



Evaluation Report CCMC 13309-R The Footing Tube

MasterFormat:	03 11 13.04
Evaluation issued:	2008-04-07
Re-evaluated:	2017-10-10
Revised:	2018-07-16

1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “The Footing Tube”, when used as a concrete pier in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code (NBC) of Canada 2015:

- Clause 1.2.1.1.(1)(b) of Division A, as an alternative solution that achieves at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the following applicable acceptable solutions:
 - Subsection 9.15.3., Footings

This opinion is based on CCMC's evaluation of the technical evidence in Section 4 provided by the Report Holder.

2. Description

The product is a concrete pier form that is made of plastic and manufactured from recycled, linear low-density polyethylene with an ultraviolet stabilizer. The tube is tapered to provide stackability during shipping and storage, and has a resistance to frost penetration and water. The concrete pier form is available in three sizes: 152 mm (6 in.), 203 mm (8 in.) and 254 mm to 305 mm (10 in. to 12 in.). A base pier measuring 546 mm (21 in.) (FTB30) is also available, which can be used under the 203-mm (8 in.) or 254-mm to 305-mm (10 in. to 12 in.) tube to accommodate additional loadbearing areas.

The product is identified with height scribe lines to indicate the level of concrete required to fill the tube and determine backfill height. The tube can also be cut to the desired height using the scribe lines as a guide.

The safety top on the tube keeps out water, dirt from backfilling, and other debris that can be present on-site during construction.

Table 2.1 provides specific dimensions for the 152-mm, 203-mm and 254-mm to 305-mm tubes and the 546-mm FTB30 base pier. The FT-B30 base pier is not mechanically connected to the tubes, which makes it easier to adjust before leveling.

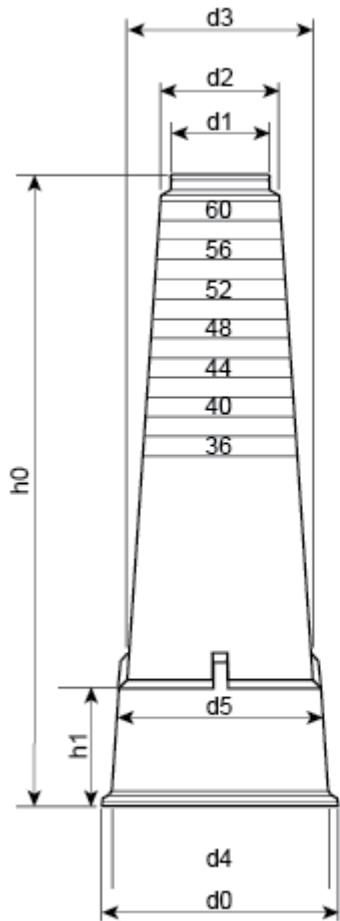


Figure 1. "The Footing Tube" details

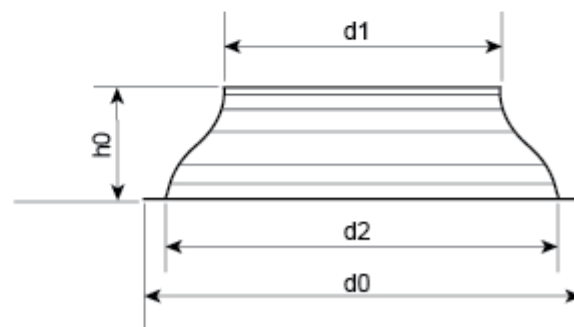


Figure 2. FTB30 base pier details

Table 2.1 Dimensions of "The Footing Tube" and the FTB30 Base Pier

Tube/Footing Diameter (d_1)	Dimensions (mm)							
	d_0	d_1	d_2	d_3	d_4	d_5	h_0	h_1
152 mm (6 in.)	355	152	152	297	304	297	1 372	152
203 mm (8 in.)	609	203	203	356	558	499	1 591	216
254 mm to 305 mm (10 in. to 12 in.)	609	254	305	477	559	521	1 626	304
546 mm (21 in.) (FTB30)	856	546	762	n/a ⁽¹⁾	n/a	n/a	229	n/a

Note to Table 2.1:

1. "n/a" means "not applicable."

3. Conditions and Limitations

CCMC's compliance opinion in Section 1 is bound by the "The Footing Tube" being used in accordance with the conditions and limitations set out below.

- The product may be used as a casting product for concrete piers for applications such as decks, porches, fence posts, one-storey cottages and additions, lampposts, pole barns and point load beams.
- In cases where the product is used in seismic zones as defined in Sentence 4.1.8.16.(3), Foundation Provisions, of Division B of the NBC 2015, unreinforced products (tubes) will not be adequate. Proper seismic designs must be carried out by a registered professional engineer in accordance with the applicable codes, including the NBC 2015.
- The allowable bearing pressures and loads for the product are specified in Table 3.1. For applications beyond the scope of this Table, consult a registered professional engineer in accordance with the applicable codes, including the NBC 2015.

Table 3.1 Test Results for Allowable Bearing Pressures and Loads

Soil Description	Allowable Bearing Pressure ⁽¹⁾⁽²⁾ (kPa)	Allowable Loads			
		152-mm (6-in.) Footing Tube ⁽³⁾ 0.078 m ² Base Area	203-mm (8-in.) Footing Tube ⁽⁴⁾ 0.239 m ² Base Area	254-mm to 305-mm (10-in. to 12-in.) Footing Tube ⁽⁵⁾ 0.239 m ² Base Area	FTB30 0.455 m ² Base Area
Dense or compact sand or gravel	150	11.8 kN/tube	35.9 kN/tube	35.9 kN/tube	68.2 kN/tube
Loose sand or gravel	50	3.9 kN/tube	11.9 kN/tube	11.9 kN/tube	22.7 kN/tube
Dense or compact silt	100	7.8 kN/tube	23.9 kN/tube	23.9 kN/tube	45.5 kN/tube
Stiff clay	150	11.8 kN/tube	35.9 kN/tube	35.9 kN/tube	68.2 kN/tube
Firm clay	75	5.9 kN/tube	17.9 kN/tube	17.9 kN/tube	34.1 kN/tube
Soft clay	40	3.1 kN/tube	9.5 kN/tube	9.5 kN/tube	18.1 kN/tube
Till	200	15.7 kN/tube	47.9 kN/tube	47.9 kN/tube	91.0 kN/tube
Clay shale	300	23.6 kN/tube	71.8 kN/tube	71.8 kN/tube	136.5 kN/tube
Sound bedrock	500	39.4 kN/tube	119.8 kN/tube	119.8 kN/tube	227.5 kN/tube

Notes to Table 3.1:

1. Referenced in Table 9.4.4.1. of Division B of the NBC 2015.
2. Where a foundation bears on gravel, sand or silt, and the water table is within a distance below the bearing surface equal to the width of the foundation, the allowable bearing pressure shall be 50% of that determined in Article 9.4.4.1., Allowable Bearing Pressures, of Division B of the NBC 2015.
3. Not for use where frost depth exceeds 1.3 m.
4. Not for use where frost depth exceeds 1.4 m.
5. Not for use where frost depth exceeds 1.5 m.

- The concrete shall be designed, mixed, placed, cured and tested in accordance with CAN/CSA-A438-00, “Concrete Construction for Housing and Small Buildings,” and shall comply with Subsection 9.3.1., Concrete, of Division B of the NBC 2015. The excavation hole must be backfilled according to the suggested depths before pouring the concrete.
- The product must be installed according to the manufacturer’s installation manual, dated February 2008.

4. Technical Evidence

The Report Holder has submitted technical documentation for CCMC’s evaluation. Testing was conducted at laboratories recognized by CCMC. The corresponding technical evidence for this product is summarized below.

4.1 Performance Requirements

Table 4.1 Test Results for Stability

Tube	Requirement	Result ⁽¹⁾
152 mm (6 in.)	Within 10 mm horizontally of original position	Pass
203 mm (8 in.)	Within 10 mm horizontally of original position	Pass
254 mm to 305 mm (10 in. to 12 in.)	Within 10 mm horizontally of original position	Pass
546 mm (21 in.) (FTB30)	Within 10 mm horizontally of original position	Pass

Note to Table 4.1:

1. The purpose of this test is to establish that the tubes will remain stable and correctly in place during the placement and curing of concrete after backfilling.

Report Holder

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Date modified:
2017-10-10