



Issue Date	September 15, 2014, Updated October 23, 2023, Updated September 23, 2025, Updated May 26, 2026
Code/Section	2024 IBC Sections 1704.2, 1705.6, 1803.2(amend), 1803.5.1, 1804.6, 1806.2(amend), 1806.3, 1807.3(amend), 1809.4 / 2024 Amended IRC Sections R401.2, R401.4, R401.4.1(amend), R403.1.4.
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Purpose:

To clarify if a geotechnical investigation report and/or geotechnical special inspection is required when using the presumptive soil load bearing values in the code.

Geotechnical Investigation Report Interpretation:

A shallow foundation, embedded post, or embedded pole may be designed using the presumptive soil load-bearing values of amended IBC Section 1806.2 or IRC Section R401.4.1 without a geotechnical investigation report when all of the following conditions are met:

1. The construction drawings shall include the following information:
 - 1.1. The maximum allowable bearing pressures and minimum bearing depth below the finished grade. Shallow foundations require a minimum depth of 12 inches. For slabs on ground see TRT document number 00282: [dsd_trt_pdf_00282.pdf](#)
 - 1.2. One of the following:
 - 1.2.1. A statement that the design is based on an assumed site soil classification.
 - 1.2.2. A statement of the soil classification at the specific site already determined by the designer and that the soil at the site at the bearing depth is undisturbed.
2. The presumptive load-bearing values used without a geotechnical investigation report are restricted to the following maximum values for undisturbed soil or compacted fill:
 - 2.1. Vertical foundation pressure of 1,500psf.
 - 2.2. Lateral bearing pressure of 100psf per foot of depth. Increase for poles is ok.
 - 2.3. Coefficient of friction of 0.25.
3. Compacted fill placement of less than or equal to 12 inches in depth.
4. The building official does not have reason to doubt the classification, strength, moisture sensitivity, or compressibility of the soil. New subdivisions and hillside lots always require a geotechnical investigation report.
5. Structures do not exceed two stories, column reactions do not exceed 25 kips, and wall reactions do not exceed 2 kips/ft.
6. Embedded posts or poles do not have a ratio of the depth of embedment to the least horizontal dimension that is greater than six.

Geotechnical Special Inspections Interpretation

Geotechnical special inspections and tests of existing soil conditions and load-bearing requirements are not required when items 1 through 6 above are met except:

- A. When the designer assumes the classification of the soils at the site, geotechnical special inspection is required to confirm the presumed load-bearing capacity.
- B. When the design uses compacted fill, geotechnical special inspection is required to confirm the compacted dry density is not less than 90 percent of the maximum dry density at optimum moisture content determined in accordance with ASTM D1557.

This is a link to the geotechnical special inspection certificate: [dsd_trt_pdf_00275.pdf](#)

Background:

For many years, Section 2602.01 of the City of Phoenix Construction Code, in effect prior to September 1, 1991, allowed designers to use an assumed soil bearing value of 1500 psf at 18” below natural grade. This was limited to structures not more than 2-stories in height with column loads not exceeding 25 kips and wall loads not exceeding 2 kips/ft. With the adoption of the Uniform Building Code a policy was developed to allow the use of presumptive bearing values, 1000 psf at 12 inch depth for soil class 5 material and 1500 psf at 18 inch depth for soil class 4 material, without submitting a soil investigation report as long as the presumed soil classification, allowable bearing capacity, and bearing depth were identified on the drawings.

The revision of this document for the 2024 code allows the base i-code presumptive values following local geotechnical engineers indicating that the soil concern locally is expansive or collapsible soils potentially present, and not that there is a lower standard bearing capacity. The maximum allowable presumed values are kept at their previous level when not confirmed with soil tests. This does NOT mean that the soil at the site must be class 5 soil, it could be any class capable of at least these values.

The 2024 IBC/IRC requires the soil to be classified per sections IBC 1803.5.1/IRC R401.4, and the IBC requires special inspections for existing site soil conditions, fill placement and load-bearing requirements per IBC 1705.6. For projects of a minor nature, as determined by the limitations listed in this document, the construction documents prepared by the designer shall be sufficient to determine code compliance.

This 2024 IBC/IRC revised document gives the designer three options for minor structures:

1. Provide a geotechnical investigation report and perform special inspections
2. Do not provide a geotechnical report, assume the soil classification, and provide special inspections
3. Classify the soil at the site and do not provide a geotechnical report nor special inspections.