

PANELS · TECHNICAL DESIGN GUIDE

PolyCool & SuperCool

One composite board that is both the roof insulation and the finished, washable ceiling — engineered for poultry and agricultural buildings.

Overview

PolyCool and SuperCool are Technopol SA composite insulated-ceiling boards built around a fire-retarded expanded-polystyrene (EPS) core laminated to a decorative, washable facing. Each board works at once as roof/ceiling thermal insulation and as the finished ceiling surface, so a single element replaces two separate trades.

The two products differ mainly in their facing. PolyCool carries a white vinyl foil on one side of the EPS sheet, giving a reflective, wipe-clean surface. SuperCool carries a 1 mm white uPVC sheet (to one or both sides) with tongue-and-groove edges, giving a tougher, high-pressure-washable surface suited to wash-down interiors such as broiler and pig houses.

The build-up is a three-layer laminate: the facing, a PU adhesive, and the fire-retarded EPS core. Standard core densities differ by product — PolyCool 18 kg/m³, SuperCool 15 kg/m³ — with 20 or 30 kg/m³ available on request where higher insulation or mechanical performance is needed.

The boards are fixed directly to the roof structure below-truss, over-purlin or across-beam, carried on mini top-hat sections or H-strips with hold-down cups at the joints. They are intended for poultry and agricultural buildings, including environmentally controlled broiler houses and pig sheds.

Key specifications

Property	Value	Standard
Product build-up	PolyCool: white vinyl foil laminated to one face of a fire-retarded EPS core. SuperCool: 1 mm white uPVC sheet laminated to one face of a fire-retarded EPS core, tongue-and-groove edges. Faced one side (both sides available).	—
Thermal resistance R-value (in application, by board thickness)	PolyCool (18 kg/m ³ core): 1.27 @35 / 1.69 @50 / 2.40 @75 / 3.00 @100 mm. SuperCool (15 kg/m ³ core): 1.60 @50 / 1.87 @60 / 2.30 @75 / 2.95 @100 mm m ² ·K/W	—
EPS core density (grade)	PolyCool standard 18; SuperCool standard 15; 20 or 30 optional for special insulation/mechanical requirements kg/m ³	—
Reaction to fire — composite board (SANS 428)	PolyCool: B / B1 / 2. SuperCool: B / B1 / 2 / H	SANS 428 (via SANS 10177-10 / -11)
Reaction to fire — FR EPS core (Euroclass)	Class B — B-s1,d0	SANS 53501-1 (EN 13501-1)
Areal mass (uncut board)	PolyCool (18 core): 0.35 + thickness_mm × 0.018. SuperCool (15 core): 1.0 + thickness_mm × 0.016 kg/m ²	—
Board dimensions (thickness / width / max length)	PolyCool: 35/50/75/100 thick, width 600 or 1200 (±5), length up to 6000. SuperCool: 50/60/75/100 thick, width 1200, length up to 7500 mm	—
Maximum support spacing (over-purlin)	PolyCool by thickness: 1200 @35 / 1350 @50 / 1500 @75 / 1800 @100 mm board. SuperCool: 1400 (max recommended) mm	—

Materials & build-up

Both products are a three-layer composite: a washable facing bonded with PU adhesive to a fire-retarded EPS core. PolyCool, as fire-tested, is white vinyl facing / PU adhesive / fire-retarded polystyrene at 18 kg/m³. SuperCool (tested as "Supacool") is a 1 mm uPVC facing / PU adhesive (approximately 200 g/m²) / FR Cel 15DV fire-retardant EPS.

The vinyl PolyCool face is reflective and wipes clean with a wet cloth; the SuperCool uPVC face is described as self-extinguishing and high-pressure washable. SuperCool boards are joined with a polystyrene tongue inserted between adjacent boards to seal side-to-side joints.

- Core: fire-retarded EPS — standard 18 kg/m³ (PolyCool) or 15 kg/m³ (SuperCool); 20 or 30 kg/m³ optional for special insulation/mechanical requirements.
- Facing: white vinyl foil (PolyCool) or 1 mm white uPVC (SuperCool), one or both sides.
- Adhesive: identified only as PU adhesive (~200 g/m² on SuperCool); no product name, bond strength or service-temperature limit is published.
- SuperCool joint: a polystyrene tongue between adjacent boards seals the side-to-side joint.

Thermal performance

The published figures are in-application thermal resistance (R-value) at the standard core densities. Thermal conductivity (λ) of the core is not published, and the R-values apply only to the standard densities — no R-values are published for the optional 20/30 kg/m³ cores.

Legacy board-only U-values also appear in older documents but are labelled 15-density and marked probable, so they are best read as historic/generic rather than current.

- PolyCool (18 kg/m³ core): R = 1.27 (35 mm) / 1.69 (50 mm) / 2.40 (75 mm) / 3.00 (100 mm) m²K/W.
- SuperCool (15 kg/m³ core): R = 1.60 (50 mm) / 1.87 (60 mm) / 2.30 (75 mm) / 2.95 (100 mm) m²K/W.
- No compressive-strength value and no thermal-conductivity value is published for either board.

Applications

PolyCool and SuperCool are insulated-ceiling systems for poultry and agricultural buildings, providing roof insulation and a finished, washable ceiling in one element. Documented applications include broiler houses (including environmentally controlled houses) and pig sheds.

PolyCool is marketed as a cost-effective, durable, easy-to-install insulated ceiling; SuperCool's high-pressure-washable uPVC face suits interiors that are regularly washed down. A SuperCool-S airtight variant pinches the board sides between mini top-hats to form a support beam and seal, producing an airtight ceiling for improved negative-pressure ventilation.

- Broiler houses, including environmentally controlled houses.
- Pig sheds and other wash-down agricultural interiors (SuperCool).
- SuperCool-S airtight variant for negative-pressure ventilation.

Installation & handling

Boards are fixed directly to the roof structure in one of three configurations — below-truss, over-purlin, or across-beam — carried on mini top-hats (pre-galvanized or coated pre-galvanized steel) or H-strips (aluminium or PVC), with hold-down cups at the joints.

In the over-purlin method the roof sheeting is laid above the boards and screwed through the board into the purlins, so the board sits sandwiched between the roof sheet and the support. Boards can be cut on site and minor imperfections repaired with plaster key / crack filler.

- Configurations: below-truss, over-purlin, across-beam.
- Over-purlin: sheeting laid above the boards and fixed through the board into the purlins.
- Across-beam / self-supporting: request reinforced (e.g. mesh) boards to prevent sagging.
- Cut and trim on site with a sharp knife or hacksaw; repair surface imperfections with plaster key / crack filler.
- Store flat; protect from weather and direct sunlight; EPS is solvent-sensitive.

Dimensions & availability

Dimensions differ by product. Note that legacy brochures quote different maximum lengths; the figures below follow the 2023 datasheets, which the fact base treats as current.

- PolyCool: thicknesses 35 / 50 / 75 / 100 mm; widths 600 or 1200 mm (width tolerance +/-5 mm); lengths up to 6000 mm.
- SuperCool: thicknesses 50 / 60 / 75 / 100 mm; width 1200 mm; lengths up to 7500 mm.
- Maximum over-purlin support spacing — PolyCool by thickness: 1200 (35 mm) / 1350 (50 mm) / 1500 (75 mm) / 1800 (100 mm) mm; SuperCool: 1400 mm max recommended.
- Only PolyCool's +/-5 mm width tolerance is published; thickness and length tolerances are not stated.

Design considerations & limitations

- Combustible core: the EPS core is combustible and the published fire data is reaction-to-fire only. Any fire-resistance requirement must be met by a separately tested/assessed SANS 10177-2 assembly, not by these boards alone.
- SuperCool uPVC behaviour: under sustained fire the uPVC facing softens, ignites and can shed flaming/molten droplets; it is classified for agricultural application and may affect sprinkler operation. Roof ventilation should form part of the fire-safety design per SANS 10400-T.
- Lapsed fire certificates: the composite-board classifications (FTC 17-104 PolyCool 2017; FTC 16-208 Supacool 2016) are stated valid for 5 years and have lapsed (~2021/2022) unless revalidated by FIRELAB; no current revalidation was found. SANS 10177-5 'B combustible' was declared, not tested.
- No structural load/span table: only the PolyCool over-purlin max-purlin-spacing table and the SuperCool 1400 mm max support span exist. No allowable-UDL-vs-span table, deflection limit or load rating is published; across-beam use should specify reinforced boards.
- Density-dependent R-values: published R-values apply only to the standard core density (PolyCool 18, SuperCool 15); no R-values are published for the 20/30 kg/m³ options.
- No product-specific Agreement certificate exists for PolyCool or SuperCool. Agreement SA 2020/609 covers the LiteCore Building System only and must not be presented as covering these boards; the datasheet Agreement logo is a company mark only.
- Undocumented properties: thermal conductivity, compressive strength, water-vapour permeability, acoustic performance and durability/service-life are not published; obtain externally where required.
- Site responsibilities: store flat, protect from weather and direct sunlight (EPS is solvent-sensitive), and confirm reinforcement for self-supporting spans.