

Dead Legs

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Code reference: 2023 Oregon Plumbing Specialty Code (OPSC)—Section 309.5

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Subject: Dead legs

Questions:

Section 309.5 for dead legs is new in the 2021 Oregon Plumbing Specialty Code (OPSC) requiring dead legs to have a method of flushing. This new section does not specify a maximum length that constitutes a pipe section as a dead leg.

1. What is the maximum distance allowed before a section of pipe is considered a dead leg?
2. What is considered an acceptable method for flushing?

Answers:

1. A dead leg is a section of potable water pipe which contains water that has no flow or does not circulate. If the section of pipe is greater than 1.5 times the diameter of the pipe served, it is considered a dead leg and would require a method of flushing.
2. Removable equipment such as valves, angle stops, hose bibs, shock arrestors or expansion tanks can be used as flushing devices, or other approved devices that dead ends and is removable or openable. All flushing devices shall be accessible. The items listed above can all be opened or removed in a manner to flush a system.

Analysis:

The concept of dead legs in a plumbing system has been a topic of discussion globally. Dead legs cause a pipe to be isolated from the regular flow of water promoting the growth of dangerous bacteria such as legionella.

Industry guidelines for design criteria and water system management are recommended by experts to control bacteria growth in potable water systems. Industry professionals are designing systems without dead legs in new buildings to help mitigate any potential bacteria growth. The structures that will likely need attention will be existing buildings.

In an existing system, where dead legs may exist or are created after a fixture has been removed, the best solution is to try and remove the dead leg completely, all the way back to and including the connection. However, where a dead leg exists, a means of flushing or fluctuating the water within an isolated pipe is required, as it will prevent the water from becoming stagnant and contaminated.

The OPSC does not specify a maximum length for a section of pipe to be considered a dead leg, therefore a common length should be established for consistent installation and enforcement. 1.5 times the diameter of the pipe served is a common industry calculation that is used broadly across pharmaceutical and engineering practices.

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