

Geofoam

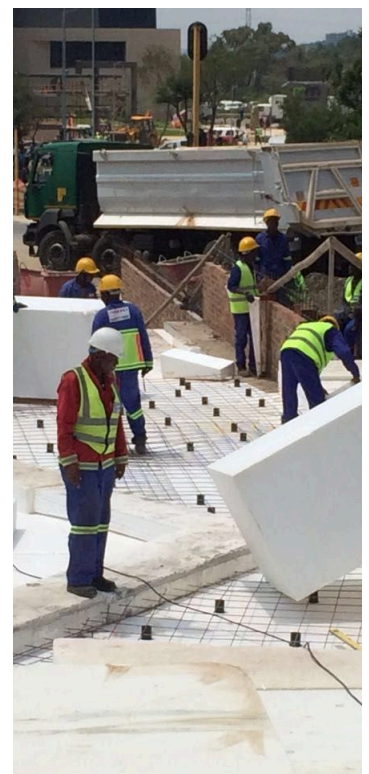
EPS LIGHTWEIGHT STRUCTURAL FILL

PRODUCT DESCRIPTION

Geofoam is moulded expanded-polystyrene block used as engineered lightweight fill. At 12–30 kg/m³ it weighs roughly one percent of compacted soil — about 0.6% at 12 kg/m³ and about 1.6% at 30 kg/m³ against soil at 18–20 kN/m³ — so replacing soil with geofoam removes almost all of the self-weight stress that would otherwise reach a soft subsoil or bear against a wall, culvert or basement roof. It goes in dry, in staggered courses, with no compaction and no consolidation wait, and it is field-cut with a hot-wire cutter or a saw. It is a load-management material: any thermal benefit is incidental.

GEOFOAM PROPERTIES

PROPERTY	VALUE
Nominal density, by grade (12SD / 15SD / 16DV / 20DV / 24DV / 30DV)	12 / 15 / 16 / 20 / 24 / 30 kg/m ³
Minimum density, by grade	10.8 / 13.5 / 14.4 / 18.0 / 21.6 / 27.0 kg/m ³
Design load limit — compressive resistance at 1% strain, by grade	15 / 17 / 21 / 45 / 70 / 100 kPa (min)
Compressive stress at 10% strain, by grade — a failure-region strength, never a design load	60 / 65 / 80 / 110 / 160 / 200 kPa (min)
Cross-breaking (flexural) strength, by grade	80 / 100 / 140 / 150 / 205 / 250 kPa (min)
Thermal conductivity λ at 10 °C, by grade	0.045 / 0.040 / 0.038 / 0.035 / 0.034 / 0.033 W/m·K (max)
Unit weight of the fill, for the load take-down	0.12–0.30 kN/m ³ (compacted soil is ~18–20 kN/m ³)



Summary only — 10 further properties are given in the Geofoam datasheet.

APPLICATIONS AND SCOPE

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- Road and rail embankments, and road widening, over soft or compressible ground (peat, soft clay) where a soil embankment would consolidate for years
- Bridge approach embankments — the light fill settles with the pile-founded abutment rather than against it
- Retaining-wall, abutment and basement-wall backfill — replacing the active soil wedge cuts the lateral thrust the wall has to be designed for
- Protection of buried structures — an induced-trench geofoam column over a pipe

WHERE NOT TO USE IT

- Anywhere fuel, oil, solvent or hot bitumen can reach the blocks and no impermeable membrane is designed in
- Below the design groundwater or flood level, or anywhere the fill can be submerged, without permanent ballast designed for uplift
- Where the sustained design stress would exceed the specified grade's compressive resistance at 1% strain
- Where the sustained stress at the top of the block exceeds 100 kPa