



## Evaluation Report CCMC 12839-R BIGFOOT SYSTEMS®

<b>MASTERFORMAT:</b>	03 11 13.03
<b>Issued:</b>	1997-10-31
<b>Re-evaluated:</b>	2015-10-14
<b>Revised:</b>	2015-11-04
<b>Re-evaluation due:</b>	2018-10-31

### 1. Opinion

It is the opinion of the Canadian Construction Materials Centre (CCMC) that “BIGFOOT SYSTEMS®”, when used as a casting product for concrete constructed tube footings in accordance with the conditions and limitations stated in Section 3 of this Report, complies with the National Building Code 2010:

- Clause 1.2.1.1.(1)(b), 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 an engineer-designed footing form made of lightweight, recycled, high-density polyethylene plastic that replaces the traditional wooden boxes. The product is bell-shaped, which allows for standard fibre construction tubes to be attached to its top. The product’s footing forms come in four different models: BF20, BF24, BF28 and BF36. Model BF20 accepts 15-cm (6 in.) and 20-cm (8 in.) small, medium and large construction tubes. Model BF24 accepts 20-cm (8 in.) and 25-cm (10 in.) small, medium and large construction tubes. Model BF28 accepts 25-cm (10 in.) and 30-cm (12 in.) small, medium and large construction tubes. Model BF36 accepts 30-cm (12 in.), 35-cm (14 in.), 40-cm (16 in.) and 45-cm (18 in.) construction tubes.

Figure 1 illustrates the shape of the product with generic dimensions. Table 1 provides specific dimensions for each model. The top rings of the bell form are designed to accept construction tubes with various inside diameters. The side portion is ribbed to give added strength to resist distortion of the form from the backfill or poured concrete and allows trapped air to escape. The sloped sides also have small vent holes to allow trapped air to escape when the footing is being poured with concrete to prevent honeycombing of the concrete inside the form.

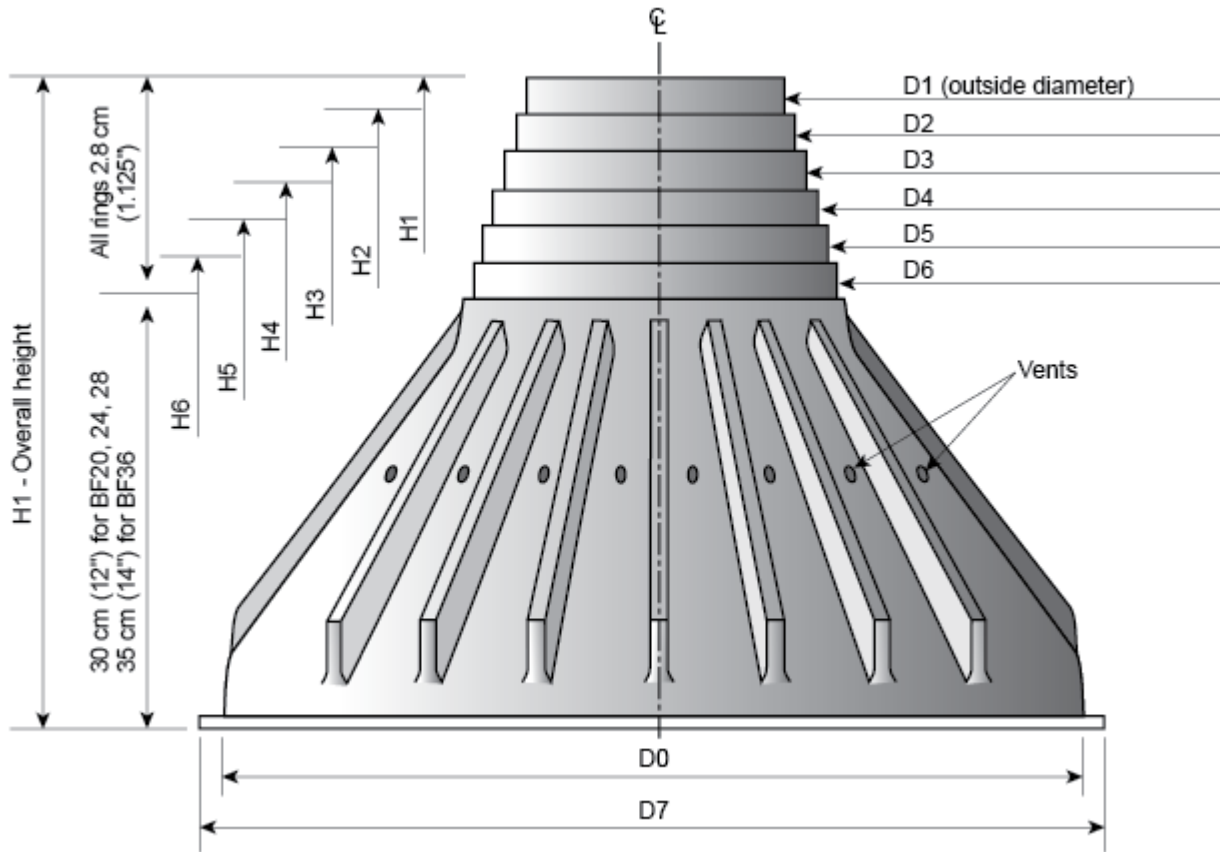


Figure 1. Footing form of the product

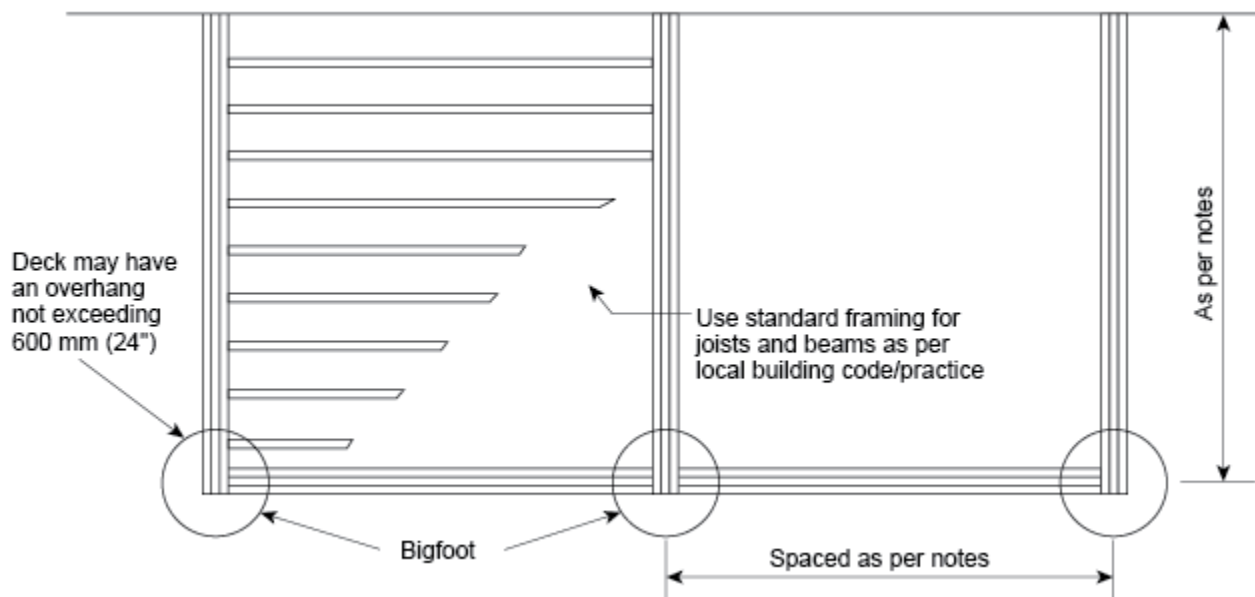
Table 2.1 Dimensions of the Product

Ring Diameter	BF20 cm (in.)	BF24 cm (in.)	BF28 cm (in.)	BF36 cm (in.)	Ring Height	BF20 cm (in.)	BF24 cm (in.)	BF28 cm (in.)	BF36 cm (in.)
D1	13.97 (5.50)	19.05 (7.50)	24.13 (9.50)	30.48 (12.00)	H1	39.37 (18.00)	47.63 (18.75)	47.63 (18.75)	58.42 (23.0)
D2	15.29 (6.02)	20.37 (8.02)	25.45 (10.02)	35.56 (14.00)	H2	43.18 (17.00)	44.77 (17.625)	44.77 (17.625)	52.07 (20.5)
D3	16.46 (6.48)	21.39 (8.42)	26.47 (10.42)	40.64 (16.00)	H3	40.64 (16.00)	41.91 (16.5)	41.91 (16.5)	45.72 (18.0)
D4	19.05 (7.50)	24.13 (9.50)	29.21 (11.50)	45.72 (18.00)	H4	38.10 (15.00)	39.05 (15.375)	39.05 (15.375)	39.37 (15.5)
D5	20.37 (8.02)	25.45 (10.02)	30.53 (12.02)	-	H5	35.56 (14.00)	36.20 (14.25)	36.20 (14.25)	-
D6	21.39 (8.42)	26.47 (10.42)	31.55 (12.42)	-	H6	32.02 (13.00)	33.34 (13.125)	33.34 (13.125)	-
D7	54.61 (21.50)	64.01 (25.20)	75.18 (29.60)	92.42 (36.40)	Wall Thickness	0.239 (0.094)	0.239 (0.094)	0.239 (0.094)	0.47625 (0.200)
D0	50.80 (20.00)	60.96 (24.00)	71.12 (28.00)	91.44 (36.00)	-	-	-	-	-

### 3. Conditions and Limitations

CCMC’s compliance opinion in Section 1 is bound by the “BIGFOOT SYSTEMS®” being used in accordance with the conditions and limitations set out below.

- The product may be used as a casting for concrete footings in applications such as cottages, gazebos, storage sheds, sunrooms, screen rooms, additions, pole barns, carports, verandas, raised decks, gate posts, front porches, jack posts, fence posts, permanent and portable signs, wharves, moorings, capitals for columns, footings for mobile homes, satellite dishes and telecommunication towers. The product can also be used as a funnel for pouring.
- For applications beyond the scope of this Report, footing size and spacing will have to be carried out by a registered professional engineer skilled in such design and licensed to practice under the appropriate provincial or territorial legislation.
- Excess rings should be cut off at the top of the ring being used and should be removed.
- For below-grade applications, the product must be placed on undisturbed ground or on 100 mm to 150 mm of compacted crushed stone, and then backfilled according to the suggested depth before pouring concrete in order to prevent the footing from rising when concrete is being poured.
- For above-grade applications, the product must be anchored to the ground with 30-cm (12-in.) spikes driven in at a 45° angle. Drill 10-mm holes on a 45° angle in the product as indicated by the markings on the flange area at each rib location to accommodate the spikes.
- The construction tube must be screwed to the footing with four 25-mm (1-in.) screws, except for the BF36, which requires eight 25-mm (1-in.) screws.
- The hole must be backfilled according to the suggested depths before pouring concrete.
- For additional stability after the concrete has been poured, three to four #4 or #5 rebars may be placed in the centre of the construction tube, down to the bottom of the footing form, ensuring not to strike the sides of the product.
- Concrete must be designed, mixed, placed, cured and tested in accordance with CAN/CSA-A438-00 (R2004), “Concrete Construction for Housing and Small Buildings.” Concrete must have a minimum compressive strength of 20.7 MPa (3 000 psi) at 28 days and consist of not more than 19-mm aggregate. Concrete must be placed in 25-cm to 40-cm lifts (maximum 40.6 cm) with #4 or #5 rebars thrust 10 to 12 times per concrete lift. Rods should be in the centre and not around the perimeter. Stripping of the forms is not necessary with the proposed footing form.
- For most applications, the product may be installed according to Figure 2.



**Figure 2. Spacing of the product for decks**

- 1. The allowable loads must meet or exceed the requirements of Article 9.4.4.1., Allowable Bearing Pressures, of Division B of the NBC 2010.**
  - 2. Gravity loads include only dead loads (weight of construction materials) and service loads, such as snow loads and rain loads.**
  - 3. Piers requiring design for earthquake loads must be designed by a professional engineer.**
  - 4. The proposed footing form is not intended as a substitute foundation system for the full foundations commonly used under residential housing, unless it has been designed for this application by a qualified professional engineer.**
  - 5. Framing must be in accordance with local building codes and regulations.**
  - 6. Spacing of the footing forms must be in accordance with Subsection 9.15.3. of Division B of the NBC 2010. Maximum spacing for BF20, BF24 and BF28 is 1.5 m (5 ft.), 2.2 m (7 ft.) and 3.0 m (9 ft. 10 in.), respectively.**
- The product must be installed according to the manufacturer’s instructions.

## 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 General

**Table 4.1 Results of Testing of Stability Properties for the Product**

Test	Requirement	Result
<b>Buoyancy</b>	The top of each construction tube must remain within 10 mm (both horizontally and vertically) of its original position.	The top of the construction tube remained stationary during the test with no measurable movement.
<b>Compression of unit walls after backfilling</b>	The sloping sides of the footing base must not be deformed by more than 10 mm after backfilling.	The units completely filled with concrete and maintained their original shape. There was no appreciable change in dimensions.
<b>Air pockets and honeycombing</b>	There must be no air pockets or honeycombing in any of the products tested.	Well-consolidated concrete with no voids or honeycombing.

### Report Holder

Bigfoot Systems Inc.  
6750 Highway 3, Martin's Point  
R.R. # 2  
Mahone Bay, NS B0J 2E0

**Telephone:** 902-627-1600

**Fax:** 902-627-1700

**Email:** [info@bigfootsystems.com](mailto:info@bigfootsystems.com)

**Web:** [www.bigfootsystems.com](http://www.bigfootsystems.com)

### Plant(s)

Springhill, NS

### Disclaimer

*This Report is issued by the Canadian Construction Materials Centre, a program of NRC Construction at the National Research Council of Canada. The Report must be read in the context of the entire CCMC Registry of Product Evaluations, including, without limitation, the introduction therein which sets out important information concerning the interpretation and use of CCMC Evaluation Reports.*

*Readers must confirm that the Report is current and has not been withdrawn or superseded by a later issue. Please refer to [http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/ccmc\\_index.html](http://www.nrc-cnrc.gc.ca/eng/solutions/advisory/ccmc_index.html), or contact the Canadian Construction Materials Centre, NRC Construction, National Research Council of Canada, 1200 Montreal Road, Ottawa, Ontario, K1A 0R6. Telephone (613) 993-6189. Fax (613) 952-0268.*

*NRC has evaluated the material, product, system or service described herein only for those characteristics stated herein. The information and opinions in this Report are directed to those who have the appropriate degree of experience to use and apply its contents. This Report is provided without representation, warranty, or guarantee of any kind, expressed, or implied, and the National Research Council of Canada (NRC) provides no endorsement for any evaluated material, product, system or service described herein. NRC accepts no responsibility whatsoever arising in any way from any and all use and reliance on the information contained in this Report. NRC is not undertaking to render professional or other services on behalf of any person or entity nor to perform any duty owed by any person or entity to another person or entity.*

**Date modified:**  
2015-11-04