Boards sit snug in series: the half-lap closes the joint and the knob pitch runs unbroken across it. Stacked, the knob of the lower board seats into the socket moulded under the knob above, so each added board contributes its 35 mm base - not 60 mm.



Typical cavity wall

The board against the inner leaf, the 25 mm drained cavity held open by the knobs, and the double-triangle tie passing through the board into both leaves. Water that penetrates the outer leaf runs down the channels between the knobs to the DPC and out through the weep holes.



Double-triangle wall tie

The SANS 28 Table 4 double-triangle tie, drawn to the tabulated dimensions. The single-wire type is not offered for cavity walls - SANS 10164-1 5.2.1.4(b) excludes it.

How to read this document. Where a figure is load-bearing in your design, confirm it for the material actually supplied — on any load-bearing application, by testing the product delivered to your site. That is the right way to buy from anybody, including us.