

SUMMARY

Many basements today are used as game rooms, storage rooms or extra bedrooms. Installing a WaBack on the lateral line from the house provides protection against basement flooding ensuring your property is protected. Water is prevented from flowing back into the house during periods of heavy rain when the sewer mains or combined systems are overloaded. The WaBack can also be used to ensure that water does not return through the storm water outlet during high water levels in the recipient.

PROBLEMS CAUSED BY BACKFLOW IN PIPE SYSTEMS.

A pipe system operates on a pressure differential. There has to be a higher pressure upstream relative to downstream, to enable flow in the wanted direction. The differential is created by either a pump or an elevation change or a combination of the two. If the pressure differential becomes negative there will be a flow in the opposite direction.

CAUSES:

- Heavy rain/snowfall, Storm water systems are dimensioned for normal rain. To dimension a system to handle exceptional rain is in practicality impossible, hence in case of heavy rain or snow the system becomes overloaded.
- High tide in combination with low elevation.
- Pump failure.

PROBLEMS:

- Overflow of basements or even whole areas.

SOLUTION

The WaBack is back flow protection incorporated in a manhole. Compared to other check valves the main differentiator is that the WaBack is an open system by default meaning that additional head loss to the system is none. In normal operation the WaBack allows water to flow freely through without any restrictions. In the case back flow occurs a float will raise the pipe and close it completely.

There are a few different variations of the WaBack. The standard WaBack comes in a manhole with additional options of an alarm and emergency closing device. There is also the WaBack access chamber where the WaBack module is removable to ease inspection and cleaning.

TECHNICAL ASPECTS

The WaBack is straight forward in its operation and thus a very reliable system. The function is well represented by the figure series below.



The first figure shows the WaBack in normal operation, the WaBack is always open. The mid figure shows the event when a reversed flow occurs, the float begins to rise. The final picture shows the pipe completely sealed against the sealing plate.

Since the pipe and the float is buoyant the pipe will rise with rising water level in the waback until the opening seals against the sealing plate. The pressure sealing the pipe against the plate will increase until the float is completely submerged.

The fact that the WaBack is an always open system is crucial for most of its applications. There's usually not a lot of head available a short distance from the properties protected and hence always closed check valves might not be suitable since it will required some head pressure to open. The always open system also means that there will be no effect on ventilated systems and the risk of getting debris stuck is next to nothing.

Materials

The materials used to manufacture the WaBack are:

- PE
- PVC
- EPDM
- EN1.4301

Which are all safe and proven reliable in sewer systems.

CE Certified

The WaBack non-return valve has been thoroughly tested by both laboratories and councils in Sweden, Norway and Denmark, and test shows that the WaBack is effective in stopping flooding caused by backflow and that it requires minimal maintenance.

The WaBack is certified for use in storm water and sewage systems. WaBack is CE approved according to regulations for building products.

Conclusion

If the situation dictates back-flow prevention with no head loss the WaBack has proven itself to be reliable over decades.