TECHNOPOL SA
ENERGY SAVING MATERIALS

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INSTALLATION GUIDE

# LiteSpan Ceiling & Wall Panels

A factory-laminated steel-faced sandwich board — two coated-steel skins bonded with two-part PU adhesive to an insulating core (FRCel fire-retardant EPS or resin-bonded Stone Wool) — supplied as double tongue-and-groove interlocking wall and ceiling panels and as single-skin ceiling pans.

| DOCUMENT | ISSUED | PRODUCT | STATUS |
|---|---|---|---|
| TP-IG-LITESPAN-PANEL | 2026-08-11 | litespan-panels | Issued for use |

## BEFORE YOU START

Before the first panel comes off the truck, all of the following must be true. (1) The supporting steel or masonry is complete, level and plumb, and its centres match the panel schedule the span design was issued against — not the other way round. Never fix the steel first and hope a panel spans it. (2) The frame carries the loads. LiteSpan is a self-supporting envelope element, not a structural member: no roof, floor, crane or hanging load goes on the panels. (3) Every support gives at least 75 mm of bearing. Support crushing is computed on 75 mm, and crushing resistance is proportional to bearing length. (4) On a fire-rated Stone Wool wall, every supporting angle and channel is steel and at least 1.6 mm thick — no aluminium anywhere in the system, rivets included. (5) Perimeter floor and top runners are set, level, and packed where the floor falls away. (6) The building is weathertight enough that panels will not stand in water or be rained into an open joint overnight. (7) The core depth AND the skin gauge on site are what the thermal and fire cases were written against. Check both: a substituted core depth or a skin under 0.5 mm puts the panel outside the scope of the type test and the fire classification.

## TOOLS

- Laser level and a long spirit level
- Plumb laser or plumb bob — a wall that starts out of plumb gets worse at every joint
- Self-drilling screw gun with a depth stop or clutch, not a bare impact driver
- Stainless pop-rivet gun for fire-rated Stone Wool joints
- Fine-tooth circular-saw blade, nibbler or tin snips for the steel skin
- Hot-wire cutter or fine-tooth handsaw for the EPS core
- Panel lifting clamps or vacuum lifters for full-length boards; two or three hands on a long panel
- Sealant gun and EPS-compatible sealant — check the datasheet, solvent-based products dissolve EPS
- Micrometer or coating-thickness gauge to spot-check the skin gauge against the order
- Crawl boards or staging for any work above a fitted ceiling
- Edge protection and soft slings — the skins are thin and dent permanently
- No angle grinder. Hot swarf embeds in the coating, rusts within weeks, and burns the core.

## SEQUENCE

### 1. Check the design against what is on the truck

Confirm panel schedule, core type, core depth, cover width, skin gauge and colour against the order. Skins are supplied anywhere from 0.3 to 0.58 mm; the type test and the fire classification are both scoped to 0.5 mm, so 0.5 mm minimum on both faces is a specification item, not a preference — reject panels below it where the job relies on either. Confirm that the support centres on the drawing are the centres the span design was issued for. If a drawing shows a span with no load case beside it, stop and get it confirmed. A span with no load case is not a design.

> **CHECK BEFORE MOVING ON**
>
> - Core depth on site = the core depth the fire and thermal cases were written on
> - Skin gauge >=0.5 mm on both faces where the type test or the B-s1,d0 class is relied on
> - Support centres on the frame = support centres on the panel schedule
> - At least 75 mm of bearing available at every support
> - Core type (EPS or Stone Wool) matches what the fire strategy assumed
> - No panel is being asked to span a distance that came off a brochure

### 2. Receive, inspect and store

Off-load with slings or clamps, never with forks under a bare skin. Inspect every bundle for crushed edges, dented skins and any sign of delamination at the ends. A crushed edge is a permanently weakened panel: the composite action depends on an intact skin-to-core bond. Store on edge or on flat dunnage at close centres — dry, covered, off the ground, out of the sun. Take the protective film off promptly; left in the sun it bakes onto the coating and will not come off.

> **CHECK BEFORE MOVING ON**
>
> - No crushed or dented edges; no delamination at panel ends
> - Panels dry, covered, off the ground, not stacked flat under load in the sun
> - Protective film scheduled for removal, not left on for weeks

### 3. Set out the perimeter and hang the first panel dead true

Fix the floor runner or base channel and the top runner, level, with the gasket or sealant bed in place. For ceiling pans, install the ceiling rails and adjustable hangers off the trusses first — no battens — and set them to a laser line. Then set the FIRST panel absolutely plumb (walls) or level (ceilings) and fix it. Every panel after it inherits this one's error, multiplied at every joint.

> **CHECK BEFORE MOVING ON**
>
> - Runners level; packed where the floor falls away
> - First panel plumb or level, verified with a laser, not by eye
> - 75 mm of bearing at every support — measure it, do not assume it
> - Ceiling hangers sized on the actual panel mass and hung off the STRUCTURE. Stone Wool is roughly double an EPS panel: 20.8 kg/m2 at 100 mm against 12.5 kg/m2 for the 125 mm EPS panel.

### 4. Lay the panels, close every joint fully, and seal it

Push each panel fully home into the groove of the last. The joint must close on BOTH faces, with no daylight and no gap in the core. Then seal it with an EPS-compatible sealant. Be clear about why: the outer steel skin is the vapour barrier, and the tongue-and-groove joint is the breach in it. The joint is not the barrier — it is the thing that must be sealed to make one. On a cold room or a wash-down room the vapour barrier must be continuous and unbroken on the WARM (outside) face and sealed at every joint, penetration and floor/wall junction. An unsealed joint drives vapour into the core: condensation, then ice, then bond failure and delamination from the inside out. Check plumb or level every third or fourth panel and correct early — you cannot lose the error at the last panel.

**CHECK BEFORE MOVING ON**

- Joint closed on both faces, no gap in the core
- Every joint sealed with an EPS-compatible sealant on the warm face
- Plumb / level re-checked every 3-4 panels
- No panel forced or sprung into position — if it will not go, the setting-out is wrong

### 5. Fix

Through-fixed panels: sealed Class 3/4 self-drilling tek screws, three per support, equally spaced across the panel and driven square. Set the clutch so the sealing washer SEATS — it must compress, not bury. An over-driven screw crushes the core, dimples the skin, and makes a leak path and a thermal bridge in one movement. End laps 150 mm minimum. Side laps, where they occur, stitched at 500 mm centres with sealed stitching screws. On an uplift-governed job the fastener is rarely the weak link — pull-out from the purlin or rail is (4.68 kN from 1.5 mm, 6.5 kN from 1.9 mm), so check the substrate you are actually screwing into. Fire-rated Stone Wool walls: all fixings steel, never aluminium; connector channels with interlocking Chromadek cover strips; all rivets stainless steel. The fixings have to hold the panel in the frame through the fire.

EXECUTION RULE — AN UNFIXED JOINT HALVES THE RATING. The 100 mm non-load-bearing Stone Wool wall is FR60 — R60 / E60 / I60 to SANS 10177-2 — WITH THE JOINT RIVETED AND MECHANICALLY FIXED. With the joint unfixed, the SAME wall is FR30. A rated wall built with an unriveted joint is not the wall that was tested. It will not hold the fire for the time it was scheduled to hold it, nothing about it looks wrong from the floor, and nobody finds out until there is a fire. Rivet every joint, on both faces, at the spacing in the panel schedule, from the top of the joint to the bottom.

**CHECK BEFORE MOVING ON**

- Screw washers seated, not buried; no dimpled skins
- Three screws per support on through-fixed panels; stitching at 500 mm centres
- Uplift checked against purlin/rail pull-out, not just screw capacity
- Fire-rated Stone Wool: zero aluminium in the system; steel angles and channels >=1.6 mm; stainless rivets only
- No steel-to-aluminium contact anywhere (galvanic corrosion)
- On a FIRE-RATED wall: every joint riveted on BOTH faces, top to bottom, at the schedule spacing. An unriveted joint drops the wall from FR60 to FR30.

## 6 6. Treat every cut edge and panel end

Every cut exposes raw EPS. Cap, encapsulate or seal it. At all perpendicular joints the panel end must be folded up approximately 10 mm — this is a condition of the ceiling-panel fire classification (FIRELAB FTC 18/284), not a preference. It stops molten or flaming EPS dropping out of the joint. Use only EPS-compatible sealants: solvent-based sealants, bitumen and solvent-thinned coatings dissolve the core on contact.

> **CHECK BEFORE MOVING ON**
> - Every cut edge capped or sealed
> - Panel ends folded up approximately 10 mm at perpendicular joints
> - Sealant confirmed EPS-compatible on its own datasheet — not assumed

## 7 7. Services, penetrations and fittings

NO DOWNLIGHTERS. No recessed light fitting of any kind may be cut into an EPS-cored panel (FIRELAB FTC 18/284). Surface-mount every fitting. Trim and seal every penetration — pipe, duct, conduit, cable — with a proper collar and an EPS-compatible sealant. An unsealed penetration in a cold room is a condensation pump and a hole in the vapour barrier. Keep panels clear of flues, hot pipework, ovens and concentrated heat sources by the separation the project fire strategy requires: the core softens and creeps at roughly 70-80 C, well before there is any fire. Cooler units, service runs, cable trays and other heavy fittings hang off the STRUCTURE, never off the panels.

> **CHECK BEFORE MOVING ON**
> - Zero recessed or downlighter fittings in EPS-cored panels
> - Every penetration trimmed, collared and sealed on the warm face
> - No panel inside the fire-strategy clearance of a flue or heat source
> - No services hung off a panel skin

## 8 8. Flashings, closures and finish

Fix flashings and closures at 500 mm centres. Seal the perimeter continuously, including the floor/wall junction on a cold room. Take the protective film off, clean down, and walk the job looking specifically at two things: the joints — closed, sealed, straight — and the fixings — seated, square, no swarf. Photograph the cut edges, the sealed joints and the penetrations before they are covered.

> **CHECK BEFORE MOVING ON**
> - Flashings and closures at 500 mm centres
> - Perimeter sealed continuously, floor/wall junction included
> - Protective film off; no baked-on residue
> - All swarf swept off the skins — iron filings on a coated skin rust and stain within weeks
> - Photo record of joints, cut edges and penetrations taken before close-up

### FIXINGS AND FASTENERS

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|---|---|
| Through-fixed panel to steel | **Sealed Class 3/4 self-drilling tek screws, three per support, equally spaced across the panel. Screw length to suit the core depth plus at least two threads through the purlin or rail.** |
| Side-lap stitching | **Sealed Class 3/4 self-drilling stitching screws at 500 mm centres** |
| End laps | **150 mm minimum** |

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|---|---|
| Flashings and closures | **Fixed at 500 mm centres** |
| Minimum bearing at each support | **75 mm. Support crushing is computed as R_c = f_Cc x B x 75 and is proportional to bearing length — 50 mm leaves two-thirds of the resistance. If the frame will only give 50 mm, the crushing check must be re-run for 50 mm.** |
| Uplift | **Normally governed by fastener pull-out from the purlin or rail (4.68 kN from 1.5 mm, 6.5 kN from 1.9 mm), not by the screw itself (#14x125 Class 4: 19.7 kN axial, 10.9 kN shear).** |
| Fire-rated Stone Wool wall — fixings | **All fixings steel, never aluminium. Steel angles and channels 1.6 mm minimum. All rivets stainless steel. The fixings must hold the panel in position through a fire.** |
| Fire-rated Stone Wool wall — joint | **Connector channels with interlocking Chromadek cover strips and stainless-steel pop-rivets.** |
| Single-skin ceiling pans | **Ceiling rails and adjustable hangers off the trusses. No battens. Size the hangers on the actual panel mass — Stone Wool is roughly double an EPS panel at the same thickness.** |
| Sealant | **EPS-compatible only, on every tongue-and-groove joint, cut edge and penetration. Solvent-based sealants, bitumen products and solvent-thinned coatings dissolve EPS.** |
| Skin gauge | **Specify 0.5 mm minimum on both faces. The family is supplied 0.3-0.58 mm, and both the SANS 54509 type test and the B-s1,d0 classification are scoped to 0.5 mm skins.** |
| Prohibited | **Aluminium fixings, angles or rivets in any fire-rated Stone Wool system. Angle grinders for cutting. Recessed light fittings in EPS-cored panels. Any structural, roof, floor or crane load carried on the panel.** |

#### WHAT ACTUALLY GOES WRONG ON SITE

- Leaving the joints of a fire-rated wall unriveted. The wall is then FR30, not the FR60 it was scheduled as — half the fire resistance the building was designed around. It looks identical from the floor. Nobody finds out until there is a fire.
- Detailing 50 mm of bearing when the span was designed on 75 mm. Support crushing is proportional to bearing length, so 50 mm leaves two-thirds of the resistance — silently, at every support. Detail 75 mm.
- Treating the tongue-and-groove joint as the vapour barrier. It is not. The outer steel skin is the barrier and the joint is the breach in it. An unsealed joint on a cold room condenses inside the core, ices up, and delaminates the panel months later. Seal every joint on the warm face.
- Cutting downlighters into an EPS ceiling panel. This is the most common fatal detail on LiteSpan jobs and it is prohibited outright. Surface-mount.
- Cutting panels with an angle grinder. Hot swarf welds itself into the coating, rusts inside a month, and burns the EPS at the cut. Use snips, a nibbler or a fine-tooth blade.
- Over-driving the fixing screw. The washer must seat and compress. If it buries, the core is crushed, the skin is dimpled, and you have made a leak path and a thermal bridge at once.
- Accepting 0.3 or 0.4 mm skins on a job sold on the type test or the B-s1,d0 class. Both are scoped to 0.5 mm skins, and the skins carry the whole flange stress. Check the gauge on delivery.
- Using aluminium angles or aluminium rivets in a wall sold on its fire performance. The fixings fail and the panel drops out of the frame while the panel itself is still intact. Steel angles 1.6 mm minimum, stainless rivets.
- Leaving a tongue-and-groove joint not fully home. It looks fine from the room side, and it condenses inside the core.

- Putting a solvent-based sealant, a bitumen product or a solvent-thinned coating on an exposed core edge. It dissolves the EPS. Read the sealant datasheet — do not assume.
- Starting the first panel out of plumb. The error compounds at every joint and there is nowhere to lose it at the last panel.
- Assuming the roof panel's span table applies to a flat wall or ceiling board. It does not. The profiled roof face and a flat face are different sections, and the flat board is substantially weaker in bending.
- Walking on a ceiling panel because the roof panel is walk-on. The 1200 N point-load result was measured on the rib edge of the profiled 125 mm 990 IBR roof panel. A flat ceiling board is a different section. Use crawl boards spanning onto the supports unless a walk-on case has been designed for the board in front of you.
- Hanging cooler units, ducts or cable trays off a panel skin instead of off the structure. The panel is an envelope element, not a structural member.
- Leaving the protective film on through a Highveld summer. It bakes onto the coating and cannot be removed without damaging the finish.
- Storing panels flat in a stack, in the sun, and then wondering why they are bowed and the skins have cooked.

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