DYNAVOID™

United States Patent: #6,289,636
Canadian Patent: #2,282,109

DYNAMIC INCLUSION FOR STRUCTURAL CONCRETE SLABS

DYNAVOID is designed to be used under structural concrete slabs to prevent heaving caused by the upward movement of underlying ground. It is manufactured from inert closed-cell expanded polystyrene, and is not affected by moisture.

BACKGROUND

A protective void may be required under structural slabs and pile caps to prevent damage from the forces of swelling soils. Various materials can be used to create this protective void, provided they can support the weight of the concrete. However, the selected material must then relax so as to absorb destructive forces from freezing and/or expanding soils.

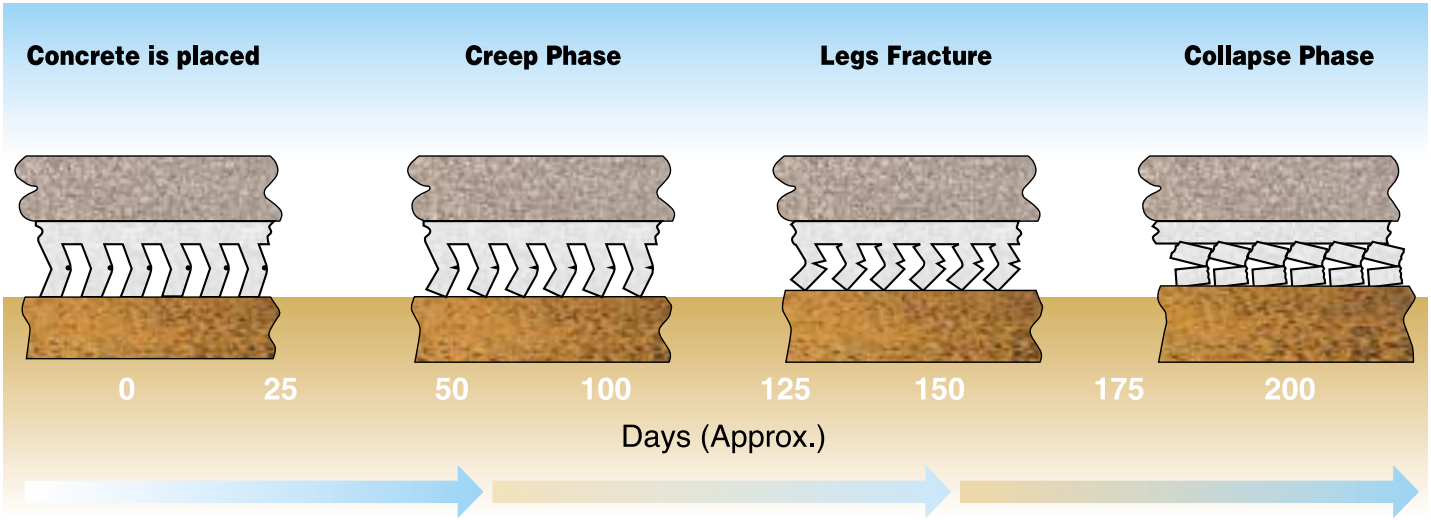
EPS products can be manufactured with reduced density or cross-sectional area to reduce compressive strength. However, it is difficult to produce a design strong enough to carry concrete-placing loads, yet absorb a significant degree of sub-grade swell. A mechanism is required that will accommodate the anticipated movement of underlying soils. Without such a mechanism, stress that will be transmitted to the bottom of a slab at substantial strain will generally be beyond the slab's structural limit.

PRODUCT DESCRIPTION

DYNAVOID™ was developed to meet the requirements for a moisture tolerant void material for under structural concrete. It is a Dynamic Inclusion, mechanically responsive to expanding soils.

DYNAVOID is designed to bear the weight of a slab until it is self-supporting. Long-term sustained stress then causes DYNAVOID to collapse due to thermoplastic creep. As soils expand, the geometry of DYNAVOID converts this vertical strain into a horizontal deflection of supporting legs. Deflection continues until 'over-center' mechanical failure, with the collapsed leg segments nested together. A limited amount of simple compression will then occur as with ordinary foam materials.

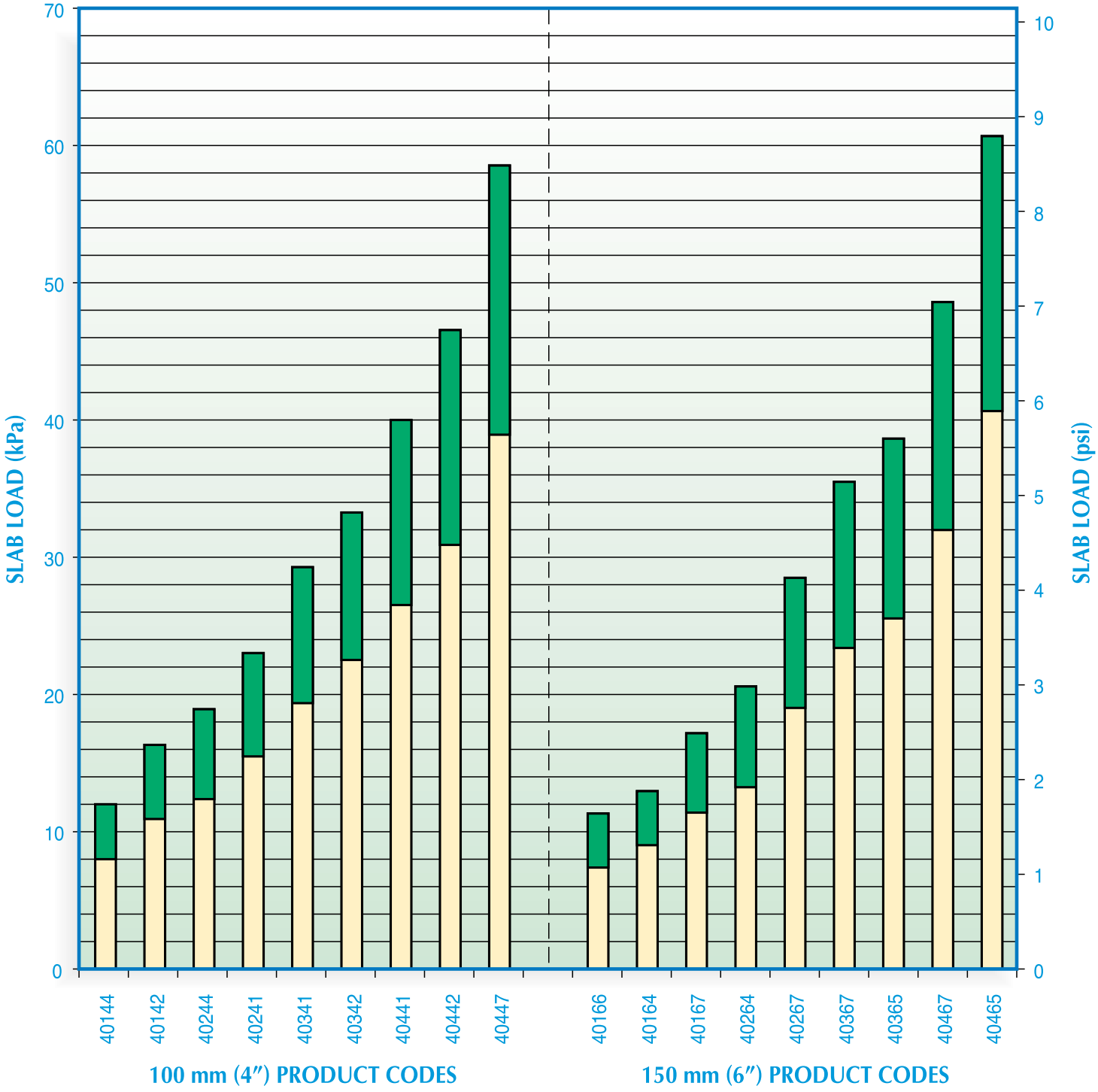
DYNAVOID is produced in different performance ranges and in thickness' of 100 and 150 mm (4" or 6"), in 1220 by 1220-mm (4' x 4') panels.



INSTALLATION INSTRUCTIONS

DYNAVOID panels are laid on prepared, level ground, with joints tight. The panels are easily cut to fit around protuberances, column bases, etc. Overlay materials (hardboard, fiberboard, OSB) are strongly recommended to distribute point loads, rebar chars, etc.

DYNAVOID SELECTION CHART



Dynavoid is available in both 100 mm (4") and 150 mm (6") thickness' in order to meet the protective void requirements for virtually all heavy structural slabs. The green portion of each column indicates the recommended performance range. For the best selection, choose the type with the anticipated slab load closest to midpoint of its performance range. This Dynavoid version will safely support the structural slab, while permitting creep and collapse to occur as a result of sustained sub-grade swell.

Note: One foot of concrete produces a load of 1 PSI. One meter of concrete produces a load of 23.6 kPa.

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SIZES/PACKAGING

PRODUCT SIZE	PCS/BUNDLE	AREA/BDLE	BUNDLE SIZE
4" X 4' X 4'	12	192 SQ. FT.	30" X 4' X 4'
100x1220x1220 mm	12	17.8 SQ. M.	760x1220x1220 mm
6" X 4' X 4'	8	128 SQ. FT.	30" X 4' X 4'
150x1220x1220 mm	8	11.9 SQ. M.	760x1220x1220 mm

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