TECHNOPOL SA
ENERGY SAVING MATERIALS

Technopol SA (Pty) Ltd
Springs, Gauteng
technopol.co.za

PRODUCT BROCHURE

PolyKey Cavity Insulation

A moulded, fire-retardant EPS element, 340 x 1200 mm with a stepped 60/40 mm tongue-and-groove profile, built course-by-course into the cavity of a double-leaf masonry wall as the outer leaf goes up.

DOCUMENT	ISSUED	PRODUCT	STATUS
TP-BR-POLYKEY-CAVITY	2026-08-05	polykey-cavity	Issued for use

OVERVIEW

PolyKey is a tongue-and-groove EPS insulation element built into the cavity of a double-leaf masonry wall as the outer face-brick leaf rises. It is a non-structural infill. It is bought for three things: thermal performance, a cavity that stays clear of mortar droppings, and a joint that cannot shrink open.

The element is moulded from Technopol's fire-retardant FRCel expanded polystyrene at a nominal density of 20 kg/m3 (20 g/l). It measures 340 mm high x 1200 mm long, with a stepped 60/40 mm tongue-and-groove profile on all edges. The tongue and groove interlock so adjacent elements cannot shrink apart; the mortar-key grooves bed into the horizontal courses; the profile keeps mortar droppings out of the cavity below. The element is 340 mm high and the installation detail places wall ties every fourth course, at 340 mm vertical centres, so the ties land on the top of each element.

Technopol also supplies a plain, precision-cut Cavity Wall board (50 / 100 / 150 mm), built into the cavity with a nominal 25 mm air gap. It is a different product with different figures. Check which one the drawing calls for before ordering.

KEY FACTS

PROPERTY	VALUE
Element size	**340 H x 1200 L x 60/40 T mm, tongue-and-groove on all edges. Moulded in this profile only.** °
Core material and density	**Fire-retardant FRCel EPS, 20 kg/m3 (20 g/l)** °
Thermal conductivity, lambda at 10 C	**<= 0.035 W/m.K (dry value)** °
Thermal resistance, 60/40 element, tested with wall ties	**R = 2.0 m2K/W. This is an element figure measured with the ties in place, so it already carries their bridging effect. It is not a whole-wall figure: the masonry leaves, the internal finish and the surface resistances sit outside it.** °
Clear-element resistance, thin (40 mm) section	**R = 1.14 m2K/W. Design the element on its thin section.**
Clear-element resistance, thick (60 mm) section	**R = 1.71 m2K/W**
Plain Cavity board (a separate product)	**50 / 100 / 150 mm precision-cut board, built in with a nominal 25 mm air gap. R = 1.43 / 2.85 / 4.29 m2K/W.** °
Reaction to fire	**B-s1,d0 (Euroclass B) to SANS 53501-1, on the FRCel EPS core. Scope: a bare, unfaced 60 mm FRCel 20DV sheet at a measured density of about 18.37 kg/m3. Reaction to fire only - it classifies contribution to fire growth, smoke and flaming droplets, and is never expressed in minutes.**
Fire resistance (REI, in minutes)	**Not rated. This element is not for use as a fire division. A fire division requires a fire-resistance rating in minutes to SANS 10177-2; this element carries a reaction-to-fire class, which is a different thing and cannot substitute for one. Whatever fire resistance the wall has comes from the masonry leaves.** °

PROPERTY	VALUE
Combustibility	**All EPS is combustible. The fire-retardant grade is treated, not non-combustible. In service the element is fully encapsulated between two masonry leaves and finished - that encapsulation is the fire strategy.°**
Wall ties	**5 ties/m2: 600 mm horizontal x 340 mm vertical centres (every 4th course), pressed into the upward tongue of the horizontal joint. Tie type, length and schedule are set by the masonry code and the project engineer.°**
Coverage	**0.408 m2 per element; 2.45 elements per m2 of cavity face, before cuts and waste**
Compressive stress at 10% deformation	**>= 110 kPa. A strength index measured at destruction-level strain, not a working load.°**
Safe working load at 1% compression	**>= 45 kPa. The creep-controlled limit, and the only compressive figure usable as a sustained design stress. In a cavity wall the element carries nothing but itself.°**
Maximum service temperature	**80 C long-term / 100 C short-term on the grade datasheet. EPS softens and creeps above roughly 70-80 C - treat that as the working ceiling.°**
Quality management system	**ISO 9001:2015, valid to 2028-06-02, scope including EPS Sheets. It certifies the quality-management system, not a product property.°**
Product certification	**Agrement SA certificate 2020/609 covers the LiteCore Building System, as a non-load-bearing wall. It does not cover PolyKey.°**

° 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.

WHERE IT IS USED

- New double-leaf (double-skin) brick and blockwork walls, where the element is built in course-by-course as the outer leaf rises.
- Face-brick residential, estate and light commercial construction, where the cavity is being built anyway and the insulation goes in without changing the bricklaying sequence.
- Comfort and running-cost improvement above the SANS 10400-XA minimum, and as an input to a rational-design or energy-model submission where a modelled wall R-value is worth having.
- Cavity walls where mortar droppings bridging the cavity are a known site problem - the tongue-and-groove profile closes the cavity below as the wall rises.
- Perimeter insulation to a foundation wall, above the DPC, where the detail is drawn, the element is fully encapsulated, and it is kept out of ground contact and standing water.
- Heavier-duty commercial and industrial cavity walls, where the moulded T&G element is preferred to a plain cut board for handling and joint tightness.

WHERE NOT TO USE IT

- Not as a route to SANS 10400-XA compliance on a double-skin masonry wall. A double-skin (cavity) masonry wall, or a plastered single leaf 140 mm or thicker, is already deemed-to-satisfy under XA - the code asks for nothing extra there. On that wall PolyKey is a performance upgrade above the minimum, or a rational-design input. Where XA does bite is the roof and ceiling, and cavity wall insulation contributes nothing to that figure.

- Not a retrofit. The element is bedded and keyed into the mortar courses as the leaves rise. It cannot be posted, blown or stuffed into a cavity that is already closed. For an existing wall, insulate externally - a rendered EIFS system, or a LiteClad steel weatherskin over a continuous EPS layer.
- No role in single-leaf, timber-frame or light-steel-frame walls. There is no cavity to key into.
- Not for use as a fire division, and not in a fire-rated separating wall that relies on the cavity. A fire division needs a fire-resistance rating in minutes; this element carries a reaction-to-fire class, which is a different thing. All EPS is combustible - the fire-retardant grade is treated, not non-combustible.
- Not against chimneys, flues, boiler or heater vents, or any surface hot in service. EPS softens and creeps above roughly 70-80 C. Provide non-combustible sleeving and the specified clearance at every hot penetration through the cavity.
- Not below the DPC, in ground contact, or in ground that is persistently wet or flood-prone. EPS is not a drainage layer, and sustained wetting degrades the effective lambda. Under-slab and below-ground EPS is a separate, engineered component.
- Not in severe driving-rain exposure where the cavity must stay a clear, drained rain-screen. Anything bridging the two leaves can carry water across the cavity.
- Not as a structural element and not as a wall tie. It carries no load and transfers no shear. It does not replace a single wall tie: fit the full tie schedule.
- Not in contact with solvent-based adhesives, bitumen or petroleum primers, solvent sealants, or PVC cable sheathing. These dissolve EPS silently, inside a cavity nobody can inspect.
- Not left exposed. UV degrades unprotected EPS. Store under cover on site, and finish the wall so the element ends up encapsulated between the two leaves.

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.