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Causes of backflow in a drinking water distribution network

Unexpected events, occurring in the municipal aqueduct, can cause a phenomenon called "backflow", that is, a reversal of the direction of water flow in a drinking water pipe. For example, a pressure fluctuation, a broken pipe, or a great demand for water during rush hours (industrial park) are often the cause of backflow. These events can then lead to siphoning or back pressure in the drinking water supply system.

Siphoning

Siphoning occurs when there is depressurization in a plumbing pipe. For this phenomenon to occur, four elements must be present:

- A high demand for water (generated by an application connected to the drinking water network or caused by a broken pipe in the municipal aqueduct),
- An open faucet in the building (air intake),
- The presence of a contaminant (application connected to drinking water),
- The lack of adequate protection (backflow prevention device).

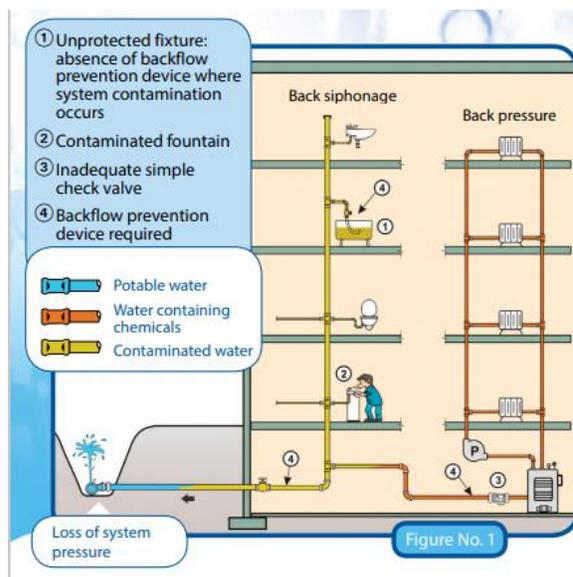


Back pressure

Back pressure occurs when the pressure of the building's drinking water system is greater than the pressure of the municipal distribution network. When equipment is connected to the building's drinking water system, such as a boiler that generates steam, it causes an increase in pressure in the building's drinking water network. A backflow could then occur. Several mechanical-hydraulic applications can, by design, cause back pressure. Here are a few examples:

- Thermal power plant (steam boiler),
- Blowing irrigation systems,
- High pressure cleaner with vacuum cleaner,
- Solenoid valve,
- Booster pump.

The following figure illustrates the phenomena of siphoning and back pressure:



Source: From the brochure *Attention à la contamination!* of the Régie du bâtiment du Québec (RBQ)

There are several ways to protect drinking water from backflow. To learn more, [contact our experts](#), they will be happy to answer your questions.

