

Preventing Basement Flooding

By: Byron A. Ellis, Ph.D. – July 13, 2022



According to Gwynne Hogan from NPR, All Things Considered (June 12, 2022), a year after Hurricane Ida killed 11 residents of mostly unregulated basement apartments in Queens, there has been no movement to make basement apartments safer.

It is possible to mitigate or even eliminate the risk of basement flooding by using backwater valves to prevent backflows from the main city sewer. When the city sewer is backflowing into a private building, the backwater valve closes, and the sewer water cannot flow back into basements. Thus, preventing unwanted flooding.

Figure - 1 below depicts a Wi-Fi 4-inch Cyclone Backflow Flapper valve with alarm, as well as how the backwater/backflow valve functions, when water from the main city sewer is reversing, the valve flapper closes and prevents sewer water from entering the basement. It also sends a signal to the building owner or representative indicating that the valve flapper is in the closed position.

When the backwater valve is closed, it will also prevent any water usage in the building from exiting into the main city sewer, which will cause upstream overflow. We can solve upstream overflow by temporarily shutting off the potable water.

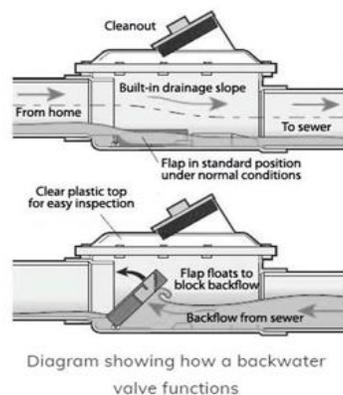


Figure 1 -Backwater Valve

Therefore, whenever there is sewer reversal and the backwater valve closes, the potable water entering the building should be shut off. We can use an Automatic Remote Controller, depicted below, to shut off the potable water entering the building, thereby preventing any potential upstream flooding.

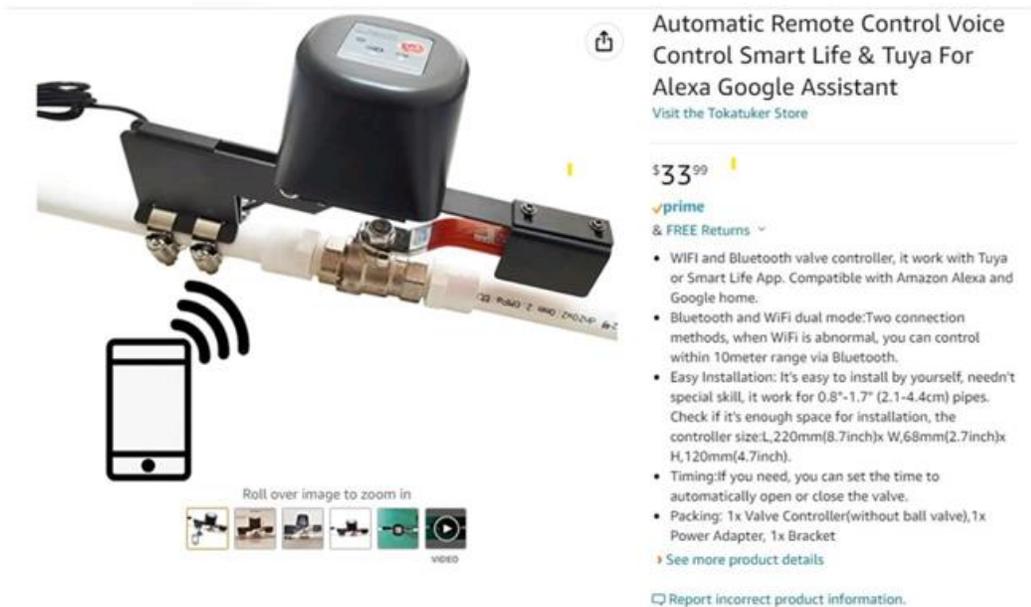


Figure 2 -Potable Water Valve Remote Controller

With these two devices, it is plausible to reduce or even eliminate New York City basement flooding, saving lives and property. The cost of the Wi-Fi 4-inch Cyclone Backflow Flapper valve with alarm is about \$300.00 and that of the Automatic Remote Controller is about \$34.00.

Critical Note: the backflow valve is battery operated and will have to be maintained. The manufacturer indicates that the life of the battery is 12 months.