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ENERGY SAVING MATERIALS

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Cold Room & Freezer Panels — Engineering Specification & Technical Data Sheet

Technopol supplies a repeatedly-delivered range of laminated insulated sandwich panels for chiller, freezer and cold-store envelopes, built around the **LiteSpan** wall/ceiling panel (1145 mm cover) and 990 IBR / standing-seam roof panels, with matching made-to-measure insulated **Personal Panel Doors**. Steel skins are bonded to an **FRCel fire-retarded EPS**, **PIR** or **StoneWool mineral-wool** core and joined with tongue-and-groove edges and stainless-riveted Crocodile Connector cover channels. Project files evidence chiller (+4 °C) and freezer (−20 °C) rooms, insulated ceilings on perimeter-wall support, and transportable cold-room modules on galvanized forklift-channel bases. Design follows the **AAAMSA/TPMA General Specification for Cold Store Envelopes (2006)**.

Product & dimensional data

Product	Factory-laminated insulated sandwich panels for chiller, freezer & cold-store envelopes — LiteSpan wall/ceiling panels, 990 IBR / standing-seam roof panels, matching insulated Personal Panel Doors
Form	Coated-galvanized / Chromadek steel skins bonded both faces to an insulating core (laminated sandwich panel)
Core options	FRCel fire-retarded EPS (SD 15 / HD 20 kg/m³), PIR, or StoneWool mineral wool 120 kg/m³
Steel skins	≥ 0.5 mm coated galvanized / Chromadek (0.3–0.4 mm on ceiling & door variants); colour + Z/AZ coating options
Wall / ceiling cover width	1145 mm (1225 mm roll → 1145 mm cover)
Roof panel cover width	990 mm (IBR profile, or standing seam = 2 × 495 mm pans, hidden clip, site-seamed)
Panel joints	Tongue-and-groove (male / female) edges + interlocking "Crocodile Connector" cover channels with stainless pop-rivets
Wall / ceiling core thicknesses	50 / 75 / 100 mm (StoneWool); project cold-room walls & ceilings 75 / 100 / 125 mm
Roof panel core thicknesses	75 / 100 / 125 / 150 mm FRCel fire-retarded EPS
Proven room temperatures	Chiller / processing +4 °C; freezer / smoking room −20 °C (project files)
Insulated doors	Made-to-measure Personal Panel Door — 75 mm lipped-C steel jamb + 46 × 3 mm U-channel, 24 kg/m³ EPS leaf, lever/mortice lock, L/R handing
Reaction-to-fire (current)	FRCel EPS core **Class B-s1,d0** to SANS 53501-1 (reaction-to-fire, **not** a fire-resistance rating); StoneWool core Euroclass A1 material (EN 13501-1)
Governing design document	AAAMSA / TPMA General Specification for the Design & Construction of Cold Store Envelopes (2006)

LiteSpan StoneWool wall / ceiling sandwich panel — published performance

Core thickness (mm)	Panel weight, 0.5 mm skins (kg/m²)	R-value (m²K/W)	U-value (W/m²K)	Max unsupported ceiling span (mm)	Max unsupported wall height (mm)
50	14.8	1.43	0.70	2640	3400
75	17.8	2.14	0.47	4100	4600
100	20.8	2.86	0.35	5400	5700

Source: LiteSpan StoneWool Wall Panel brochure (both pages), cross-checked to supplier StoneWool TDS. Cover width 1145 mm; skins ≥ 0.5 mm. StoneWool core: 120 kg/m³ (EN 1602), CS(10%) ≥ 45 kPa (EN 826), λ ≤ 0.035 W/m·K (EN 12667), Euroclass A1 non-combustible (EN 13501-1), water absorption < 1 kg/m² short-term. Walk-on / roof grade 150 kg/m³, CS ≥ 70 kPa.

LiteSpan 990 roof panels (IBR & standing seam) — installed R-value

Core thickness (mm)	75	100	125	150
Installed R-value (m²K/W)	2.3	3.0	3.7	4.4

Source: LiteSpan 990 IBR & Standing-Seam brochures (2021). FRCel fire-retarded EPS core; top skin 990 IBR or SS profile, bottom flat or micro-pleated Chromadek. Both brochures also print an ASD allowable-load chart (kPa) for 75–150 mm cores × 1.8–3.4 m spans × 1 / 2 / 3+ spans — use it as the published roof-panel load capacity.

Verified capacities only. The StoneWool max-unsupported spans above and the 990 roof ASD chart are the only Technopol-published panel capacities. Industry load-span tables (e.g. EPS SD/HD walk-on charts, AAAMSA / third-party panel tables) are references for guidance only, not Technopol test data — confirm any span/load design with Technopol.

Design values, model specification & QA

Design basis — AAAMSA/TPMA (2006)

- Panels typically **full height of the chamber**, 1–1.2 m wide, generally > 50 mm thick; keep joints to a minimum (cl 3.2.1)
- Wall panels checked for vertical + ceiling loads, **restrained against buckling**; base secured against progressive collapse (cl 3.3.11–12)
- Ceiling-mounted coolers are **dead load carried by the main structure or an independent frame — never by the panels**; allow refrigerant + frost weight (cl 3.3.10)
- Ceiling hangers: **stainless, aluminium or hot-dip-galvanized only**, stressed ≤ ⅓ ultimate; insulated & sealed against condensation (cl 3.2.5)
- Support brackets / framework corrosion-resistant, to SANS 10162-2, 10160, 10100, 10145, 10237, 1200H/HA (cl 3.2.3 / 3.5.1)
- **Avoid dissimilar-metal contact** (steel–aluminium galvanic corrosion, cl 3.2.9); panel strength depends on bonding/lamination QC (cl 3.2.11)
- Spanning to the published maxima only (StoneWool ceiling 2640/4100/5400 mm & wall 3400/4600/5700 mm for 50/75/100 mm; 990 roof ASD chart)
- Unprotected external faces can reach **90 °C** — use for thermal-stress / bow checks (cl 3.3.9)
- **Ventilate the void** between insulated ceiling and roof sheeting; gutters external with weir overflows (cl 3.4)

Fire — publishable claim is reaction-to-fire only

- **Class B-s1,d0** reaction-to-fire, SANS 53501-1 (FRCel EPS core; cert IT 23-08-00009) — a material class, **not** a fire-resistance (minutes) rating
- StoneWool core is **Euroclass A1** non-combustible (EN 13501-1) — claim for the core material only
- SANS 10177-2 fire-resistance results (StoneWool FR60/FR30; FR120) **lapsed 2025**, revalidation pending — not a current rating
- PIR-cored panel **failed** SANS 10177-2 (FTC 21/163) — no fire-resistance claim for PIR; EPS is combustible

Fixing & installation

- All fixings **steel, not aluminium**; steel angles / channels ≥ 1.6 mm; **all rivets stainless steel**
- For fire-rated panels the **fixed (riveted) joint must retain panels during a fire** — the riveted joint is the tested spec
- Modular units: module length = n × 1145 + 20 mm; **25 mm thermal cut** at the roof/wall junction; 20 mm roof wedge for fall; insulated floor cassette on a galvanized base frame with forklift channels
- Small rooms: ceiling panels supported on the perimeter wall panels (self-supporting chamber)
- Refrigeration / sprinkler pipework **separately bracketed** from the structure — not off the panels
- Ceiling boards fixed against up & down movement (mini top hats / H-strips + hold-down cups); cut with knife/hacksaw; store flat, protect from weather & UV

QA & conformance

- Minimum cladding base-metal thickness set by structural + environmental design (cl 3.2.10)
- Confirm delivered core density & skin gauge against the specified grade; vapour seal at every external joint must be **inspectable & maintainable**
- Materials resistant to insects / vermin; design for meat rails & similar imposed loads

Standards

- AAAMSA / TPMA Cold Store Envelope General Specification (2006)
- SANS 10162-2, 10160, 10100, 10145, 10237, 1200H/HA (structure); SANS 53501-1 & EN 13501-1 (fire / core)

Model specification clause (edit to project)

"Cold-room / freezer envelope panels shall be factory-laminated insulated sandwich panels of **≥ 0.___ mm** coated-galvanized steel skins bonded to a ___ **core** (FRCel fire-retarded EPS / PIR / StoneWool 120 kg/m³ mineral wool), ___ **mm** thick, **1145 mm** cover width, jointed with tongue-and-groove edges and interlocking cover channels fixed with stainless-steel pop-rivets. Panels shall run **full height** of the chamber with joints minimised. Wall panels shall be checked for vertical and ceiling loads and restrained against buckling, and unsupported spans shall not exceed the manufacturer's published maxima. All ceiling coolers and services shall be carried by the main structure or an independent frame — **never by the panels** — with hangers of stainless steel, aluminium or hot-dip-galvanized steel stressed to no more than one-third of ultimate strength, insulated and vapour-sealed. All fixings shall be steel (angles / channels ≥ 1.6 mm) and **all rivets stainless steel**; the vapour seal at every external joint shall be inspectable and maintainable. Design, support framework and installation shall comply with the **AAAMSA/TPMA General Specification for the Design and Construction of Cold Store Envelopes (2006)** and SANS 10162-2 / 10160 / 10100. Reaction-to-fire of FRCel-EPS-cored panels is **Class B-s1,d0** to SANS 53501-1 (a material class, not a fire-resistance rating)."

Fire — reaction-to-fire only. The only current fire claim for these panels is **Class B-s1,d0 reaction-to-fire** (SANS 53501-1, FRCel EPS core). SANS 10177-2 fire-*resistance* ratings previously reported for StoneWool panels lapsed in 2025 and are pending revalidation, and the PIR-cored panel did not achieve a fire-resistance rating — no FRxx (minutes) rating may be stated without a current test report for the specific panel. These panels are **not an Agrément-certified line** (Agrément South Africa certificate 2020/609 covers the LiteCore Building System only).

Panel schedules, door ordering sheets & project support — info@technopol.co.za · +27 11 363 2780 · technopol.co.za