



FOAMULAR® Extruded Polystyrene (XPS) Insulation Foundation Properties for Load Bearing Slab Applications

Technical Bulletin

FOAMULAR® extruded polystyrene (XPS) insulation is suitable for use under concrete slabs. The FOAMULAR® insulation compressive strength needed is determined by load on the slab, and the thickness and reinforcing of the slab. Although many solutions are possible with proper engineering design, FOAMULAR® 250 insulation is commonly used under residential slabs, FOAMULAR® 400 and 600 insulations are commonly used under industrial slabs, and FOAMULAR® 1000 insulation is required only in extraordinary loading situations.

The FOAMULAR® Insulation Foundation Properties table provides engineering data for individual project analysis if needed.

FOAMULAR® Insulation Foundation Properties

FOAMULAR® Product	Foundation Modulus (pci) ^{1,2,3}						Compressive Stress (psi)		
	Thickness (in.)						Live ⁵ Recommended	Dead ⁵ Recommended	Ultimate ⁴
	1"	1.5"	2"	2.5"	3"	4"			
150	590	550	500	450	400	300	3	5	15
250	750	710	675	595	565	510	5	8.3	25
400	1,100	1,000	900	780	680	650	8	13.3	40
600	1,520	1,400	1,275	1,150	1,040	790	12	20	60
1000	—	—	2,600	—	—	—	20	33.3	100

1. Foundation modulus is a measure of deflection at given loads, expressed as inches deflection per inch of thickness or "pci".
2. For insulation installed in multiple layers, assuming the layers are identical, the foundation modulus for the system equals the foundation modulus for one of the layers divided by the total number of layers.
3. For insulation systems that utilize a variety of thicknesses, the system foundation modulus is determined by adding the reciprocal of the foundation modulus of the individual layers. The total is the reciprocal value for the foundation modulus of the entire system.
4. Ultimate compressive stress is measured at 10% deformation or yield, whichever occurs first. For thinner product (1"), yield typically occurs first. For thicker products (1.5" and thicker), yield typically occurs first with 3% to 4% deformation.
5. Recommended stress (load) levels will limit long term compressive creep to not exceed 2% in 20 years.

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