



## Soils - Expansive Soil

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### Purpose:

This policy is to clarify the definition of Expansive Soil to be used in the determination of suitable soils (e.g. in situ and structural fill) for building pads and foundation backfill.

### Definitions

A. **Expansive Soil** is defined by the International Building Code and International Residential Code as:

“Expansive soils. Soils meeting all four of the following provisions shall be considered expansive, except that tests to show compliance with Items 1, 2 and 3 shall not be required if the test prescribed in Item 4 is conducted:

1. Plasticity index (PI) of 15 or greater, determined in accordance with ASTM D 4318.
2. More than 10 percent of the soil particles pass a No. 200 sieve (75 µm), determined in accordance with ASTM D 422.
3. More than 10 percent of the soil particles are less than 5 micrometers in size, determined in accordance with ASTM D 422.
4. Expansion index greater than 20, determined in accordance with ASTM D 4829.”

B. Plasticity Index Corrected

$$PI_{cor} = PI \times \frac{(\% \text{ Passing No. 40 Sieve})}{100}$$

C. Expansion Index Corrected

$$EI_{cor} = EI \times \frac{(\% \text{ Passing No. 4 Sieve})}{100}$$

D. Liquid Limit – The water content corresponding to the behavior change between the liquid and plastic state of silt or clay soil, determined in accordance with ASTM D 4318.

### Policy

If the Plasticity Index of the soil is 20 or less (e.g.  $PI \leq 20$ ) and the Liquid Limit is 45 or less (e.g.  $LL \leq 45$ ), the Plasticity Index Corrected ( $PI_{cor}$ ) or the Expansion Index Corrected ( $EI_{cor}$ ) may be substituted in the definition of Expansive Soil.