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Published on 2017-03-20



Upgrading drinking water networks in buildings: where to start

Property owners or managers must comply with a set of very strict standards to protect building drinking water systems from contamination. Although the Régie du bâtiment du Québec (RBQ) dictates its requirements in this area, these nonetheless remain unknown to some property owners, who are nevertheless responsible for enforcing them.

Municipalities are doubly affected by this regulation: on the one hand, they own and manage municipal buildings, and on the other hand, their municipal aqueduct is likely to be contaminated by a building at risk on their territory.

This article aims to guide building owners, who, once informed of their obligations, want to obtain a status of the current situation of their establishments. This article is therefore complementary to the two articles previously published in the winter and fall 2016 issues of Source magazine. We invite you to consult them to learn more about the regulations in force and the obligations of building owners.



Become familiar with the subject

It is useful to understand the phenomena that can cause contamination of drinking water in buildings. Literature on the subject is available on the Web, particularly on the RBQ website. Thus, you will learn that it is the cross connections present on domestic water networks, when not adequately isolated with an appropriate protection device, that are mainly responsible for contamination events. In case of backflow, toxic substances could come into contact with water intended for human consumption. Depending on the degree of danger, the contamination could go unnoticed, but it could also affect the health of users in various ways. That is why it is necessary to be concerned about it.

Find out about the current situation of the buildings under your responsibility

When you have some knowledge of the subject, it is easier to discuss the matter with the person in charge of building maintenance. He will be able to inform you about the presence or absence of backflow prevention devices on the drinking water pipes. These devices are mechanical devices that prevent contamination. They are offered in a variety of models, depending on the risk of the application to be isolated. Some models must be tested annually to ensure that they function properly. Find out if the certification of existing backflow prevention devices is up to date.

Note that there is usually a backflow prevention device on the water inlet of the buildings to prevent contamination from spreading into the municipal aqueduct. Other applications are also frequently isolated, such as the fire sprinkler system and the irrigation system. Since the buildings all serve different purposes, other devices could be installed in various places on the plumbing system, depending on the use made of the drinking water.

Determine the compliance of a building's drinking water system

To determine whether a building is compliant or not, it is recommended to do business with a professional in cross-connection engineering, who has an in-depth understanding of the standards and regulations that apply to the field. He will be able to share with you his experience, largely acquired in the field. This aspect is not negligible and even essential, considering the immense diversity of buildings, whether industrial, commercial, or institutional.

An engineering analysis of the cross connections is the first step to obtain an accurate picture of the situation. This will give you a complete inventory of the cross-connections that present a risk



of contamination. You will be informed on the corrections to be made and the budget to be devoted to them.

Bring deficient installations up to standard

This information will be necessary for you to proceed to the next step: carry out the work to upgrade the deficient installations up to standard. Depending on the complexity of the project, plans and specifications could be required to avoid mistakes.

Note that, for some buildings, upgrading to standards may require a major investment. The important thing is to get into action and proceed in stages: the protection of high-risk cross-connections should be carried out as a priority, followed by that of medium and low-risk connections. However, it is important not to neglect the annual maintenance of the devices already in place. You will have peace of mind, knowing that they are fulfilling their role of protection.

Implement a cross-connection control program

Once the upgrading is complete, you will certainly want all the effort put into bringing your facilities into compliant to continue over time. In this respect, training plays a crucial role. Thus, those responsible for maintenance will adopt good practices, for example, by avoiding submerging a garden hose in a boiler with chemicals... In addition, they are also able to understand the risks that could result from modifications or additions of applications to the plumbing network.

The protection of cross-connections is necessary to ensure the distribution of quality drinking water. Nevertheless, it is a complex subject, capable of putting off the most conscientious of owners. Do not hesitate to ask questions and surround yourself with the right people. Eventually, this matter will simply become part of the current maintenance practices of your buildings!

Further reading

- www.rbq.gouv.qc.ca (write "drinking water contamination" or "backflow prevention device" in the search bar)
- Related articles: Source magazine Winter 2016, Vol. 12 No. 1 and Fall 2016, Vol. 12 No. 2

