

2010 National Plumbing Code of Canada (NPC)

## Errata Package

Selected replacement pages have been produced for the NPC.

Please print and insert in your copy of the Code.



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In dealing with proposed changes or additions to any of the National Model Codes, the CCBFC considers many issues such as the following:

- Does the proposed requirement provide the minimum level of performance—and no more than the minimum—needed to achieve the Code's objectives?
- Will persons responsible for Code compliance be able to act on or implement the requirement using commonly accepted practices?
- Will enforcement agencies be able to enforce the requirement?
- Are the costs of implementing the requirement justifiable?
- Have the potential policy implications of the requirement been identified and addressed?
- Is there broad consensus on this requirement among Code users representing all facets of the plumbing system design and construction industries, as well as among provincial and territorial governments?

Guidelines for requesting changes to the NPC are available on the Internet at [www.nationalcodes.ca](http://www.nationalcodes.ca). Printed copies of the guidelines may also be requested from the Secretary of the CCBFC, whose address is provided at the end of this Preface.

## **Objective-Based Code Format**

The National Plumbing Code (NPC) was published in an objective-based code format for the first time in 2005. This was the result of ten years of work on an initiative that arose out of the strategic plan adopted by the Canadian Commission on Building and Fire Codes (CCBFC) in 1995.

The NPC comprises three Divisions:

- Division A, which defines the scope of the Code and contains the objectives, the functional statements and the conditions necessary to achieve compliance;
- Division B, which contains acceptable solutions (commonly referred to as “technical requirements”) deemed to satisfy the objectives and functional statements listed in Division A; and
- Division C, which contains administrative provisions.

A more complete description of this division-based structure is included in the section entitled Structure of Objective-Based Codes.

Apart from the inclusion of changes resulting from the normal Code development process, the provisions in Division B are essentially the same as those found in the 2005 edition of the NPC. Each requirement in Division B is linked to:

- objectives (such as safety or health) which individual requirements help to address,
- functional statements (statements on the functions of the plumbing system that a particular requirement helps to achieve), and
- intent statements (detailed statements of the specific intent of the provision).

## **Objectives**

The NPC's objectives are fully defined in Section 2.2. of Division A. Most of the top-level objectives have two levels of sub-objectives.

The objectives describe, in very broad terms, the overall goals that the NPC's requirements are intended to achieve. They serve to define the boundaries of the subject areas the Code addresses. However, the Code does not deal with all the issues that might be considered to fall within those boundaries.

The objectives describe undesirable situations and their consequences, which the Code aims to avoid occurring in plumbing systems. The wording of most of the definitions of the objectives includes two key phrases: “limit the probability” and “unacceptable risk.” The phrase “limit the probability” is used to acknowledge that the NPC cannot entirely prevent those undesirable situations from happening. The phrase “unacceptable risk” acknowledges that the NPC cannot eliminate all risk: the “acceptable risk” is the risk remaining once compliance with the Code has been achieved.

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The objectives are entirely qualitative and are not intended to be used on their own in the design and approval processes.

## **Functional Statements**

The NPC's functional statements are listed in Section 3.2. of Division A.

The functional statements are more detailed than the objectives: they describe conditions in the plumbing system that help satisfy the objectives. The functional statements and the objectives are interconnected: there may be several functional statements related to any one objective and a given functional statement may describe a function of the plumbing system that serves to achieve more than one objective. There is a table at the end of Part 2 in Division B listing the sets of functional statements and objectives that have been attributed to requirements or portions of requirements in that Part.

Like objectives, functional statements are entirely qualitative and are not intended to be used on their own in the design and approval processes.

## **Intent Statements**

Intent statements explain, in plain language, the basic thinking behind each Code provision contained in Division B. Intent statements, each of which is unique to the provision with which it is associated, explain how requirements help to achieve their attributed objectives and functional statements. Like the objectives, the intent statements are expressed in terms of risk avoidance and expected performance. They offer insight into the views of the responsible standing committees on what the Code provisions are intended to achieve.

The intent statements serve explanatory purposes only and do not form an integral part of the Code provisions: as such, they are similar in function to appendix notes. Due to the sheer volume of intent statements—hundreds for the NPC alone—they are only published as a separate electronic document entitled “Supplement to the NPC 2010: Intent Statements,” which is available on-line at [www.nationalcodes.ca](http://www.nationalcodes.ca).

All this additional information—objectives, functional statements and intent statements—is intended to facilitate the implementation of the Code in two ways:

- **Clarity of intent:** The objectives, functional statements and intent statements linked to a Code requirement clarify the reasoning behind that requirement and facilitate understanding of what must be done to satisfy that requirement. This added information may also help avoid disputes between practitioners and officials over these types of issues.
- **Flexibility:** The additional information allows for flexibility in Code compliance. A person seeking to propose a new method or material not described or covered in the Code will be able to use the added information to understand the expected level of performance that their alternative solution must achieve to satisfy the Code.

## **Structure of Objective-Based Codes**

The National Plumbing Code (NPC) is organized into three Divisions.

### **Division A: Compliance, Objectives and Functional Statements**

Division A defines the scope of the NPC and presents the objectives that the Code addresses and the functions the plumbing system must perform to help to satisfy those objectives.

Division A cannot be used on its own as a basis for designing and installing a plumbing system or for evaluating a plumbing system's compliance with the Code.

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## Division B: Acceptable Solutions

In the 2005 edition of the Code, the commonly used term “requirements” was replaced with the term “acceptable solutions” to refer to the technical provisions contained in the Code. The change in terminology reflects the principle that plumbing codes establish an acceptable level of risk or performance and underlines the fact that a code cannot describe all possible valid design and installation options. The new term provokes the question “To whom are these solutions considered acceptable?” As indicated previously in this Preface, the acceptable solutions represent the minimum level of performance that will satisfy the NPC's objectives and that is acceptable to an authority that adopts the NPC into law or regulation.

Division B of the 2010 NPC contains most of the provisions from the 2005 NPC together with the changes and additions resulting from the normal updating process. Compliance with these acceptable solutions is deemed to automatically satisfy the linked Division A objectives and functional statements.

The requirements in Division B—the acceptable solutions—are linked to at least one objective and functional statement found in Division A. These linkages play an important role in allowing objective-based codes to accommodate innovation.

It is expected that the majority of Code users will primarily follow the acceptable solutions given in Division B and that they will consult Division A only in cases where it may serve to clarify the application of Division B's requirements to a particular situation or when they are considering an alternative solution.

## Division C: Administrative Provisions

Division C contains administrative provisions relating to the application of the Code. Many provinces and territories establish their own administrative provisions upon adopting or adapting the NPC; having all the administrative provisions in one Division facilitates their customization to suit jurisdictional needs.

## Relationship between Division A and Division B

Sentence 1.2.1.1.(1) of Division A is a very important sentence: it is a precise statement of the relationship between Divisions A and B and is central to the concept of objective-based codes.

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|---|
| <p><b>1)</b> Compliance with this Code shall be achieved by</p> <ul style="list-style-type: none"><li>a) complying with the applicable acceptable solutions in Division B (see Appendix A), or</li><li>b) using alternative solutions that will achieve at least the minimum level of performance required by Division B in the areas defined by the objectives and functional statements attributed to the applicable acceptable solutions (see Appendix A).</li></ul> |
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Clause (a) makes it clear that the acceptable solutions in Division B are automatically deemed to satisfy the linked objectives and functional statements of Division A.

Clause (b) makes it clear that alternative solutions can be used in lieu of compliance with the acceptable solutions. However, to do something different from the acceptable solutions described in Division B, a proponent must show that their proposed alternative solution will perform at least as well as the acceptable solution(s) it is replacing. The objectives and functional statements attributed to the acceptable solution(s) identify the areas of performance where this equivalence must be demonstrated.

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## Additional Information

### Numbering System

A consistent numbering system has been used throughout the National Model Codes. The first number indicates the Part of the Code; the second, the Section in the Part; the third, the Subsection; and the fourth, the Article in the Subsection. The detailed provisions are found at the Sentence level (indicated by numbers in brackets), and Sentences may be broken down into Clauses and Subclauses. This structure is illustrated as follows:

3	Part
3.5.	Section
3.5.2.	Subsection
3.5.2.1.	Article
3.5.2.1.(2)	Sentence
3.5.2.1.(2)(a)	Clause
3.5.2.1.(2)(a)(i)	Subclause

### Change Indication

Where a technical change or addition has been made relative to the 2005 edition, a vertical line has been added in the margin next to the affected provision. No change indication has been provided in cases where provisions have been renumbered or deleted.

### Meaning of the words “and” and “or” between the Clauses and Subclauses of a Sentence

Multiple Clauses and Subclauses are connected by the word “and” or “or” at the end of the second last Clause or Subclause in the series. Although this connecting word appears only once, it is meant to apply to all the preceding Clauses or Subclauses within that series.

For example, in a series of five Clauses—a) to (e)—in a Code Sentence, the appearance of the word “and” at the end of Clause d) means that all Clauses in the Sentence are connected to each other with the word “and.” Similarly, in a series of five Clauses—a) to (e)—in a Code Sentence, the appearance of the word “or” at the end of Clause d) means that all Clauses in the Sentence are connected to each other with the word “or.”

In all cases, it is important to note that a Clause (and its Subclauses, if any) must always be read in conjunction with its introductory text appearing at the beginning of the Sentence.

# Errata

## Issued by the Canadian Commission on Building and Fire Codes

The Change History table that follows describes errata and editorial updates that apply to the National Plumbing Code of Canada 2010:

- Errata are corrections to existing text.
- Editorial updates are provided for information purposes only.

Code pages containing errata are identified with the words “Amended Page” in the footer; pages containing editorial updates are not flagged.

Contact your local authority having jurisdiction to find out if these errata apply in your province or territory.

### Change History — National Plumbing Code of Canada 2010

Division	Code Reference	Change	Date (Y-M-D)	Description of Change
Preface	n/a	editorial update	2012-12-21	Text referring to application statements was deleted as these statements are no longer being published
A	1.4.1.2.(1)	erratum	2012-12-21	Entry for “ <i>Riser</i> ” was moved to the position preceding the entry for “ <i>Roof drain</i> ”
B	2.2.4.3.(2)	editorial update	2012-12-21	To clarify intent, Sentence was updated to read “... 90° elbows described in Sentence (1) shall ...”
B	2.4.6.3.(6)	erratum	2012-12-21	Term “ <i>check valve</i> ” was replaced with term “ <i>backwater valve</i> ”
B	2.5.5.2.(5)	erratum	2012-12-21	Sentence was corrected to read “... that serves an oil <i>interceptor</i> and is located ...”
B	2.5.8.4.(5)	erratum	2012-12-21	Term “ <i>building drain</i> ” was replaced with term “ <i>sanitary building drain</i> ”
B	2.5.9.3.(5)	erratum	2012-12-21	Sentence was corrected to read “Every <i>drainage system</i> shall have at least one vent that terminates to the outdoors in conformance with Sentence 2.5.6.5.(1).”
B	Table 2.8.1.1.	erratum	2012-12-21	Attribution with objective OH2.2 for Sentence 2.6.3.1.(3) was corrected to read OH2.1
B	A-2.4.7.1.(9)	erratum	2012-12-21	Two cleanouts were deleted from Figure A-2.4.7.1.(9)
B	A-2.6.3.4.(5)	erratum	2012-12-21	Load on Pipe A in Figure A-2.6.3.4.(5)-B was corrected to read “1.4 FU”





*Directly connected* means physically connected in such a way that water or gas cannot escape from the connection.

*Drainage system* means an assembly of pipes, fittings, *fixtures*, *traps* and appurtenances that is used to convey *sewage*, *clear-water waste* or *storm water* to a public sewer or a *private sewage disposal system*, but does not include *subsoil drainage pipes*. (See Figure A-1.4.1.2.(1)-F in Appendix A.)

*Dual vent* means a *vent pipe* that serves 2 *fixtures* and connects at the junction of the *trap arms*. (See Figure A-1.4.1.2.(1)-G in Appendix A.)

*Dwelling unit\** means a *suite* operated as a housekeeping unit used or intended to be used by one or more persons and usually containing cooking, eating, living, sleeping and sanitary facilities.

*Emergency floor drain* means a *fixture* for the purposes of overflow protection that does not receive regular discharge from other *fixtures*, other than from a *trap primer*. (See Appendix A.)

*Fire separation\** means a construction assembly that acts as a barrier against the spread of fire.

*Fire service pipe* means a pipe that conveys water from a public water main or private water source to the inside of a *building* for the purpose of supplying the fire sprinkler or standpipe systems.

*Fixture* means a receptacle, appliance, apparatus or other device that discharges *sewage* or *clear-water waste*, and includes a floor drain.

*Fixture drain* means the pipe that connects a *trap* serving a *fixture* to another part of a *drainage system*.

*Fixture outlet pipe* means a pipe that connects the waste opening of a *fixture* to the *trap* serving the *fixture*. (See Figure A-1.4.1.2.(1)-H in Appendix A.)

*Fixture unit* (as applying to *drainage systems*) means the unit of measure based on the rate of discharge, time of operation and frequency of use of a *fixture* that expresses the hydraulic load that is imposed by that *fixture* on the *drainage system*.

*Fixture unit* (as applying to *water distribution systems*) means the unit of measure based on the rate of supply, time of operation and frequency of use of a *fixture* or outlet that expresses the hydraulic load that is imposed by that *fixture* or outlet on the supply system.

*Flood level rim* means the top edge at which water can overflow from a *fixture* or device. (See Figure A-1.4.1.2.(1)-B in Appendix A.)

*Flow control roof drain* means a *roof drain* that restricts the flow of *storm water* into the *storm drainage system*.

*Fresh air inlet* means a *vent pipe* that is installed in conjunction with a *building trap* and terminates outdoors. (See Appendix Note A-2.4.5.4.(1) of Division B.)

*Indirect service water heater\** means a *service water heater* that derives its heat from a heating medium such as warm air, steam or hot water.

*Indirectly connected* means not *directly connected*. (See Appendix Note A-2.3.3.11.(2) of Division B.)

*Individual vent* means a *vent pipe* that serves one *fixture*.

*Interceptor* means a receptacle that is installed to prevent oil, grease, sand or other materials from passing into a *drainage system*.

*Leader* means a pipe that is installed to carry *storm water* from a roof to a *storm building drain* or *sewer* or other place of disposal.

*Nominally horizontal* means at an angle of less than 45° with the horizontal. (See Figure A-1.4.1.2.(1)-J in Appendix A.)

*Nominally vertical* means at an angle of not more than 45° with the vertical. (See Figure A-1.4.1.2.(1)-J in Appendix A.)

*Noncombustible\** means that a material meets the acceptance criteria of CAN/ULC-S114, "Test for Determination of Non-Combustibility in Building Materials."

- Occupancy\** means the use or intended use of a *building* or part thereof for the shelter or support of persons, animals or property.
- Offset* means the piping that connects the ends of 2 pipes that are parallel. (See Figure A-1.4.1.2.(1)-K in Appendix A.)
- Offset relief vent* means a *relief vent* that provides additional air circulation upstream and downstream of an *offset* in a *soil-or-waste stack*. (See Appendix Note A-2.5.4.4.(1) of Division B.)
- Plumbing system\** means a *drainage system*, a *venting system* and a *water system* or parts thereof. (See Figure A-1.4.1.2.(1)-L in Appendix A.)
- Potable* means safe for human consumption.
- Private sewage disposal system\** means a privately owned plant for the treatment and disposal of *sewage* (such as a septic tank with an absorption field).
- Private use* (as applying to the classification of plumbing *fixtures*) means *fixtures* in residences and apartments, in private bathrooms of hotels, and in similar installations in other *buildings* for one family or an individual.
- Private water supply system* means an assembly of pipes, fittings, valves, equipment and appurtenances that supplies water from a private source to a *water distribution system*.
- Public use* (as applying to the classification of plumbing *fixtures*) means *fixtures* in general washrooms of schools, gymnasiums, hotels, bars, public comfort stations and other installations where *fixtures* are installed so that their use is unrestricted.
- Relief vent* means a *vent pipe* that is used in conjunction with a *circuit vent* to provide additional air circulation between a *drainage system* and a *venting system*.
- Residential full flow-through fire sprinkler/standpipe system* means an assembly of pipes and fittings installed in a one- or two-family dwelling that conveys water from the *water service pipe* to the sprinkler/standpipe system's outlets and is fully integrated into the *potable water system* to ensure a regular flow of water through all parts of both systems.
- Residential partial flow-through fire sprinkler/standpipe system* means an assembly of pipes and fittings installed in a one- or two-family dwelling that conveys water from the *water service pipe* to the sprinkler/standpipe system's outlets and in which flow, during inactive periods of the sprinkler/standpipe system, occurs only through the main header to the water closet located at the farthest point of the two systems.
- Riser* means a water distribution pipe that extends through at least one full *storey*.
- Roof drain* means a fitting or device that is installed in the roof to permit *storm water* to discharge into a *leader*.
- Roof gutter* means an exterior channel installed at the base of a sloped roof to convey *storm water*.
- Sanitary building drain* means a *building drain* that conducts *sewage* to a *building sewer* from the most upstream *soil-or-waste stack*, *branch* or *fixture drain* serving a water closet.
- Sanitary building sewer* means a *building sewer* that conducts *sewage*.
- Sanitary drainage system\** means a *drainage system* that conducts *sewage*.
- Sanitary sewer* means a sewer that conducts *sewage*.
- Service water heater\** means a device for heating water for plumbing services.
- Sewage* means any liquid waste other than *clear-water waste* or *storm water*.
- Size* means the nominal diameter by which a pipe, fitting, *trap* or other similar item is commercially designated.
- Soil-or-waste pipe* or *waste pipe* means a pipe in a *sanitary drainage system*.
- Soil-or-waste stack* means a vertical *soil-or-waste pipe* that passes through one or more *storeys*, and includes any *offset* that is part of the stack.
- Stack vent* means a *vent pipe* that connects the top of a *soil-or-waste stack* to a *vent header* or to outside air. (See Figure A-1.4.1.2.(1)-G in Appendix A.)

7) Every hydromassage bathtub shall conform to CAN/CSA-B45.10, "Hydromassage Bathtubs."

8) Macerating toilet systems shall conform to CAN/CSA-B45.9, "Macerating Systems and Related Components."

#### 2.2.2.3. Showers

1) Every shower receptor shall be constructed and arranged so that water cannot leak through the walls or floor.

2) Not more than 6 shower heads shall be served by a single shower drain.

3) Where 2 or more shower heads are served by a shower drain, the floor shall be sloped and the drain located so that water from one head cannot flow over the area that serves another head. (See Appendix A.)

4) Except for column showers, when a battery of shower heads is installed, the horizontal distance between 2 adjacent shower heads shall be not less than 750 mm.

#### 2.2.2.4. Concealed Overflows

1) A dishwashing sink and a food preparation sink shall not have concealed overflows. (See Appendix A.)

#### 2.2.2.5. Water Closets in Public Washrooms

1) When a water closet is installed in a washroom for *public use*, it shall be of the elongated type and provided with a seat of the open front type.

### 2.2.3. Traps and Interceptors

#### 2.2.3.1. Traps

1) Except as provided for in Sentence (2), every *trap* shall

- have a *trap seal depth* of not less than 38 mm,
- be so designed that failure of the seal walls will cause exterior leakage, and
- have a water seal that does not depend on the action of moving parts.

(See Appendix A.)

2) The *trap seal depth* on *fixtures* draining to an acid waste system shall be a minimum of 50 mm.

3) Except for a floor-mounted service sink, every *trap* that serves a lavatory, a sink or a laundry tray shall

- be provided with a *cleanout* plug located at the lowest point of the *trap* and of the same material as the *trap*, except that a cast-iron *trap* shall be provided with a brass *cleanout* plug, or
- be designed so that part of the *trap* can be removed for cleaning purposes.

(See Appendix A.)

4) A bell *trap* shall not be installed in a *drainage system*. (See Appendix A.)

5) A drum *trap* shall not be used as a *fixture trap* unless required to serve as an *interceptor* and access for servicing is provided.

#### 2.2.3.2. Interceptors

1) Every *interceptor* shall be designed so that it can be readily cleaned.

2) Every grease *interceptor* shall

- be designed so that it does not become air bound, and
- not have a water jacket.

#### 2.2.3.3. Tubular Traps

1) Tubular metal or plastic *traps* conforming to ASME A112.18.2/CAN/CSA-B125.2, "Plumbing Waste Fittings," shall be used only in accessible locations.

**2.2.4. Pipe Fittings****2.2.4.1. T and Cross Fittings**

(See Appendix A.)

- 1) A T fitting shall not be used in a *drainage system*, except to connect a *vent pipe*.
- 2) A cross fitting shall not be used in a *drainage system*.

**2.2.4.2. Sanitary T Fittings**

(See Appendix A.)

- 1) A single or double sanitary T fitting shall not be used in a *nominally horizontal soil-or-waste pipe*, except that a single sanitary T fitting may be used to connect a *vent pipe*.
- 2) A double sanitary T fitting shall not be used to connect the *trap arms* of
  - a) back outlet water closets installed back-to-back, or
  - b) 2 urinals where no *cleanout* fitting is provided above the connection.

**2.2.4.3. 90° Elbows**

- 1) Except as permitted in Sentence (2), 90° elbows of 4 inch *size* or less whose centre-line radius is less than the *size* of the pipe shall not be used to join 2 *soil-or-waste pipes*.
- 2) For *sanitary drainage systems* of 4 inch *size* or less, 90° elbows described in Sentence (1) shall only be permitted
  - a) to change the direction of piping from horizontal to vertical, in the direction of flow,
  - b) where a *trap arm* enters a wall, or
  - c) to connect *trap arms* as permitted by Sentence 2.5.6.3.(2).

**2.2.5. Non-Metallic Pipe and Fittings**

(For a summary of pipe applications, see A-2.2.5, 2.2.6. and 2.2.7. in Appendix A.)

**2.2.5.1. Asbestos-Cement Drainage Pipe and Fittings**

- 1) Except as provided in Sentence (2), asbestos-cement pipe and its fittings for use in a drain, waste or vent system shall conform to
  - a) CAN/CGSB-34.22, "Asbestos-Cement Drain Pipe," or
  - b) CAN/CSA-B127.1, "Asbestos Cement Drain, Waste and Vent Pipe and Pipe Fittings."
- 2) Asbestos-cement pipe and its fittings for use in a drain, waste or vent system that are used underground either outside a *building* or under a *building* shall conform to Sentence (1) or to
  - a) CAN/CGSB-34.9, "Asbestos-Cement Sewer Pipe,"
  - b) CAN/CGSB-34.23, "Asbestos-Cement House Connection Sewer Pipe," or
  - c) CSA B127.2-M, "Components for Use in Asbestos Cement Building Sewer Systems."

**2.2.5.2. Asbestos-Cement Water Pipe and Fittings**

- 1) Asbestos-cement water pipe, couplings and bends shall conform to CAN/CGSB-34.1, "Asbestos-Cement Pressure Pipe."
- 2) Asbestos-cement water pipe shall not be used above ground.

**2.2.5.3. Concrete Pipe and Fittings**

- 1) Concrete pipe shall conform to
  - a) CAN/CSA-A257.1, "Non-Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings," or
  - b) CAN/CSA-A257.2, "Reinforced Circular Concrete Culvert, Storm Drain, Sewer Pipe, and Fittings."

**2.5.7.7. Vents for Sewage Sumps, Dilution Tanks and Macerating Toilet Systems**

- 1) Except as provided in Sentences (2) and (3), the minimum *size* of the *vent pipe* for a *sewage* sump or dilution tank shall be one *size* smaller than the *size* of the largest *branch* or *fixture drain* draining to the sump.
- 2) The *size* of every *vent pipe* for a *sewage* sump or dilution tank shall be not less than 2 inches, but need not be greater than 4 inches.
- 3) The *size* of a *vent pipe* for a macerating toilet system with a sump shall be not less than 1½ inches.

**2.5.8. Sizing of Vent Pipes**

(See Appendix A for an explanation on the sizing of *vent pipes*.)

**2.5.8.1. Hydraulic Loads Draining to Wet Vents**

- 1) The hydraulic load that drains to a *wet vent* shall conform to Table 2.5.8.1.
- 2) When determining the *size* of a *wet vent*, the hydraulic load from the most downstream *fixture* or symmetrically connected *fixtures* shall not be included. (See Appendix A.)

**Table 2.5.8.1.**  
**Maximum Permitted Hydraulic Loads Drained to a Wet Vent**  
Forming Part of Sentence 2.5.8.1.(1)

Size of Wet Vent, inches	Maximum Hydraulic Load, <i>fixture units</i>	
	Not Serving Water Closets	<i>Fixtures</i> , Other Than Water Closets, That Serve Not More Than 2 Water Closets
1½	2	—
2	4	3
3	12	8
4	36	14
5	—	18
6	—	23

**2.5.8.2. Individual Vents and Dual Vents**

- 1) The *size* of *individual vents* and *dual vents* shall be determined using Table 2.5.7.1. based on the largest *trap* served.
- 2) When sizing an *individual vent* or a *dual vent*, the length is not taken into consideration.

**2.5.8.3. Branch Vents, Vent Headers, Continuous Vents and Circuit Vents**

(See A-2.5.8.3. and 2.5.8.4. in Appendix A.)

- 1) *Branch vents*, *vent headers*, *circuit vents* and *continuous vents* shall be sized in accordance with Table 2.5.8.3., unless they are *individual vents* or *dual vents*.
- 2) For the purposes of Table 2.5.8.3., the length of a *branch vent* shall be its *developed length* from the most distant *soil-or-waste pipe* connection to a *vent stack*, *stack vent*, *vent header* or outside air.
- 3) For the purposes of Table 2.5.8.3., the length of a *vent header* shall be its *developed length* from the most distant *soil-or-waste pipe* connection to outside air.

4) For the purposes of Table 2.5.8.3., the length of a *circuit vent* shall be its *developed length* from the horizontal *soil-or-waste pipe* connection to a *vent stack, stack vent, vent header* or outside air.

5) For the purposes of Table 2.5.8.3., the length of a *continuous vent* shall be its *developed length* from the vertical *soil-or-waste pipe* connection to a *vent stack, stack vent, vent header* or outside air.

**Table 2.5.8.3.**  
**Sizing of Branch Vents, Vent Headers, Circuit Vents and Continuous Vents**  
 Forming Part of Article 2.5.8.3.

Total Hydraulic Load Served by Vent Pipe, fixture units	Size of Vent Pipe, inches							
	1¼	1½	2	3	4	5	6	8
	Maximum Length of Vent Pipe, m							
2	9							
8	9	30	61					
20	7.5	15	46				Not Limited	
24	4.5	9	30					
42		9	30					
60		4.5	15	120				
100			11	79	305			
200			9	76	275			
500			6	55	215			
1100				15	61	215		
1900				6	21	61	215	
2200		Not Permitted			9	27	105	335
3600					7.5	18	76	245
5600						7.5	18	76

**2.5.8.4. Vent Stacks or Stack Vents**

(See A-2.5.8.3. and 2.5.8.4. in Appendix A.)

- 1) A *vent stack* or *stack vent* shall be sized in accordance with Table 2.5.8.4. based on
  - a) the length of the *vent stack* or *stack vent*, and
  - b) the total hydraulic load that is drained to the lowest section of *soil-or-waste stack* or *stacks* served by the *vent pipe*, plus any additional vent loads connected to the *vent stack* or *stack vent*.

2) For the purposes of Table 2.5.8.4., the length of a *stack vent* or *vent stack* shall be its *developed length* from its lower end to outside air.

3) The minimum size of a *vent stack* or *stack vent* shall be one-half the size of the *soil-or-waste stack* at its base.

4) A *stack vent* serving a *wet vent stack* that is over 4 storeys high shall extend the full size of the *wet vent* to outside air.

5) Every *sanitary building drain* shall be provided with at least one vent that is not less than 3 inches in size.

**Table 2.5.8.4.**  
**Size and Developed Length of Stack Vents and Vent Stacks**  
 Forming Part of Sentences 2.5.8.4.(1) and (2)

Size of Soil-or-waste stack, inches <sup>(1)</sup>	Total Hydraulic Load Being Vented, fixture units	Size of Stack Vent or Vent Stack, inches									
		1¼	1½	2	3	4	5	6	8	10	12
		Maximum Length of Stack Vent or Vent Stack, m									
1¼	2	9									
1½	8	15	46								
2	12	9	23	61							
	24	8	15	46							
3	10		13	46	317						
	21		10	33.5	247					Not Limited	
	53		8	28.5	207						
	102		7.5	26	189						
4	43			10.5	76	299					
	140			8	61	229					
	320			7	52	195					
	540			6.5	46	177					
5	190				25	97.5	302				
	490				19	76	232				
	940				16	64	204				
	1400				15	58	180				
6	500				10	39.5	122	305			
	1100				8	30.5	94.5	238			
	2000				6.5	25.5	79	201			
	2900				6	23.5	73	183			
8	1800					9.5	29	73	287		
	3400					7	22	58	219.5		
	5600					6	19	49	186		
	7600					5.5	17	43	170.5		
10	4000						9.5	24	94.5	292.5	
	7200						7	18	73	225.5	
	11000						6	15.5	61	192	
	15000						5.5	14	55	174	
12	7300							9.5	36.5	116	287
	13000							7	28.5	91	219.5
	20000			Not Permitted				6	24	76	186
	26000							5.5	22	70	152
15	15000								12	39.5	94.5
	25000								9.5	29	73
	38000								8	24.5	61
	50000								7	22.5	55

**Notes to Table 2.5.8.4.:**

(1) Soil-or-waste stacks shall be sized using Table 2.4.10.6.A.

**2.5.8.5. Lengths of Other Vent Pipes**

1) When sizing an *additional circuit vent, offset relief vent, relief vent, yoke vent, and the vent pipe* for an *interceptor, dilution tank, sewage tank, sump, or manhole*, length is not taken into consideration.

**2.5.9. Air Admittance Valves**

(See A-2.2.10.16.(1) in Appendix A.)

**2.5.9.1. Air Admittance Valve as a Vent Terminal**

1) *Individual vents* may terminate with a connection to an *air admittance valve* as provided in Articles 2.5.9.2. and 2.5.9.3. (See also Sentence 2.2.10.16.(1).)

**2.5.9.2. Air Admittance Valves**

- 1) *Air admittance valves* shall only be used to vent
  - a) *fixtures* located in island counters,
  - b) *fixtures* that may be affected by frost closure of the vent due to local climatic conditions,
  - c) *fixtures* in one- and two-family dwellings undergoing renovation, or
  - d) installations where connection to a vent may not be practical.
- 2) *Air admittance valves* shall be located
  - a) not less than 100 mm above the *fixture drain* being vented,
  - b) within the maximum *developed length* permitted for the vent, and
  - c) not less than 150 mm above insulation materials.

**2.5.9.3. Installation Conditions**

- 1) *Air admittance valves* shall not be installed in supply or return air plenums, or in locations where they may be exposed to freezing temperatures.
- 2) *Air admittance valves* shall be installed in accordance with the manufacturer's installation instructions.
- 3) *Air admittance valves* shall be rated for the *size of vent pipe* to which they are connected.
- 4) Installed *air admittance valves* shall be
  - a) accessible, and
  - b) located in a space that allows air to enter the valve.
- 5) Every *drainage system* shall have at least one vent that terminates to the outdoors in conformance with Sentence 2.5.6.5.(1).

## Section 2.6. Potable Water Systems

**2.6.1. Arrangement of Piping****2.6.1.1. Design**

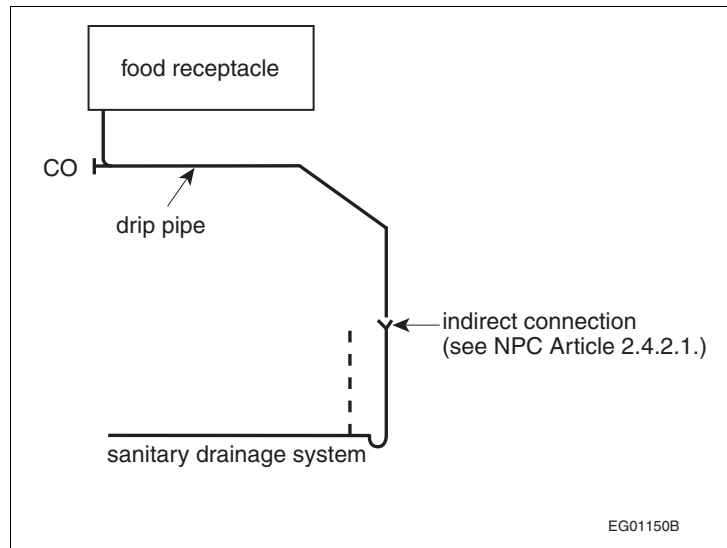
- 1) Every *fixture* supplied with separate hot and cold water controls shall have the hot water control on the left and the cold on the right.
- 2) In a hot *water distribution system* of a *developed length* of more than 30 m or supplying more than 4 *storeys*, the water temperature shall be maintained by
  - a) recirculation, or
  - b) a self-regulating heat tracing system.

**2.6.1.2. Drainage**

1) A *water distribution system* shall be installed so that the system can be drained or blown out with air.



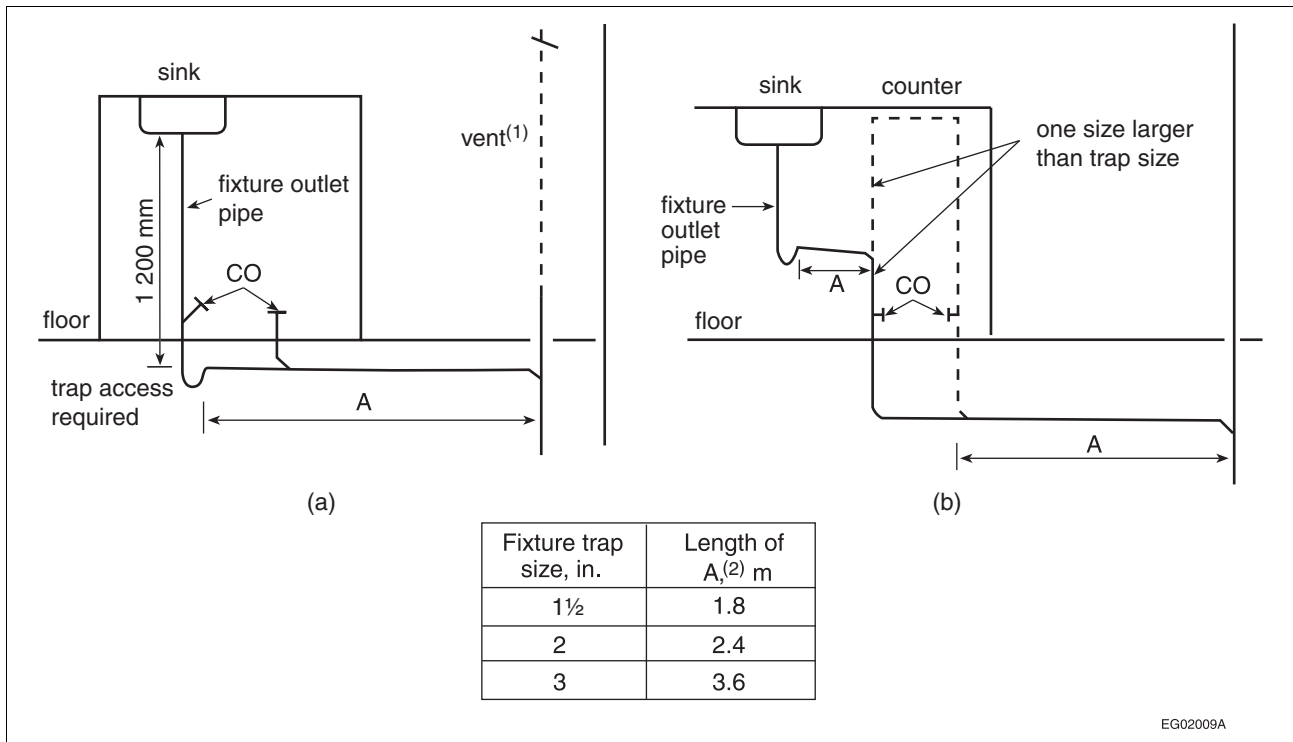
**A-2.4.7.1.(9) Cleanouts for Food Receptacle Drip Pipes.**



**Figure A-2.4.7.1.(9)**  
**Cleanouts for Food Receptacle Drip Pipes**

**A-2.4.8.1.(1) Minimum Slope.** Although slopes below 1 in 100 are permitted for pipes over 4 inches, they should be used only where necessary. Steeper slopes and higher velocities will help to keep pipes clean by moving heavier solids that might tend to clog the pipes.

**A-2.4.8.2.(1) Island Fixture Installation.**



**Figure A-2.4.8.2.(1)**  
**Island Fixture Installation<sup>(3)</sup>**

**Notes to Figure A-2.4.8.2.(1):**

- (1) Vent size to be in accordance with Article 2.5.6.3.
- (2) Length of A depends on trap size. Fall cannot exceed size.
- (3) See also Article 2.5.1.1.

**A-Table 2.4.9.3. Hydraulic Loads for Laundry Traps and Floor Drains.** When determining the hydraulic load on a pipe, no allowance need be made for a load from a domestic clothes washer when discharged to a laundry tray since the hydraulic load from the laundry tray is sufficient. Also no hydraulic load is required from a floor drain in a washroom since it is for emergency use only.

**A-2.4.9.3.(2) Continuous Wastes.** Fixture outlet pipes that are common to 2 or 3 compartments or fixtures are sometimes referred to as continuous wastes and are not considered to be branches. (See also A-2.4.5.1.(2).)

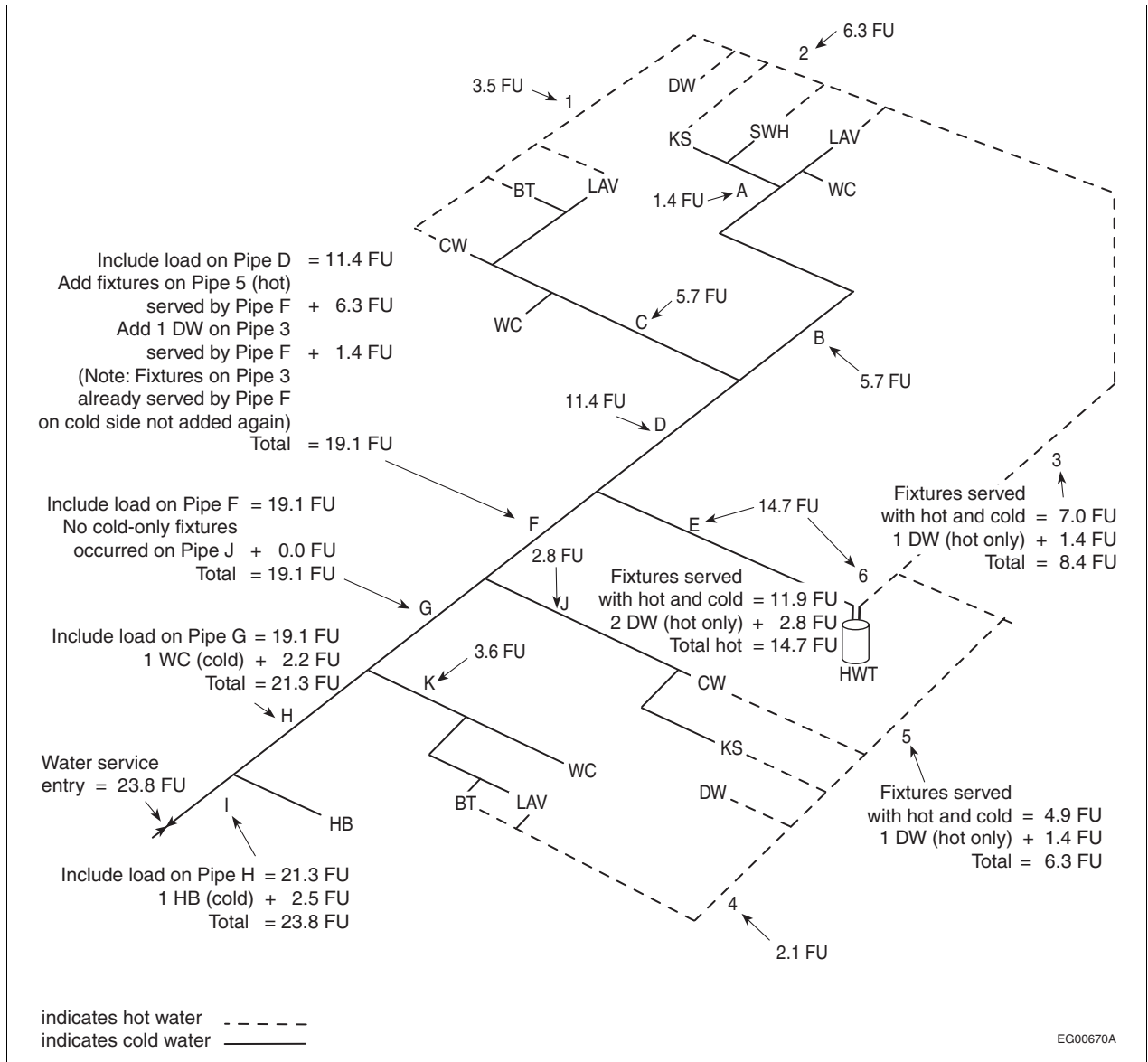


Figure A-2.6.3.4.(5)-B

Example of water pipe sizing for buildings containing one or two dwelling units or row houses with separate water services

Table A-2.6.3.4.(5)B.  
Sizing of Water Service Pipe Using Figure A-2.6.3.4.(5)-B and Table 2.6.3.4.

Fixture Units		Water Velocity, m/s		
		3.0	2.4	1.5
		Pipe Size, inches		
Total fixture units	23.8	-	-	-
Fire sprinkler system	n/a	-	-	-
Irrigation system	n/a	-	-	-
Other	n/a	-	-	-
Total demand on water service	23.8	1	1	1¼

**Table A-2.6.3.4.(5)C.**  
**Sizing of Hot Water System Using Figure A-2.6.3.4.(5)-B and Table 2.6.3.4.**

Pipe Number	Hot Water Fixture Units	Water Velocity, m/s		
		3.0	2.4	1.5
		Pipe Size, inches		
1	3.5	½	½	½
2	6.3	½	½	¾
3	8.4	¾	¾	¾
4	2.1	½	½	½
5	6.3	½	½	¾
6	14.7	¾	¾	1
Total Fixture Units	14.7			

**Table A-2.6.3.4.(5)D.**  
**Sizing of Cold Water System Using Figure A-2.6.3.4.(5)-B and Table 2.6.3.4.**

Pipe Letter	Cold Water Fixture Units	Water Velocity, m/s		
		3.0	2.4	1.5
		Pipe Size, inches		
A	2.8	½	½	½
B	5.7	½	½	¾
C	5.7	½	½	¾
D	11.4	¾	¾	1
E	14.7	¾	¾	1
F	19.1	¾	1	1¼
G	19.1	¾	1	1¼
H	21.3	1	1	1¼
I	23.8	1	1	1¼
J	2.8	½	½	½
K	3.6	½	½	½
Total Fixture Units	23.8			

**A-2.7.3.2.(1) Outlets from Non-Potable Water Systems.** The location of outlets from non-potable water systems where they can be discharged into a sink or lavatory, a fixture into which an outlet from a potable water system is discharged, or a fixture that is used for the preparation, handling or dispensing of food, drink or products that are intended for human consumption, may have proven acceptable on the basis of past performance in some localities, and its acceptance under this Code may be warranted.

**A-2.7.4.1. Non-potable Water System Design.** There is a growing interest in Canada in using available non-potable water supplies in the place of potable ones for selected purposes such as flushing toilets and irrigating lawns and gardens. Article 2.7.4.1. applies to non-potable water systems regardless of the origin of the water. The non-potable water must meet applicable water quality standards as determined by an authority having jurisdiction.