

[Submit a comment](#)

Proposed Change 1370

Code Reference(s):	NPC20 Div.B 2.4.9.1. (first printing)
Subject:	Drainage Systems
Title:	Size of Storm Drainage Pipes
Description:	This proposed change extends sizing requirements already in place for soil or waste pipes to storm drainage pipes.
Related Code Change Request(s):	CCR 1115, CCR 1823

This change could potentially affect the following topic areas:

- | | |
|--------------------------------------------------------------------|------------------------------------------------------------|
| <input type="checkbox"/> Division A | <input checked="" type="checkbox"/> Division B |
| <input type="checkbox"/> Division C | <input type="checkbox"/> Design and Construction |
| <input type="checkbox"/> Building operations | <input type="checkbox"/> Housing |
| <input type="checkbox"/> Small Buildings | <input type="checkbox"/> Large Buildings |
| <input type="checkbox"/> Fire Protection | <input type="checkbox"/> Occupant safety in use |
| <input type="checkbox"/> Accessibility | <input type="checkbox"/> Structural Requirements |
| <input type="checkbox"/> Building Envelope | <input type="checkbox"/> Energy Efficiency |
| <input type="checkbox"/> Heating, Ventilating and Air Conditioning | <input checked="" type="checkbox"/> Plumbing |
| | <input type="checkbox"/> Construction and Demolition Sites |

Problem

Sentence 2.4.9.1.(1) of Division B of the National Plumbing Code of Canada (NPC) prohibits sanitary drainage pipes from draining into pipes of a smaller diameter. A similar provision does not exist for storm drainage pipes. If a storm drainage pipe is installed so that it drains into a smaller-diameter pipe, this can lead to drainage system blockages and water retention issues, which can lead to an increase in impactful vibrations in the piping system due to hydraulic jumps. These issues may lead to unsanitary conditions, system integrity problems and flooding, which may lead to deterioration of property and harm to persons.

Justification

The proposed change would add a Sentence to Article 2.4.9.1. prohibiting storm drainage pipes from draining into smaller-diameter pipes. Requiring a storm drainage pipe to be of a nominal pipe size (NPS) not less than the NPS of the largest storm drainage pipe that drains into it would limit the probability of flow restrictions that can cause accumulation of sludge and solids, which can lead to drainage system blockages. The proposed change would therefore reduce the risk of unsanitary conditions, which can lead to harm to persons.

PROPOSED CHANGE

[2.4.9.1.] 2.4.9.1. No Reduction in Size

- [1] 1)** *A sanitary drainage pipe shall be of a nominal pipe size not less than the NPS of*
- [a] a) *a vent pipe that is connected to it, or*
 - [b] b) *the largest sanitary drainage pipe that drains into it.*

[2] --) Except as provided in Article 2.4.10.13, a storm drainage pipe shall be of a nominal pipe size not less than the NPS of the largest storm drainage pipe that drains into it.

Impact analysis

In cases where an installer may have installed a smaller-diameter storm drainage pipe for a larger-diameter pipe to drain into, there will be a marginal cost increase to use a storm drainage pipe of an equal or larger NPS. For example, according to RSMeans, the average cost per metre of NPS 3 and NPS 4 acrylonitrile-butadiene-styrene (ABS) pipe is \$143 and \$178, respectively; thus a pipe size increase from NPS 3 to NPS 4 represents a cost increase of approximately \$35 per metre.

The proposed change would facilitate the smooth flow of storm water by preventing parts of the storm drainage system from being undersized, which would reduce the risk of potential problems (e.g., property damage) related to backflow and avoid the cost to resolve them.

Enforcement implications

The proposed change would support and facilitate enforcement by building officials and regulators, as pipe sizing requirements would be more consistent. No additional training or resources would be required for building officials (i.e., authorities having jurisdiction) to enforce the proposed change.

Who is affected

Designers, specifiers, manufacturers, building owners, building officials and contractors.

OBJECTIVE-BASED ANALYSIS OF NEW OR CHANGED PROVISIONS

[2.4.9.1.] 2.4.9.1. ([1] 1) [F81-OH2.1]

[2.4.9.1.] 2.4.9.1. ([1] 1) [F81-OH1.1]

[2.4.9.1.] -- ([2] --) **no attributions**

[2.4.9.1.] -- ([2] --) [F81-OH2.1]