

CCMC 13492-R

CCMC Canadian code compliance evaluation

CCMC number:	13492-R
Status:	Active
Issue date:	2010-02-09
Modified date:	2023-11-08
Evaluation holder:	<p>North American Specialty Products LLC 2801 Post Oak Blvd., Suite 600 Houston TX 77056 United States Website: formadrainsolutions.com Telephone: 855-624-7473, opt. 3 Email: technical@napcopipe.com</p>
Product name:	Form-A-Drain
Compliance:	NBC 2020, OBC
Criteria:	CCMC-TG-334613.04-20, "CCMC Technical Guide for Dual Footing Form and Drainage Tile System - extruded PVC"

In most jurisdictions this document is sufficient evidence for approval by Canadian authorities.

[Learn more about CCMC recognition](#) [Look for the trusted CCMC mark on products to verify compliance.](#)

Compliance opinion

It is the opinion of the Canadian Construction Materials Centre that the evaluated product, when used as a concrete footing form and drainage tile in accordance with the conditions and limitations stated in this evaluation, complies with the following code:

National Building Code of Canada 2020

Code provision	Solution type
4.1.1.3.(4)(c) CSA CAN/CSA-S269.3-M92 Concrete Formwork ...	Alternative
9.14.3.1. Material Standards	Alternative
9.14.3.2. Minimum Size	Alternative
9.14.3.3. Installation	Alternative
9.14.5. Drainage Disposal	Alternative

Ontario Building Code

Ruling No. 10-04-241 (13492-R) authorizing the use of this product in Ontario, subject to the terms and conditions contained in the Ruling, was made by the Minister of Municipal Affairs and Housing on 2010-04-09 (revised 2018-03-07) pursuant to s.29 of the Building Code Act, 1992 (see Ruling for terms and conditions). This Ruling is subject to periodic revisions and updates.

The above opinion(s) is/are based on the evaluation by the CCMC of technical evidence provided by the evaluation holder, and is bound by the stated conditions and limitations. For the benefit of the user, a summary of the technical information that forms the basis of this evaluation has been included.

Product information

Product name

Form-A-Drain

Product description

Form-A-Drain is a foundation product that is intended for use as a concrete footing form and drainage tile. The product is manufactured from an extruded polyvinyl chloride (PVC) compound and is available in 100 mm (4 in.), 150 mm (6 in.), 200 mm (8 in.), and 250 mm (10 in.) depths. The 100-mm drainage channel (lineal) has a single hollow chamber, while the 150 mm, 200 mm, and 250 mm depths have intermediate webs to stiffen the channel.

The product's system consists of 3.66 m (12 ft.) lineals that are slotted on the exterior face to allow for the entrance of ground water. The system also includes straight couplings, corner couplings, 45° fabricated fittings, 90° vertical "L" fittings, a snap-in adapter, single and double outlet fittings, spacer straps, and grade stakes to facilitate installation and accommodate drainage to the disposal system.



Figure 1. Form-A-Drain product sizes



Figure 2. Form-A-Drain corner assembly



Figure 3. Form-A-Drain corner assembly after concrete placement

Manufacturing plant

This evaluation is valid only for products produced at the following plant:

Product name	Manufacturing plant
	Janesville, WI, US
Form-A-Drain	☑

☑ Indicates that the product from this manufacturing facility has been evaluated by the CCMC

Conditions and limitations

The CCMC's compliance opinion is bound by this product being used in accordance with the conditions and limitations set out below.

- The product must be laid on undisturbed or well-compacted soil so that the top of the product is below the bottom of the floor slab or the ground cover of the crawl space.
- The top and sides of the product must be covered with not less than 150 mm of crushed stone or other coarse, clean granular material containing not more than 10% of material that will pass through a 4-mm sieve.
- 250 mm (10 in.) specimens failed during testing after being impacted by a 1.0-kg tup (hammer head) dropped from a height of 1.0 m. Careful attention must be considered during backfilling to limit impact so as to not cause damage to the product.
- The product is susceptible to degradation by direct sunlight. Therefore, whenever Form-A-Drain is stored or installed outside, it is to be covered by an opaque material to prevent the degradation of the material by UV radiation until permanently covered.
- This product has not been evaluated as part of a radon or other soil gas mitigation system. A higher level of performance may be required if the product is to be installed as a radon or other soil gas mitigation system.
- Do not use filter fabric or any other geotextile membrane directly in contact with the product as it may prohibit drainage.
- Drainage disposal of the product must be in accordance with Subsection 9.14.5., Drainage Disposal, of Division B of the NBC 2020.
- The product must be stored, protected, and installed in accordance with the manufacturer's specifications that are stated in NAPCO's *Contractor Handbook*, dated 2019. The handbook must be available at the job site at all times.
- Based on the evidence provided, the product has been evaluated for applications up to depths of 3.7 m.

Technical information

This evaluation is based on demonstrated conformance with the following criteria:

Criteria number	Criteria name
CCMC-TG-334613.04-20	CCMC Technical Guide for Dual Footing Form and Drainage Tile System - extruded PVC

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

Material requirements

Table 1. Results of testing the resistance properties of the product

Property	Requirement	Result
Impact resistance	No evidence of cracks or fissures when tested for impact at the perforated and non-perforated specimen face (sides) or the solid wide edge (top).	The 100 mm (4 in.), 150 mm (6 in.), and 200 mm (8 in.) specimens met the requirements. The 250 mm (10 in.) specimen met the requirements for both faces (sides), but did not meet the impact requirements for the solid wide edge ⁽¹⁾ (top).
Resistance to soil pressure	Max 20% deflection on smallest profile (100 mm) and largest profile (254 mm)	Pass
Chemical resistance	± 2% maximum weight change	The specimens met the requirements when exposed to 12 different potentially damaging chemicals. Results ranged from a weight change of 0.09% to 0.15%.

Note

- ¹ 250 mm (10 in.) specimens failed after being impacted by a 1.0-kg tup (hammer head) dropped from a height of 1.0 m. Therefore, careful attention must be considered during backfilling to limit impact so as to not cause damage to the product.

Performance requirements

Table 2. Results of testing the concrete form capacity of the product

Property	Requirement	Result
Stability	The footing form and its accessories must remain within 10 mm of their original position after concrete placement and hardening.	The product met the requirements. A maximum displacement of 4.72 mm was observed.
Concrete leakage	No measurable leakage of concrete through the form.	The product met the requirements. No leakage of concrete through the form was observed.
Load capacity	The form must resist the anticipated loads imposed by the concrete placement.	The product met the requirements. The product resisted the loads imposed by the placement of concrete.

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Table 3. Results of testing the drainage capacity of the product

Property	Requirement	Result
Flow characteristics and perforation area	Total perforated area per metre length > 30 cm ² /m and perforation width (smallest dimension) 2.0 mm – 5.0 mm	The product met the requirements for all product sizes.

Administrative information

Use of Canadian Construction Materials Centre (CCMC) assessments

This assessment must be read in the context of the entire [CCMC Registry of Product Assessments](#), any applicable building code or by-law requirements, and/or any other regulatory requirements (for example, the [Canada Consumer Product Safety Act](#), the [Canadian Environmental Protection Act](#), etc.).

It is the responsibility of the user to confirm that the assessment they are using is current and has not been withdrawn or superseded by a later version on the [CCMC Registry of Product Assessments](#).

Disclaimer

The National Research Council of Canada (NRC) has evaluated only the characteristics of the specific product described herein. The information and opinions in this evaluation are directed to those who have the appropriate degree of experience to use and apply its contents (such as authorities having jurisdiction, design professionals and specifiers). This evaluation is valid when the product is used as part of permitted construction, respecting all conditions and limitations stated in the evaluation, and in accordance with applicable building codes and by-laws.

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Language

Une version française de ce document est disponible.

In the case of any discrepancy between the English and French version of this document, the English version shall prevail.

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CCMC recognition

The Canadian Construction Materials Centre (CCMC) assesses compliance with Canadian building, energy and safety codes. We are the only construction code compliance service supported and operated by the Government of Canada. Trusted by over 6,000 regulators across Canada.

Most Canadian authorities having jurisdiction (AHJs) consider CCMC product assessments acceptable as evidence for product approval.

CCMC assessments are recognized by construction authorities across Canada:

Alliance of Canadian Building Official Associations (ACBOA)



(Alliance of Canadian Building Official Associations (ACBOA))

First Nations National Building Officers Association (FNNBOA)



(First Nations National Building Officers Association (FNNBOA))

Canadian Home Builders' Association (CHBA)



(Canadian Home Builders' Association (CHBA))

Alberta Building Officials Association (ABOA)



(Alberta Building Officials Associations (ABOA))

Saskatchewan Building Officials Association (SBOA)



(Saskatchewan Building Officials Association (SBOA))

Manitoba Building Officials Association (MBOA)



(Manitoba Building Officials Association (MBOA))

Ontario Building Officials Association (OBOA)



(Ontario Building Officials Association (OBOA))

New Brunswick Building Officials Association (NBBOA)



(New Brunswick Building Officials Association (NBBOA))

Nova Scotia Building Officials Association (NSBOA)



(Nova Scotia Building Officials Association (NSBOA))

The CCMC provides code compliance assessments to Canadian code requirements, consulting nationwide with construction regulators to elicit regional variations in code requirements as well as provincial and local interpretations. Users are advised to review the technical information presented in CCMC assessments when making approval decisions. [Learn more about how the CCMC provides a unique service for Canada.](#)

For more information, contact the CCMC by phone at (613) 993-6189 or by email at ccmc@nrc-cnrc.gc.ca

NOTICE

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- it represents the information as it was available at the time of downloading, and
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Code compliance as an acceptable solution

Code Compliance via Acceptable Solutions

If a building design (e.g. material, component, assembly or system) can be shown to meet all provisions of the applicable **acceptable solutions** in Division B (e.g. it complies with the applicable provisions of a referenced standard), it is deemed to have satisfied the objectives and functional statements linked to those provisions and thus to have complied with that part of the Code.

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(a)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Acceptable Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

- complying with the applicable acceptable solutions in Division B, or
- using an alternative solution that will achieve at least the minimum level of performance required by Division B in the areas defined by the objective and functional statements attributed to the applicable acceptable solutions.

The CCMC assesses compliance with Canadian building, energy and safety codes, and is trusted by over 6,000 regulators across Canada.

Code compliance as an alternative solution

Code Compliance via Alternative Solutions

Where a design differs from the acceptable solutions in Division B, then it should be treated as an **"alternative solution."** A proponent of an alternative solution must demonstrate that the alternative solution addresses the same issues as the applicable acceptable solutions in Division B and their attributed objectives and functional statements. However, because the objectives and functional statements are entirely qualitative, demonstrating compliance with them in isolation is not possible. Therefore, Clause 1.2.1.1.(1)(b) identifies the principle that Division B establishes the quantitative performance targets that alternative solutions must meet. In many cases, these targets are not defined very precisely by the acceptable solutions [...] Nevertheless, Clause 1.2.1.1.(1)(b) makes it clear that an effort must be made to demonstrate that an alternative solution will perform as well as a design that would satisfy the applicable acceptable solutions in Division B—not “well enough” but “as well as.”

— National Building Code of Canada, Sentence A-1.2.1.1.(1)(b)

The CCMC has determined that compliance with this provision of the Code has been demonstrated as an **Alternative Solution**. The evaluation report provides a summary of the basis of CCMC's compliance opinion.

CCMC's code compliance opinions

All CCMC evaluation reports are opinions of code compliance established in accordance with the National Building Code of Canada, Subsection 1.2.1. "Compliance with this Code," which requires compliance to be achieved by:

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