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ENERGY SAVING MATERIALS

www.technopol.co.za | info@technopol.co.za | (011) 363-2780

Light Steel Frame (LSF) Building System

Cold-formed steel frames roll-formed in-house, closed in with Technopol's own EPS insulated envelope.

Overview

A turnkey cold-formed-steel building system in which Technopol designs, roll-forms and fabricates its own galvanised / ZincalMag steel sections, then closes them in with its own EPS insulation and EIFS/DEFS render finishes. It runs two tiers from in-house roll-forming plant: heavier lipped-channel (125-300 mm) portal and lattice-truss frames for poultry houses, warehouses and agricultural sheds, and a light-gauge "FrameCAD-style" LSF system (89 and 150 mm web studs) for walls, floor joists, girders and roof trusses, plus Snaplock roof sheeting and cladding. Frames ship flat-pack or as pre-assembled modules and are designed to SANS 517 and SANS 10162-2, backed by an in-house section-property database and frame analysis. Build partner: Steel Frame Warehouse (Pty) Ltd (project brand Poxon).

Applications

- Insulated LSF houses, residential additions and grey-box turnkey homes, including on difficult terrain
- Cold-formed portal-frame poultry / broiler houses and agricultural sheds
- Warehouses and light industrial buildings
- Site offices, porta-cabins and modular units on LSF frames
- Cold-room and controlled-environment building envelopes on steel frame
- EIFS / DEFS rendered facades over a steel or LSF backing wall
- Hybrid builds (steel frame with timber cladding), churches, chapels and chalets

Benefits

- Single-supplier turnkey: Technopol designs, roll-forms and fabricates its own C/Z sections and complete frames, then supplies the EPS/EIFS insulated envelope
- Light and fast: roughly 11 kg/m2 of steel across frame types, delivered flat-pack or as pre-assembled modules
- Long corrosion life: migration to ZincalMag / SpectraMag (M-coating) sections for up to about 10x the life of standard galvanised studs
- A continuous EPS/EIFS outer layer overcomes steel thermal bridging to lift the whole-wall R-value
- Engineered to SANS 517 and SANS 10162-2, supported by an in-house section-property database and frame node/member analysis
- Fire-rated wall option available: the NuClad LiteCore LSF build-up carries a valid FR60 load-bearing rating

Specifications

Steel tiers	(A) heavy CFLC portal/truss 125-300 mm deep; (B) light-gauge LSF studs, 89 mm & 150 mm web
CZ roll-former range	Web 40-80 mm, flange 80-300 mm, plate thickness 1.5-3.0 mm (C & Z sections)
Feed material	Q195 / Q235 hot-rolled or hot-dip galvanised strip; migrating to ZincalMag / SpectraMag
Typical steel mass	approx. 11 kg/m2 (15.4 m portal + one 3.0 m bay = approx. 517 kg)
Documented portal spans	15.4 m and 17.4 m clear span, 3.0 m bays, approx. 12 deg duo-pitch
Connections	M16 Grade 4.8 bolts, gusseted joints, column cast-in approx. 250 mm embedment
Wall R-value (installed)	approx. 1.08-1.23 m2K/W (89 mm stud @600 mm c/c + 14 kg/m3 cavity batt, board finish)
Cavity batt	14 kg/m3 density, k approx. 0.040 W/m.K
Insulation-core fire class	EPS FRCel B-s1,d0; LiteSpan Panel 150 mm B-s1,d0 (reaction-to-fire, SANS 53501-1)
Design codes	SANS 517:2009 (light steel building) and SANS 10162-2 (cold-formed steel)

Fire & compliance: Reaction-to-fire (combustibility) and fire-resistance (element integrity/insulation over time) are separate properties and must not be conflated. The bare galvanised / ZincalMag steel frame is a non-combustible substrate but carries no reaction-to-fire class and no fire-resistance rating on its own; the marketable fire-rated wall is the NuClad LiteCore LSF build-up, which holds a VALID FR60 load-bearing (E/I/R 60) rating to SANS 10177-2 (report FT 24-003, valid to approx. April 2029), with insulation cores rated EPS FRCel B-s1,d0 and LiteSpan Panel 150 mm B-s1,d0. Certification honesty: Agrement 2020/609 covers LiteCore only (active); ISO 9001/14001/45001 have