COLLINGWOOD

Mandatory backwater valves in all new homes

Source: ICLR

THE SCIENCE

Extreme rainfall events have resulted in widespread basement flood damage across Canada. Damage has been evident in older neighbourhoods but surprisingly also in newer homes. This includes some homes supported by relatively new infrastructure, separated sewer systems and modern best practices for home construction. In particular, data provided by insurance companies shows an alarming increase in loss and damage to homes through the backing up of water and sanitary waste through sewer laterals.

Damage to homes in Canada from sewer backup exceeds $2 billion a year. Most of the damage to homes from the backflow of sanitary sewers is preventable. A backwater valve can be installed in new homes for less than $250 and automatically closes when wastewater flows back through the sewer system toward a home, significantly reducing the risk of damage.

Provincial building codes require the installation of a backwater valve in new homes "where a building drain or a branch may be subject to blackflow". However, thousands of new homes are built in Canada each year without a backwater valve. This is due to ambiguity about when a home may be subject to backflow. Some homebuilders and local code enforcement officials seek a prior history of basement flooding in the area as evidence of the risk, so many new homes do not have a backwater valve. Several recent large scale sewer backup events in relatively new separated sewer systems indicate that all homes connected to public underground sanitary sewer systems have the potential to experience sewer back up. Unfortunately, the wording of current provincial building codes is unclear about when to install a valve.

Several communities, like Collingwood, have taken action to address ambiguity in the building code by giving clear direction to developers and builders that all new homes connected to the sanitary sewer system are at risk of backflow so a backwater valve is required. This may involve revision of a local by-law or clarification of enforcement practices.

THE TRIGGER

Collingwood's Director of Building Services and Chief Building Official participated in an ICLR study on how municipal officials interpreted the building code provision concerning backwater valves in new houses. The research led the Director to review the evidence of increasing risk of basement flooding during extreme rainfall events, and to consult with local homebuilders about the risk of backflow. This resulted in a public statement by the Director on January 10, 2013 that all new homes in Collingwood connected to the sewer system require a backwater valve.

A number of communities across Canada have begun to mandate the installation of backwater valves in all new homes. Typically this change was introduced following an extreme rainfall event. Action in Collingwood, however, involved a proactive adaptation of local practices in anticipation of the growing risk of loss and damage.

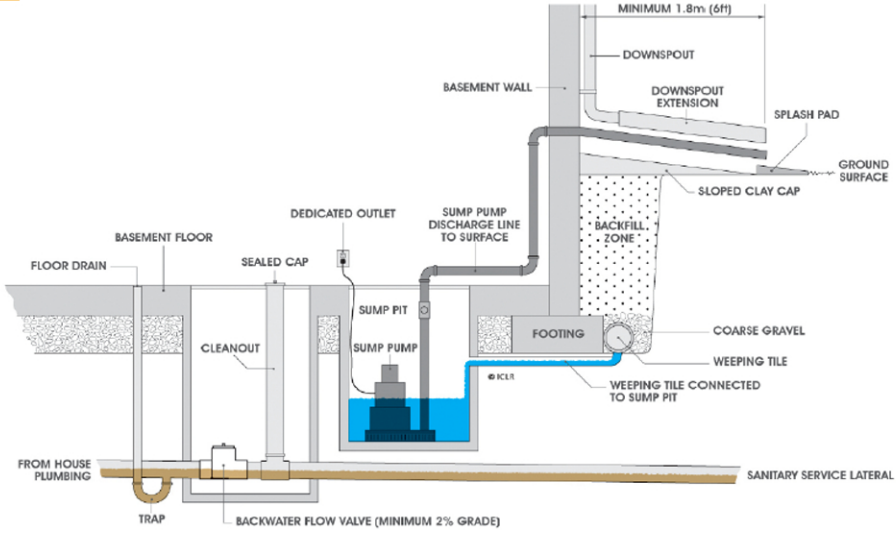

Figure 19 : *Installation of a backwater valve*
(Source: ICLR)

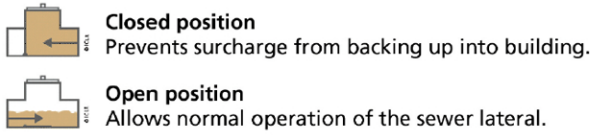

Figure 20 : *Backwater valves in open and closed position*
(Source: ICLR)

Discussions between ICLR and building code officials across the country have found significant variation in local interpretation of the building code requirement for the installation of backwater valves in new homes. The findings of consultations with local code enforcement officials were identified by Collingwood as influential in their decision to require backwater valves in all new homes.

THE APPROACH

Town officials in Collingwood confirmed with local developers and builders that there is some risk of backflow in all homes connected to the sewer system, including new homes. Accordingly, the Town decided that interpretation of the building code would require the installation of a backwater valve in all new homes. Moreover, Collingwood chose to avoid the potentially complex task of developing a by-law, an approach that has been used in some other communities seeking to ensure the benefits of backwater valves. Rather, Collingwood issued a public statement about its interpretation of the current building code. On January 10, 2013, Bill Plewes drafted a letter indicating that the Town requires backwater valves in all new home construction effective February 1, 2013. The Chief Building official noted in his letter that "there is enough historical data collected in Collingwood to require backwater valves be installed in every new dwelling that has fixture(s) below adjoining street level."

THE TRIGGER

Collingwood issued a public letter indicating that the Town would require the installation of backwater valves in all new home construction. This decision was well received by developers. Some developers are using the backwater valve as a selling feature, noting that most of the existing homes in the region do not have a backwater valve but these safety features are present in new homes. There was no push back from home builders in Collingwood since backwater valves are easy to install and inexpensive. Some contractors even mention that a backwater valve is one of the best investments they can put in a new home. A small investment in safety can significantly reduce the risk of damage to homes and may even lower the cost of insurance.

Town officials indicated that a useful area for future work would focus on actions to encourage the installation of backwater valves in existing homes. In particular the Town may explore the idea of a by-law for property owners that conduct a major renovation to mandate installation of a backwater valve.

A WORD FROM COLLINGWOOD

Collingwood's approach is presently focused on actions to reduce the risk of basement flooding in new homes from the backing up of sanitary sewers during extreme rainfall events. When interviewed on the subject, Bill Plewes, Collingwood's Director of Building Services and Chief Building Official, said "We found it very easy to make the installation of backwater valves mandatory. Interpreting the code in a way that requires developers to install backwater valves in new homes allowed the Town to avoid the complicated task of developing a municipal by-law to require this important measure."