



REDIBASE Forming System

Code Compliance Review: *International Building Code (IBC 2015 & IBC 2018)*

Introduction: The REDIBASE forming system was evaluated for compliance to the requirements of the 2015 and 2018 editions of the International Building Code (IBC). The purpose of the evaluation was to determine the range of acceptable loads for concrete pedestals, formed with a REDIBASE System, based on presumptive soil bearing values permitted by the Code.

Description: The REDIBASE system is an engineered forming system for constructing concrete pedestals. The pedestals have a “bell shaped” configuration with circular base and sloping sides. The resulting 23” diameter footer will have sloping sides and thickness that varies from 5 ½” at exterior to 9 ½” at the center. The contact area on the soil below will be 2.89 square feet. The REDIBASE system can be used with 8, 10 or 12 inch, prefabricated, tube forms to create a concrete pier and footer.

Assumptions: The review was conducted on the basis of the following assumptions.

- Material (concrete) strength: $f'_c = 3000$ psi (minimum)
- Loads: Live (Snow) Load = 40 psf, Dead Load = 15 psf
- Maximum height of pedestal above grade = 24”
- Bottom of footing to be located below frost depth as determined by the Local Building Official
- Pedestals are reinforced to comply with Seismic provisions of the Code for Seismic Category “A”, “B” and “C” structures.

Conclusions: Allowable load on pedestals formed with REDIBASE system:

SUB-BASE MATERIAL	SOIL BEARING	P _{MAX}	A _{TRIB}
	psf (1)	lbs (2)	sq ft (3)
Crystalline Bedrock	12,000	33,000	600
Sedimentary & Foliated Rock	4,000	11,000	200
Gravel, Sandy Gravel	3,000	8,000	150
Sand, Silty Sand, Clayey Sand, Silty Gravel, Clayey Gravel	2,000	5,500	100
Clay, Sandy Clay, Silt, Silty Clay, Clayey Silt, Sandy Silt	1,500	4,000	75

- (1) Presumptive soil bearing values for shallow foundation system only (as defined by IBC)
- (2) Maximum load is limited by the allowable (presumptive) soil bearing pressures and the REDIBASE footprint area
- (3) Maximum tributary (loaded) area supported by one REDIBASE pedestal

P_{MAX} values in table above are “unfactored” Service Loads, are limited by presumptive soil bearing values permitted by IBC 2015 & IBC 2018 and are well below the maximum load carrying capacity of the concrete pedestal itself (based on strength of concrete).

Limitations:

1. Load table is applicable for shallow foundation system with soil types listed, provided bearing material does not overlay an appreciable layer of “unsuitable” material (soft clays, mud, organic clays or silts, organics, uncompacted fills, expansive soils, etc.). Soil bearing values for “deep” foundation systems or for unsuitable materials should be determined by a geotechnical investigation.
2. The load table is appropriate for use in the design of foundation systems for detached one and two-family dwellings (IBC Use Group R-3) and for light structures (residential decks, gazebos, etc.) in areas where IBC Seismic Design Category has been determined to be “A”, “B” or “C” (unless otherwise required by Local Building Official or Local Building Code).

Summary: The REDIBASE system meets or exceeds forming requirements of IBC 2015 and IBC 2018 for concrete pedestals incorporated in the foundation design of one or two-family dwellings and “light” structures. The system may be suitable for other, non-residential, applications as determined by a properly Licensed Professional Engineer.

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