
REDIBASE FOOTING FORM REVIEW

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Project: Redibase Footing Form

Project. No.: TE-19628-11

Client: Redibase Inc.

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Redibase Inc.

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Background:

Tacoma Engineers was retained by Redibase Inc. to complete a review of the Redibase Construction Tube Footing Form. The purpose of this review is to determine the maximum Redibase footing spacing based on allowable bearing pressures set out in the Ontario Building Code 2006. This report is valid for support of residential floors and roofs.

Description:

The Redibase Construction Tube Footing Form is a tapered pedestal type circular footing form. The minimum footing thickness is 5 ½" sloping to a maximum thickness of 9". The circular base is 22 ½" in diameter and the top of the footing accepts 8", 10" or 12" diameter pier forms.

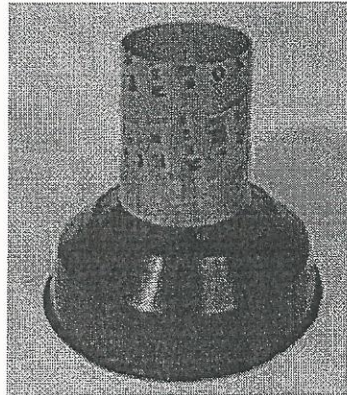


Photo 1: Redibase Construction Tube Footing Form with Pier Form Installed.

Comments:

The unfactored design loads used in the review include:

1. Deck Live Load = 1.9 kPa (40 psf)
2. Deck Dead Load = 0.4 kPa (8 psf)
3. Roof Snow Load = $S_s(C_b) + S_r$
Table 3: 2.0 kPa(0.55) + 0.4 kPa = 1.5 kPa
Table 4: 3.0 kPa(0.55) + 0.4 kPa = 2.1 kPa
Table 5: 4.0 kPa(0.55) + 0.4 kPa = 2.6 kPa
4. Roof Dead Load = 0.6 kPa (12.5 psf)

The following assumptions were made:

1. Footing shall support gravity loads only
2. Concrete strength $f'_c = 20$ MPa at 28 days
3. Underside of footing shall be located 4'-0" minimum below grade or as required by local By-laws

Table 1 outlines different types and conditions of soils and the respective maximum bearing pressures. Soil types are assumed to be representative of soils underlying the footing. The table has been copied from O.B.C. 2006 Table 9.4.4.1.

Table 1: Allowable Bearing Pressure: (kPa)

Type and Condition of Soil	Maximum Allowable Bearing Pressure (kPa)
Dense or compact sand or gravel	150
Stiff clay	150
Dense or compact silt	100
Firm clay	75
Loose sand or gravel	50
Soft clay	40

Reference has been made to J.W. Welder and Associates Ltd. test report dated January 7, 1999. This report indicates the allowable working load for the Redibase form system to be 44.8 kN. (See attached test report)

Table 2 provides the maximum Redibase construction tube footing form spacing based on varying widths of supported floor and the allowable bearing pressures.

Table 2: Maximum Redibase Form Construction Tube Footing Spacing:

Width of Floor Supported	Allowable Soil Bearing Pressure kPa (psf)			
	150 (3000)	100 (2000)	75 (1500)	50 (1000)
3.0 m (9'-10")	4.4 m (14'-5")	2.9 m (9'-6")	2.2 m (7'-3")	1.5 m (4'-11")
4.0 m (13'-2")	3.3 m (10'-10")	2.2 m (7'-3")	1.6 m (5'-3")	1.1 m (3'-7")
5.0 m (16'-5")	2.6 m (8'-6")	1.8 m (5'-11")	1.3 m (4'-3")	0.9 m (2'-11")
6.0 m (19'-8")	2.2 m (7'-3")	1.5 m (4'-11")	1.1 m (3'-7")	0.7 m (2'-4")

Table 3 through Table 5 provide the maximum Redibase construction tube footing form spacing based on varying widths of supported floor, 4.5 m of supported roof and the allowable bearing pressures.

Table 3: Maximum Redibase Form Construction Tube Footing Spacing With Ground Snow Load $S_g = 2.0$ kPa.

Width of Floor Supported	Allowable Soil Bearing Pressure kPa (psf)			
	150 (3000)	100 (2000)	75 (1500)	50 (1000)
3.0 m (9'-10")	2.3 m (7'-7")	1.5 m (4'-11")	1.1 m (3'-7")	0.8 m (2'-7")
4.0 m (13'-2")	2.0 m (6'-7")	1.3 m (4'-3")	1.0 m (3'-4")	-
5.0 m (16'-5")	1.8 m (5'-11")	1.2 m (3'-11")	0.9 m (2'-11")	-
6.0 m (19'-8")	1.6 m (5'-3")	1.1 m (3'-7")	0.8 m (2'-7")	-

Table 4: Maximum Redibase Form Construction Tube Footing Spacing With Ground Snow Load $S_s = 3.0$ kPa.

Width of Floor Supported	Allowable Soil Bearing Pressure kPa (psf)			
	150 (3000)	100 (2000)	75 (1500)	50 (1000)
3.0 m (9'-10")	1.8 m (5'-11")	1.2 m (3'-11")	0.9 m (2'-11")	-
4.0 m (13'-2")	1.6 m (5'-3")	1.1 m (3'-7")	0.8 m (2'-7")	-
5.0 m (16'-5")	1.5 m (4'-11")	1.0 m (3'-4")	-	-
6.0 m (19'-8")	1.4 m (4'-7")	0.9 m (2'-11")	-	-

Table 5: Maximum Redibase Form Construction Tube Footing Spacing With Ground Snow Load $S_s = 4.0$ kPa.

Width of Floor Supported	Allowable Soil Bearing Pressure kPa (psf)			
	150 (3000)	100 (2000)	75 (1500)	50 (1000)
3.0 m (9'-10")	1.5 m (4'-11")	1.0 m (3'-4")	-	-
4.0 m (13'-2")	1.4 m (4'-7")	0.9 m (2'-11")	-	-
5.0 m (16'-5")	1.3 m (4'-3")	0.8 m (2'-7")	-	-
6.0 m (19'-8")	1.2 m (3'-11")	-	-	-

Please contact the undersigned with any questions regarding the information provided in this report.

Per: 

D. Tyler Griffith, B.A.Sc., E.I.T.
 Tacoma Engineers Inc.

Encl.: J.W. Wedler & Associates Ltd. Test Report (2 pages)

