

BC BUILDING CODE INTERPRETATION COMMITTEE

A joint committee with members representing
AIBC, APEGBC, BOABC, POABC

File No: 12-0044

INTERPRETATION

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Interpretation Date:	Jan 27, 2015
Building Code Edition:	BC Plumbing Code 2012
Subject:	Water Pipe Sizing
Keywords:	Velocities , Water Pipe Sizing
Building Code Reference(s):	Tables A-2.6.3.1.(2)A&F & 2.6.3.4.

Question:

1. Considering the maximum fixture units permitted for various water velocities indicated in Table 2.6.3.4 would this apply to all types of water piping material regardless of the variation with internal diameter?
2. Do the hydraulic fixture unit loads shown in Table A-2.6.3.1.(2)A (Small Commercial Method) and A-2.6.3.1.(2)F (Average Pressure Loss Method) apply to the nominal pipe size of all types of water piping regardless of the actual internal diameter of the pipe and fittings?

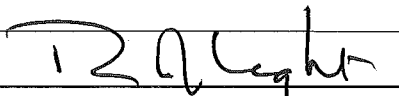
Interpretation:

1. No

Table 2.6.3.4 was created to show the fixture units permitted for the velocities shown in each column using the internal diameter of copper tubing and other piping using iron pipe size internal dimensions which is consistent with most published engineering data including ASPE Data Books. One very important component in adequate water pipe sizing is the internal diameter of the chosen piping as it controls the actual velocity and ensures the system can supply water to the most remote water outlet. For example, where a pipe manufacturer indicates an acceptable maximum velocity for a product it must be the actual velocity based on the internal diameter being equal to or greater than the minimum internal dimensions used to create Table 2.6.3.4 velocity columns. The total fixture unit values indicated in each velocity column should be adjusted by a percentage amount that is equal to the actual variation with the internal diameter of the iron pipe dimensions used in Table 2.6.3.4.

Therefore, the existing Table 2.6.3.4. for buildings containing one or two Dwelling Units and Row houses with separate Water Services should be used for copper tube, and PVC-Schedule 40 for cold water supply only, and other piping whose SDR dimensions are based on the O.D. of Iron Pipe.

See the POABC Website for a Bulletin including tables that reflect the adjusted Total Fixture Units permitted for piping systems whose internal dimensions vary from copper tube or iron pipe.



R. J. Light, Committee Chair

The views expressed are the consensus of the joint committee with members representing AIBC, APEGBC, BOABC, and POABC, which form the BC Building Code Interpretation Committee. The purpose of the committee is to encourage uniform province wide interpretation of the BC Building Code. These views should not be considered as the official interpretation of legislated requirements based on the BC Building Code, as final responsibility for an interpretation rests with the local Authority Having Jurisdiction. The views of the joint committee should not be construed as legal advice.

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2. No

The Appendix contains the Small Commercial Method, the Average Pressure Loss Method and the One/Two Family Dwelling Method which provide simplified methods for the noted building types. The total fixture unit capacities indicated in Tables A-2.6.3.1.(2)A and Table A-2.6.3.1.(2)F were created using the same engineering data as Table 2.6.3.4. that includes iron pipe O.D. dimensions to determine the minimum internal pipe diameters.

The Small Commercial Method uses the existing Table A-2.6.3.1. (2)A that indicates total permitted fixture units based on actual velocities and pressures available to supply water to the most remote outlet. This table should only be used for copper tube or PVC-Schedule 40 for cold water only and other pipe material with internal diameters that are equal to or larger than Type L copper or iron pipe size.

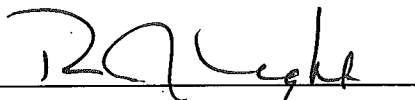
The Average Pressure Loss Method uses Figure A-2.6.3.1.(2)A to establish the minimum pressure required for friction loss based on the total developed length of the installation, the adjusted pressure available at the entry of the water service and the actual velocity of the chosen pipe material. As noted in the other methods it is again very important for the internal diameter to be equal to or greater than the iron pipe dimensions because where the internal diameter is less than the iron pipe dimensions the system would not be able to provide adequate water supply to the most remote fixture supply pipe. The existing Table A-2.6.3.1.(2)F should be used only for Type L copper tube, or PVC-Schedule 40 for cold water only, and other pipe material whose SDR dimensions are based on the O.D. dimensions of iron pipe

In order to ensure proper pipe sizing the permitted maximum fixture units that apply to each of the velocity columns must have the actual iron pipe minimum internal dimensions or have the maximum permitted fixture units adjusted by a percentage amount that is equal to the actual variation with the internal diameter of the iron pipe/copper tube used in all of the pipe sizing tables.

Care must be taken to ensure the adjusted Fixture Unit Values are in accordance with the good engineering practice published in ASHRAE Handbooks and ASPE Data Books.

See the POABC Website for a Bulletin including tables that reflect the adjusted Total Fixture Units permitted for piping systems whose internal dimensions vary from copper tube and iron pipe.

An alternate to any of these quick methods for smaller buildings would be to use a Detailed Engineering Design Method although it would likely arrive at the same pipe size conclusion.



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