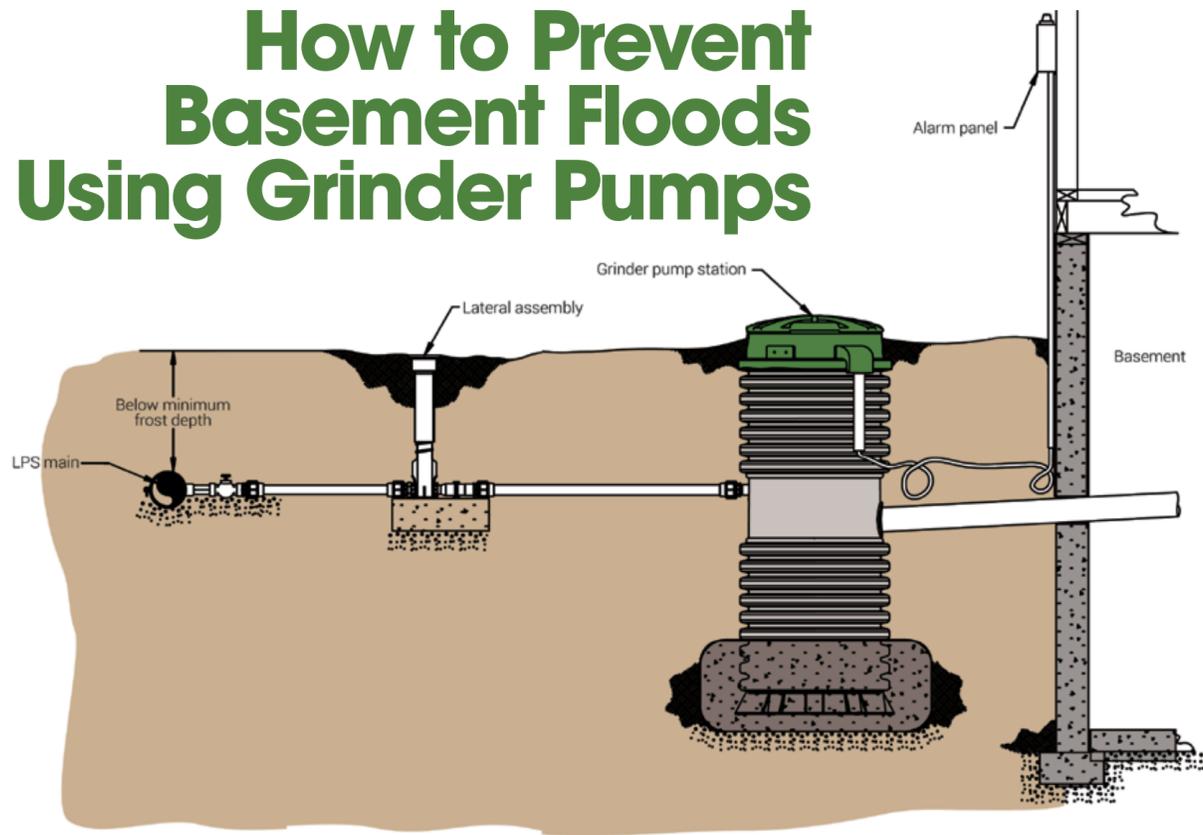


How to Prevent Basement Floods Using Grinder Pumps



system, options are available to reduce or eliminate the problem. Two key approaches include the installation of a backflow prevention valve or grinder pump station.

A backflow prevention valve can provide some protection against basement flooding due to surcharged sewers. Backflow prevention valves can be mechanical gate-type valves, or check/flapper-type valves. The objective of a backflow prevention valve is to provide a physical barrier in the private sewer service lateral and prevent wastewater from backflowing and flooding basements.

Backflow prevention valves, by design, are closed during sewer surcharge conditions to prevent wastewater from entering the home. When the valve is activated in the closed position, plumbing fixtures should not be used. Wastewater generated within the household cannot flow out through a closed valve. Continued use of fixtures and wastewater-generating appliances can result in flooding from the wastewater generated within the building.

Backflow prevention valves need to be installed properly and require regular inspection and maintenance to remove debris and provide some insurance of protection against failure. When a valve fails to close completely, the device slows down the surcharged flow of wastewater, but does not stop it completely.

Grinder pump stations provide a reliable and operationally superior solution to prevent basement flooding due to sewer system surcharges. While a properly installed and operating backflow prevention valve can provide limited assurance

of preventing basement flooding, the use of the property is limited because wastewater cannot flow from the house to the municipal sewer system. A grinder pump system provides pressurized flow. This solution provides a positive isolation of

the surcharged flow from the sewer, but also the ability to pump against and overcome the pressures in the surcharged sewer mainline. This ability to pump against a surcharged sewer allows for uninterrupted use of plumbing fixtures and wastewater-generating appliances.



3 Implement the Solution

Grinder pump stations are integral units that consist of a basin, controls, piping (including a shutoff valve and check valve), and a semi-positive displacement grinder pump. The grinder pump station collects all of the wastewater from the home. When wastewater in the tank reaches a certain level, the pump turns on automatically, grinds the waste into a fine slurry, and discharges it under pressure into a small-diameter pipe that flows to the existing sewer main. Because the discharge pressure produced by a semi-positive displacement grinder pump is greater than the back pressure in the surcharged sewer, the wastewater flow from the property to the municipal sewer not only is ensured, but any backflow into the basement is prevented.

The grinder pump system can be installed in the property's basement or yard. Certified installation of the system is recommended. The whole-house grinder pump station is a dependable and cost-effective solution to prevent basement flooding caused by surcharged sewer systems. **W&W**

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By Keith McHale

A three-step approach to minimizing or eliminating basement flooding

In many communities, basement flooding is a rite of spring. Snowmelt and heavy spring rainfall often lead to flooded basements. Basement flooding, however, can occur throughout the year. There are numerous reasons some basements flood, and steps can be taken to minimize, if not completely eliminate, the problem.

Solving problems associated with basement flooding can be simplified into a three-step approach.

- Identify the source and cause of basement flooding;
- Evaluate solutions to remedy the problem; and
- Implement the solution.

1 Identify the Source & Cause

Determining the cause of basement flooding starts with identifying the source. The source can be "clean water," such as surface storm water, or groundwater that seeps into the basement through cracks in the basement walls or foundation floor or through basement windows and doors. Although they are a nuisance, clean water sources are not as serious a concern as "dirty water" sources. Basement flooding caused by surface storm water or groundwater can be addressed by sealing cracks, improving site drainage, ensuring gutters and downspouts are clean and directing rainwater away from the home, or installing or repairing a foundation drain system.

The source of basement flooding that is of the greatest concern is that which is caused by backflows from the municipal wastewater collection system. Wastewater backups create both a significant nuisance and a health hazard for the homeowner. There are a multitude of potential causes for a wastewater collection system source of basement flooding. Sewer blockages that result in basement flooding can be found in the private sewer service lateral, but also can be the result of problems with the municipal sewer system.

Service lateral blockages occur when misaligned joints, root penetration, buildup of grease

and other debris, or pipe collapse prevent the normal free flow of wastewater from the home. Basement flooding because of service lateral blockages typically is the responsibility of the homeowner and often can be remedied by cleaning the service lateral, and in extreme cases, replacing part or all of the service lateral.

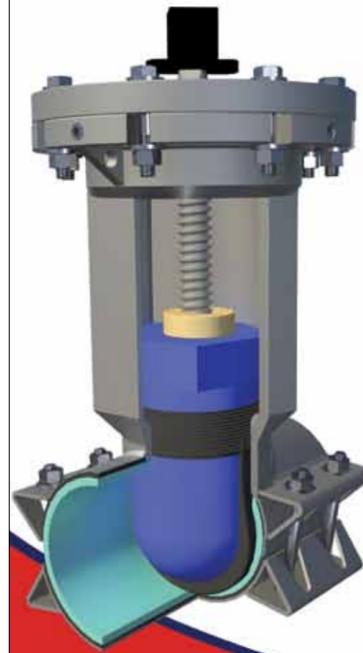
Basement flooding caused by backflows from municipal sewers can be the most disruptive and difficult to remedy. Flooding caused by service lateral deficiencies generally will be limited to the wastewater produced within the household. Minor repairs and/or changes in behavior can limit the impact. Flooding caused by deficiencies with the municipal sewer mainline will consist of wastewater from many sources connected to the central sanitary or combined sewer.

Sanitary sewer systems are designed to convey domestic and industrial wastewater to wastewater treatment plants. Combined sewer systems convey a combination of sanitary wastewater and storm water. In the absence of pipe blockages, collapses or other physical deficiencies, overflows and basement flooding caused by public sewer systems typically occur when the volume of water in the system is greater than the carrying capacity of the sewer pipe. Excess water in the system can be caused by excessive groundwater or rainwater entering the system as infiltration and inflow, or, in the case of combined sewer systems, insufficient capacity to properly convey the combined sanitary and wet weather flow. The extraneous water can cause the sewers to surcharge. The surcharged condition inhibits the sewer's ability to properly convey the wastewater and can cause it to back up the private sewer service lateral and overflow into the building through floor drains and plumbing fixtures.

2 Evaluate Solutions

If basements are subjected to sewage flooding due to surcharging in the wastewater collection

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