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CONNECTIONS TO SANITARY DRAINAGE SYSTEMS

Subject: Clothes Washers and Pressure Zones

This bulletin has been jointly developed by Safety Services and the Plumbing Technical Council to inform the plumbing industry of the minimum requirements associated with the installation of Clothes Washers in a Plumbing System.

The National Plumbing Code of Canada 2005 contains a new **Sentence 2.4.2.1. (4)**, which addresses the connection of clothes washers to the sanitary drainage system in buildings other than single family dwellings or duplexes.

(4) A soil-or-waste pipe that serves more than one clothes washer, and in which pressure zones are created by detergent suds, shall not serve for connecting other soil-or-waste pipes. (See Appendix A.)

The intent of this requirement is to limit the probability that the flow of sudsy water from clothes washers will lead to the blockage of vents, which could lead to water being siphoned from fixture traps, which could lead to the entry of sewer gases into occupied space, which could lead to negative effects on indoor air quality, which could lead to harm to persons (See figure 4).

The National Plumbing Code of Canada 2005, as published by the National Research Council of Canada and adopted by the **Alberta Plumbing Code Regulation (AR119/2007)** was varied in **Division B Article 2.4.2.1** of the Code by adding the following after **Sentence (4)**:

(5) The soil-or-waste pipe serving a clothes washer shall not be less than 50 mm and separately vented or the connection shall be downstream of all fixtures that are circuit vented.

A single clothes washing machine shall be installed with an individual vent. Alternatively, a single clothes washing machine may be circuit vented if it is installed downstream of all other circuit vented fixtures.

This new requirement was necessary due to the high discharge rates of automatic clothes washing machines that result in the formation of suds. The washing machine drains require a **2-inch trap** and have a hydraulic load of **2 fixture units**.

The minimum size drain and the connection in the described manner will reduce the probability that sudsing will back up into the venting system or drainage pipes and affect the operation of other fixtures (See figures 1 to 3).

In addition, there is a new requirement under the Article for **Size of Fixture Outlets Pipes** that covers the stand pipe for clothes washers.

2.4.9.3.(3) Where clothes washers do not drain to a laundry tray, the *trap* inlet shall be fitted with a vertical standpipe that is not less than 600 mm long measured from the *trap weir* and terminates above the *flood level rim* of the clothes washer. (See Appendix A.)

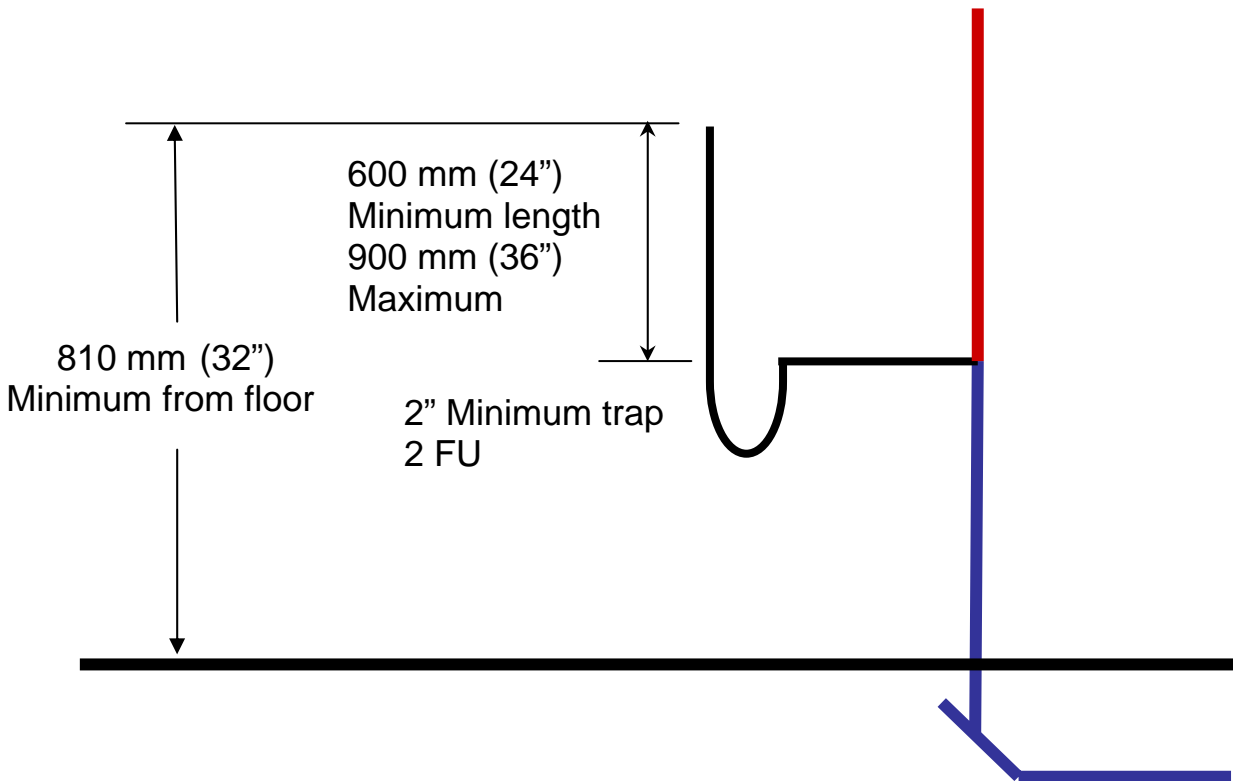


Figure 1

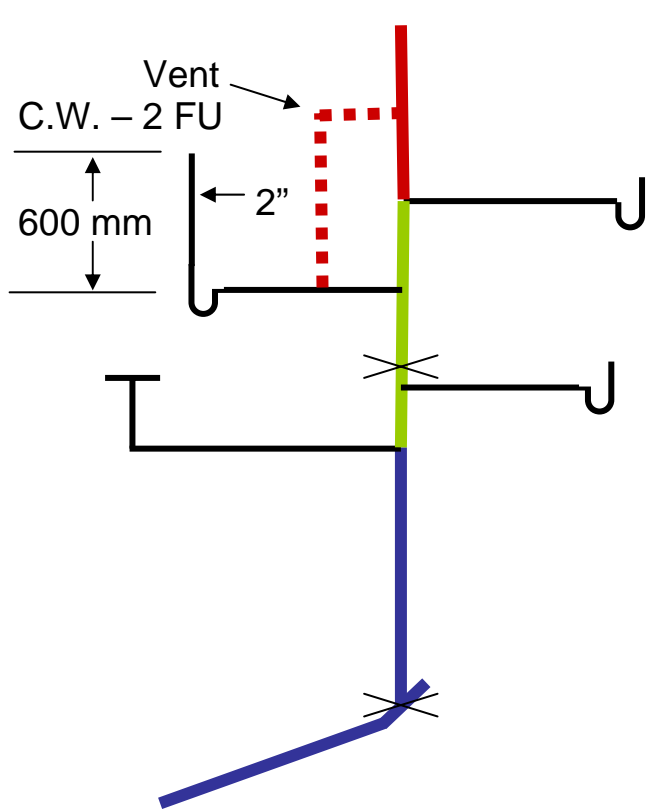


Figure 2a

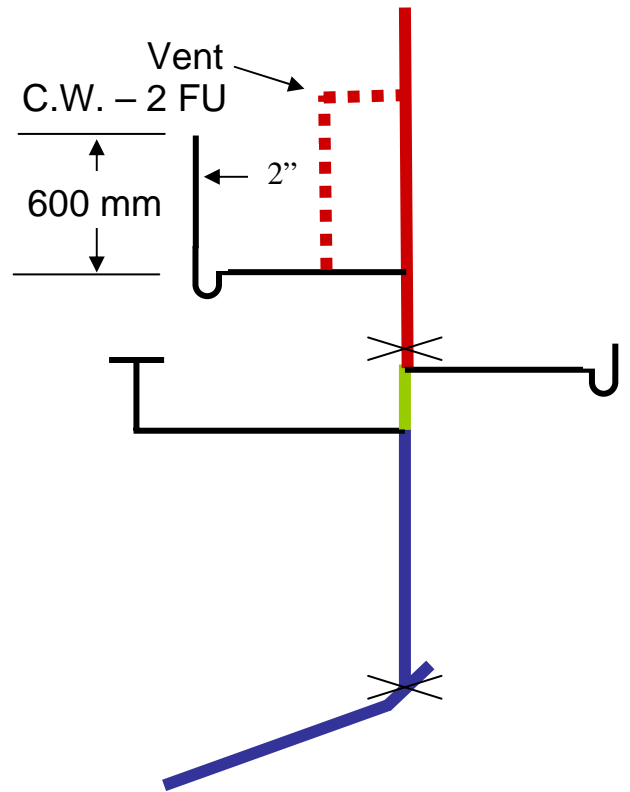


Figure 2b

Wet Venting

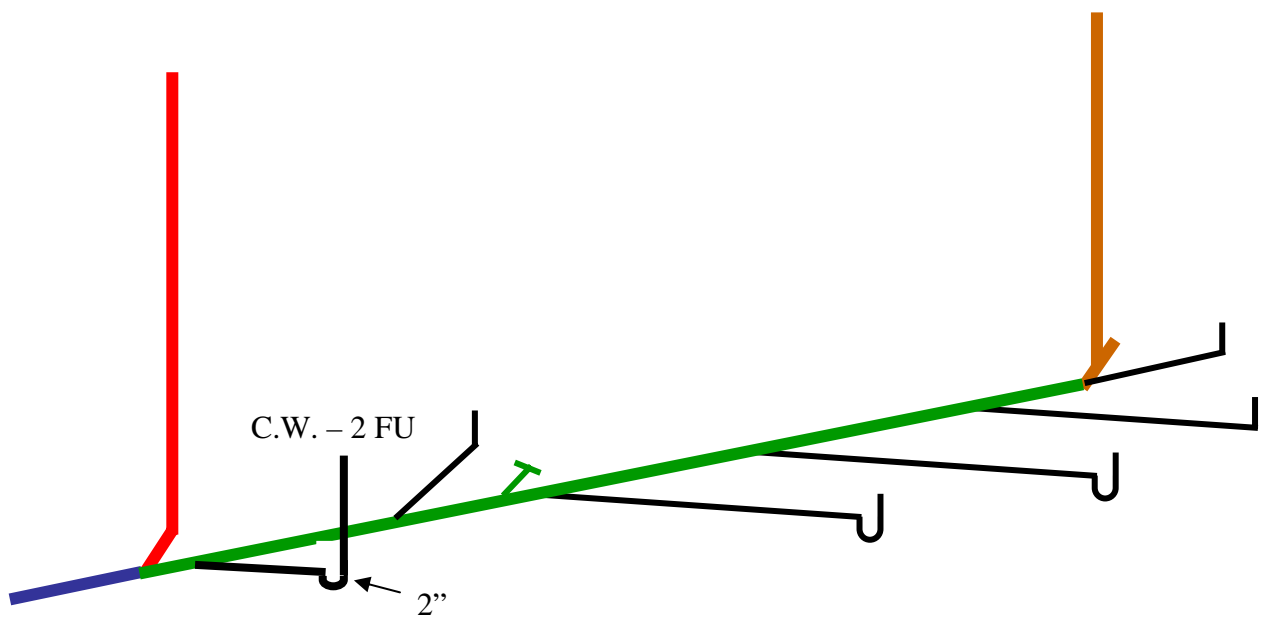


Figure 3

Circuit Venting

The suds pressure zones in a plumbing system are created at every change in direction (vertically or horizontally that is greater than 45°), at the base of a soil-or-waste stack, in the horizontal drain from the base of a stack and in a vent stack connection.

The National Research Council of Canada is considering a proposed change to **Division B Article 2.4.2.1** of the National Plumbing Code that would revise Sentence (4) and add a new Sentence (5) to clarify intent of the current Code requirements.

The proposed revisions to the Code are as follows:

- (4) A soil-or-waste pipe that serves more than one clothes washer, and in which pressure zones are created by detergent suds, shall not serve for connecting other *soil-or-waste pipes* where a change in direction of the *soil-or-waste pipe* of more than 45°, over a length of not less than
 - (a) 40 times the *size* of the *soil-or-waste pipe* or 2.44 m maximum vertical, whichever is less before changing direction, and
 - (b) 10 times the *size* of the *soil-or-waste pipe* after changing direction.

- (5) Where a *vent pipe* is connected into the suds pressure zone as referred to in Sentence (4), no other *vent pipes* shall be connected to that *vent pipe* within the height of the suds pressure zone.

The suds pressure zones are located in the following areas:

- (1) After any change in direction of soil-or-waste pipe greater than 45°.
The suds zone is 40 times the diameter of the stack or 2.44 m, whichever is less, in the upstream direction and 10 times the diameter of the stack in the downstream from the offset.
- (2) At the base of a soil-or-waste pipe.
In the upward direction 40 times the diameter of the stack or 2.44 m, whichever is less, from the base fitting.
- (3) In the horizontal drain from the base of a stack.
This is the downstream direction from the base fitting and extends 10 times the diameter of the diameter of the stack.
- (4) In a vent stack connection to a suds pressure zone.
This is measured from the vent stack connection and extends upward to the same level of suds pressure zone calculated for the soil-or-waste stack.

(See figure 4)

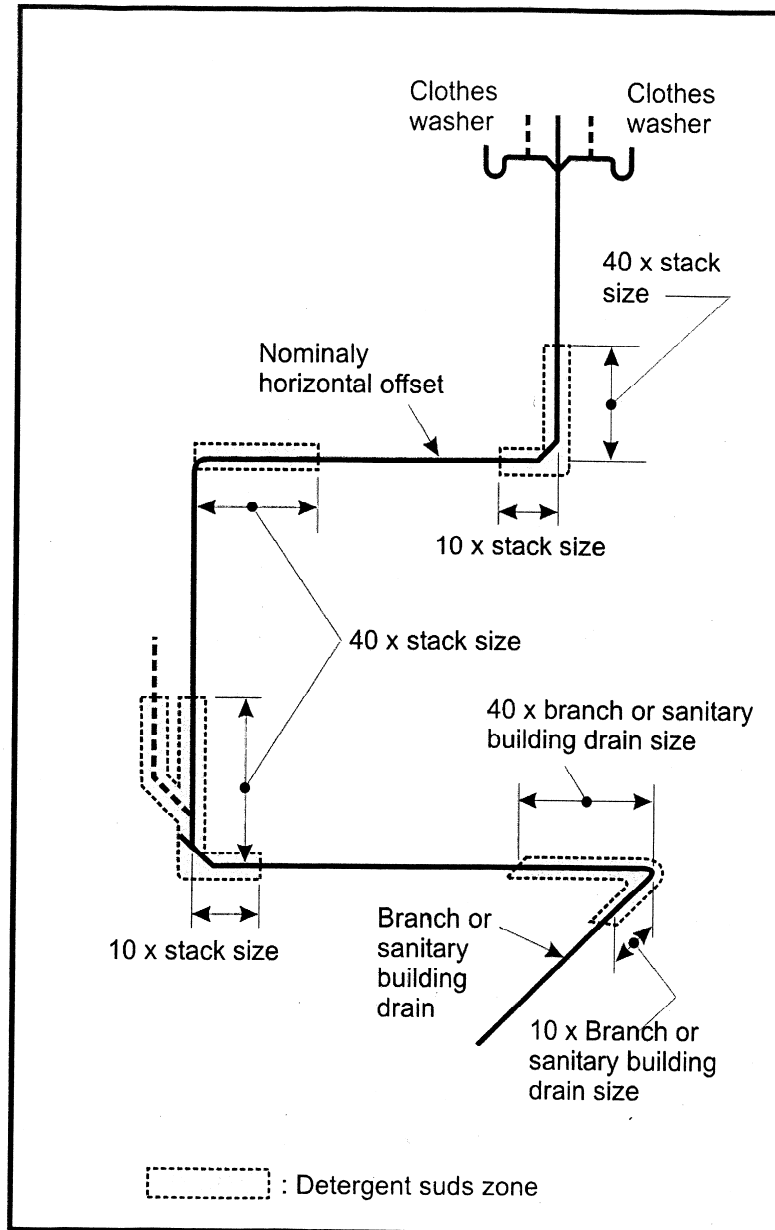


Figure 4