

Application

Design Criteria

GeoSpan compressible fill material is supplied to the customer pre-cut to the required dimensions. The standard length is 2440 mm (96 in.). Required dimensions for width up to 1220 mm (48 in.) and thickness up to 610 mm (24 in.) are provided to job specifications.

The required thickness of GeoSpan compressible fill material is determined based upon the following criteria:

- Self-weight the structure temporarily supported
- Net structural uplift resistance capacity of the structure
- Maximum GeoSpan compressive strength (U)
- Maximum anticipated soil swell (E)

Notes

1. Maximum GeoSpan compressive stress (U) is equal to the maximum compressive stress anticipated on the long term after compression induced by soil swell.
2. The net structural uplift load is the maximum GeoSpan compressive stress less the self-weight of the structure.
3. The GeoSpan final strain (D) is determined from the graph of compressive stress versus deformation provided based upon the maximum GeoSpan compressive stress (U).
4. The required thickness (T) of GeoSpan compressible fill material is then calculated using the following formula:

$$T = \frac{E \times 100}{D}$$

Design Example

The thickness of GeoSpan compressible fill material required under a 750 mm grade beam can be determined as follows:

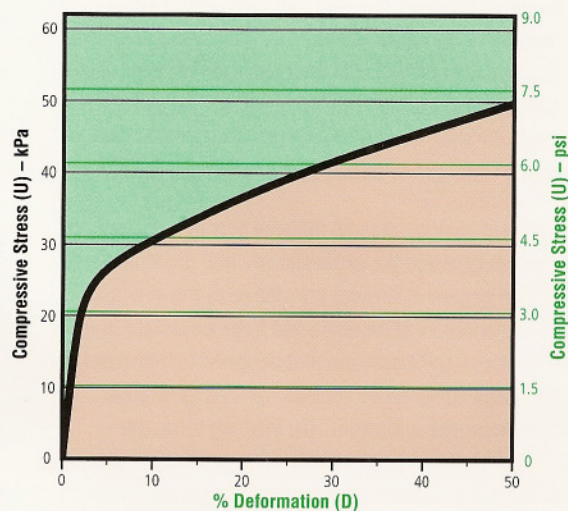
- Self-weight of structure temporarily supported = 18 kPa
- Net structural uplift resistance capacity of the structure = 32 kPa
- Maximum GeoSpan compressive strength (U) = 50 kPa
- Maximum anticipated soil swell (E) = 50 mm

From the graph of Compressive Strength (U) vs. % Deformation (D) provided, the value of D at the maximum allowable stress transfer is equal 50%. GeoSpan required thickness (T) is calculated as follows:

$$T = \frac{50 \times 100}{50} = 100 \text{ mm}$$

Quality Control Testing

Designers are cautioned that GeoVoid compressible fill material utilizes different manufacturing and testing criteria than standard EPS insulation board in order to obtain the engineered properties necessary for this application. The physical properties of GeoVoid compressible fill material are controlled within close tolerances during manufacture.



Specification

Section 3300, Cast-In-Place Concrete.

PART 2: PRODUCTS

Materials

GeoSpan compressible fill material, manufactured by Plasti-Fab, in dimensions specified on drawings to conform to the requirements of the project engineer.



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