

Cedar Rapids Public Works Department
Sewer Maintenance Division
Most Common Causes of Sanitary Sewer Backups
and
Possible Sanitary Sewer Backup Prevention Options

Sanitary Sewer Backup Causes

There are three main categories for causes of sanitary sewer backups. A description of each is provided below.

Excess Flow: Excess flow will cause wastewater levels to rise in the sanitary sewer system and in some cases, result in basement backups. Excess flow usually is from groundwater or surface water that enters the sanitary sewer system through sump pumps, foundation drain connections or through pipe and manhole joints.

Structural Failure: Collapsed pipes block flow in the sewer resulting in sanitary sewer backups. Brick manholes are not uncommon in older sewers. Bricks can become dislodged and block flow in the sewer resulting in sewer backups. Service tap intrusions caused by settlement or structural failure may also block flow, resulting in sewer backups.

Debris in the Sanitary Sewer: Debris in the sanitary sewer includes roots, grease, sand, gravel, sediment, rags, paper products, construction materials and other objects. These types of objects can interfere with the flow of wastewater in the sanitary sewer and result in backups.

Prevention Options

Any area of your home or business that has plumbing fixture units below the elevation of the next upstream manhole lid is at risk to sanitary sewer flooding damage. The level of protection to reduce the risk for your home or business is strictly a personal decision. Some factors to consider include amount of insurance coverage for sewer backup damages and value of property and belongings that are susceptible to sanitary sewer backup damages. It is recommended all properties acquire and maintain the appropriate insurance to cover potential damages caused by sanitary sewer backups.

If your property has experienced a sanitary sewer backup from a blockage in the City sewer or from sewer flooding in the City sewer, you may want to consider installing sanitary sewer backwater prevention devices. Listed below are some of the options available along with expected cost range and expected level of protection. A qualified plumber or contractor will be able to help you evaluate which option would be best for your situation. Installation of these types of devices will require a plumbing permit.

Device	Description	Average Expected Cost Range	Level of Protection (1 – low; 5 – high)
Ball Check	Installed in floor drains or piping to fixtures.	\$100 to \$300	1
Standpipe	Pipe installed vertically on floor drain(s) and washing machine drains.	\$50 to \$300	1
Backwater Valve	Flapper or swing check type valves installed in floor piping. Requires a pit in floor for access to valve.	\$500 to \$1,700	2
Gate or Full Port Ball Valve	Gate valve installed in floor piping. Requires a pit in floor for access to valve.	\$1,500 to 2,500	3
Combination Backwater Valve and Gate Valve	Flapper or swing check type valve along with gate valve, installed in floor piping. Requires a pit in floor for access to valve. Gate valve allows shut-off of system when gone for a period of time.	\$800 to \$2,700	3
Sewer Ejector System	Closed pipe system where sewage collects in a pit and is pumped out through service line. Installation of a pit would be required. Battery back-up should be considered for power outage events.	\$3,000 to 5,000	5
Pinch Valve with Actuator	A pinch valve with automatic electric actuator. Actuator provided with battery backup. System can be installed in an inside pit or outside vault.	\$3,000 to 5,000	5