Product Information Bulletin

313

Plasti-Fab EPS Void Material for Structural Concrete Elements

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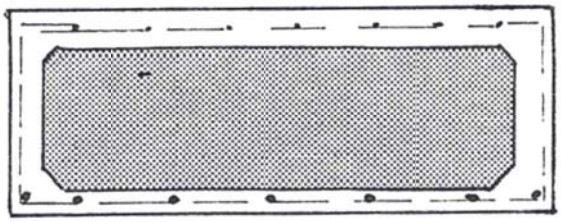
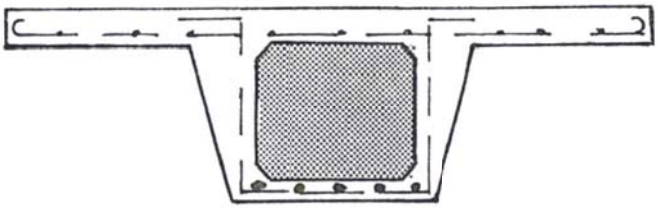
Plasti-Fab EPS Void Material for Structural Concrete Elements

Concrete structural elements such as bridge girders must be transported to jobsites and then erected. For this reason, designers look closely at designs to minimize the amount of concrete used. Plasti-Fab expanded polystyrene (EPS) material can be used to create a void within structural concrete elements to reduce the required concrete volume.





The figures above illustrate examples of structural concrete elements that incorporate an interior void to reduce required concrete volume. The additional formwork required to create a void within a structural element can be replaced by incorporating Plasti-Fab EPS material cut to the specific dimensions of the void required. A wide range of PlastiSpan insulation types are available to provide required support for reinforcing materials.

Material Property	Test Method	Units	PlastiSpan Insulation Types					
			10	16	20	25	30	40
Compressive Resistance *Minimum @ 10% Strain*	ASTM D1621	kPa (psi)	70 (10)	110 (16)	140 (20)	170 (25)	210 (30)	276 (40)
Compressive Modulus *Minimum*		kPa (psi)	2,500 (360)	4,500 (650)	5,034 (730)	6,000 (870)	7,517 (1,090)	10,345 (1,500)
Thermal Resistance *Minimum per 25 mm (1 inch)*	ASTM C518	$m^2 \cdot {}^oC/W$ ($ft^2 \cdot h \cdot {}^oF/Btu$)	0.65 (3.75)	0.70 (4.04)	0.70 (4.04)	0.74 (4.27)	0.74 (4.27)	0.75 (4.3)
Flexural Strength *Minimum*	ASTM C203	kPa (psi)	170 (25)	240 (35)	280 (40)	300 (44)	345 (50)	414 (60)
Water Absorption *Maximum*	ASTM D2842	% By volume	6.0	4.0	3.0	2.0	2.0	2.0
Dimensional Stability *Maximum*	ASTM D2126	% Linear Change	1.5					
Limiting Oxygen Index *Minimum*	ASTM D2863	%	24					

Plasti-Fab EPS Void Fillers

Plasti-Fab EPS material is a versatile method of creating a void within a structural concrete element because it is moulded in large blocks that can be cut with a hot wire to yield the required shape. Because it is a closed cell foam plastic material, it does not absorb water nor will it support the growth of mold or fungus. It is an inert material that can remain a part of the structure for its life without detrimental effect.

Plasti-Fab EPS material provides specifiers with a superior performance solution when used as a void form material within forms for structural concrete elements. Formwork can often be simplified by using Plasti-Fab EPS cut shapes to replace form voids that would need to be constructed from wood or other types of forming products within structural concrete elements.

The pictures above provide a review of one example of Plasti-Fab EPS being used to form a void within a concrete bridge beam and illustrate the following points:

1. One method used to hold individual sections of EPS material in place vertically and to prevent flotation during concrete placing is critical.
2. The method used to support reinforcing cages in the formwork is critical to ensure that the load supported on reinforcing chairs does not induce excessive point loads on the EPS void material before or during concrete placing.