

SPEAKING IN CODE *BLAST*

SHALLOW FOUNDATION FROST LINE DEPTHS MADE SIMPLE

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The “frost line” is defined as the lowest level below the ground surface to which a temperature of 32°F extends. The factors determining the depth of the frost line are air temperature, the length of time the temperature is below freezing (32°F), and the soil’s ability to conduct heat and its level of thermal conductivity. Frost lines vary significantly throughout the country, ranging from 5 inches in the deep south to 100 inches in the uppermost northern regions. The frost-free depth for shallow foundations is governed by the minimum frost line specified by the local jurisdiction of the project’s location. Figure R301.2(8) depicted below is taken from the International Residential Code (IRC) 2018 code commentary and makes the selection of frost line depths SIMPLE by using an interpolation process. The IBC code does not adopt Figure R301.2(8) but does allow its use. Many local jurisdictions across the U.S. use this figure to establish their minimum frost line depths for bottom elevations of shallow foundations.

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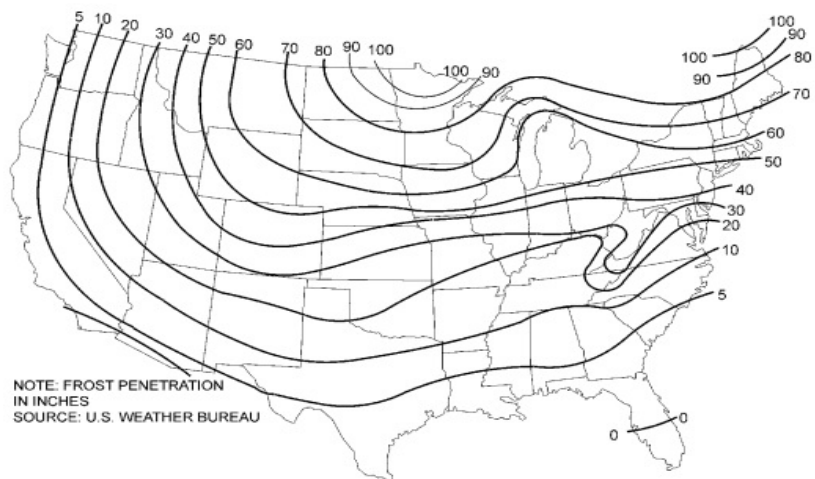


Figure R301.2(8) FROST LINE DEPTH

Shallow foundations must be placed on soil strata with adequate load-bearing capacity and at depths to which freezing cannot penetrate. IBC Section 1809.5 states that structures be protected from frost by one or more of the following methods:

1. Extending below the frost line of the locality
2. Constructing in accordance with ASCE 32
3. Erect on solid rock

Shallow foundations shall not bear on frozen soil unless such frozen condition is of a permanent character.



For more information or further enthusiastic discourse on topics of **CODE**, please contact Alan Tuck at: atuck@fandr.com or 540.344.7939.