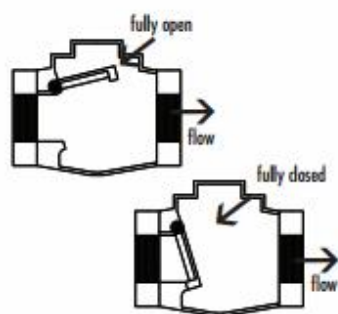




FACT SHEET: Types of Backwater Protection

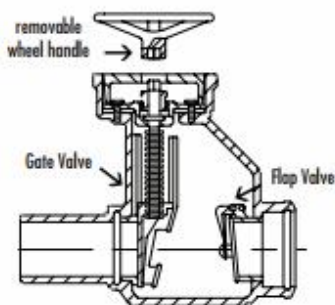
MOST COMMON BACKWATER VALVES: CHECK, DUAL, AND KNIFE.



CHECK VALVE: The Check valve is used principally to prevent backwater in pipes automatically. The valves are entirely automatic.

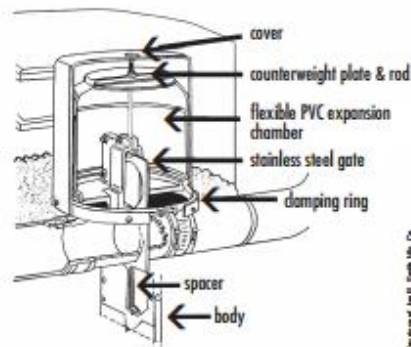
Check valves fall into two main primary types – a “flap valve” and a “ball valve.” The flap valve is the most commonly used type of valve in residential service. It is the simplest device, consisting of a “flap” that swings open to allow flow in the desired direction but seals closed by flow in the opposite direction. A ball valve has a ball that is pushed up out of the way by flow in the desired direction but seals in the pipe to prevent flow in the opposite direction.

Check valves are the least costly type of valve to install, but debris can block them open and they may not close properly when a back-up occurs. These valves do not provide any notification alarm when they are in operation.



DUAL VALVE: This type of valve incorporates both a flap valve and a manually operated gate valve. The flap valve stops the backwater until the gate valve is closed. Dual valves are usually installed outside the house in a valve pit.

Dual valves are generally more expensive than check valves and do not have a notification alarm when in use. It may be difficult to determine when to open and close the gate and debris can block the gate and cause it to malfunction



KNIFE VALVE: A Knife valve closes automatically to prevent backwater from entering the home. As sewage backflow occurs, the trapped air in the house lateral is forced into an expansion chamber. As the expansion chamber fills with air and expands, a knife gate rises until the house lateral opening is completely sealed off. Once the backflow condition subsides and the water level returns to normal in the house lateral, the counterweight atop the expansion chamber forces the trapped air out of the chamber and into the house lateral, allowing the knife gate to return to a fully open position.

The Knife valve is fully automatic and does not require electricity to activate the valve or to reset the gate after operation. The valve is less likely to trap debris that can obstruct the flow or operation of the valve. It is generally more expensive than the other valves mentioned but can include a notification alarm when in use.

COMPARE			
Name	Type	Cost	Alarm
Check	automatic	\$	no
Dual	both	\$\$\$	no
Knife	automatic	\$\$\$	yes

Additionally, for maximum protection, homeowners may want to consider a sewage ejector pump or residential lifting station. Those systems offer added protection via both the check valve in the pump and through elevating the connection above the backwater susceptibility elevation.