

Wet or Damp Basements-Causes and Solutions

Basement wetness or dampness may occur for a variety of reasons, but in many cases **may** be reduced or eliminated. Wet or damp basement conditions are more likely to occur **during or** following heavy rainfall and rapid snow melts or during power outages.

Wet or Damp Basements—Causes

- Cracks, holes or leaks in basement walls, floors, windows, doors or **outside stairwells**.
- Inadequate or improper lot drainage (**low areas near foundations**).
- Failure of foundation drains (footer tile).
- Overflowing eaves troughs, **downspouts discharging too close to foundations**.
- Leaking or plugged eaves troughs, downspouts or **downspout connections**.
- Blocked sewer lateral that connects a building's plumbing system to the municipal sewer system. Tree roots and failed tile frequently cause sewer lateral blockages.
- A backup of wastewater in the municipal sewer system, or a combination of wastewater and rainwater from the sanitary or combined sewer system.
- Power outage or failure of sump pumps used to remove water from foundation drainage systems.
- Power outage or failure of municipal sewer pump/lift stations used to pump stormwater or wastewater from a lower elevation to a higher elevation, causing sewers to fill and back up into buildings.
- Sanitary sewers and sewer laterals are often bedded in stone and laid in trenches. Groundwater can collect in the stone-filled trenches around these pipes, which may serve as conduits for groundwater to enter building foundation drainage systems. When this occurs, sump pumps may have inadequate capacity to handle groundwater volumes.
- **Flooding/ponding over public collection system manholes.**
- **Sump pumps connected to sanitary laterals, sometimes without check valves.**
- **Floor drains improperly connected to sanitary sewers.**
- **Elevation of basement or bi-level floor lower than the sewer.**
- **Field tile incorrectly rerouted with home or subdivision construction.**
- **Cross connection yard drains to sanitary sewer.**
- **Cracked and broken laterals from homes.**
- **Open disconnected downspout risers.**

Types of Sewers Servicing Northwestern Water and Sewer District Residents

Sanitary Sewers:

Wastewater (sewage) produced through use of plumbing fixtures (such as toilets, sinks, bathtubs, showers, dishwashers, clothes washers, floor drains, etc.) is collected by building plumbing systems and conveyed through a sanitary sewer lateral from the

building to municipal sanitary sewers, typically located under or near streets. Sanitary sewers carry wastewater by gravity and use lift stations to the municipal wastewater treatment facility.

Under some rainfall events, excess stormwater and groundwater can seep into the sanitary sewers overloading existing sewers and pumping facilities which back up into residential facilities.

Storm Sewer:

Storm sewers collect rainwater and melting snow through catch basins (street, parking lot and yard drains), eaves troughs and downspouts, foundation drains, etc., and carry this stormwater to detention ponds, local ditches and nearby streams. Typically, stormwater is conveyed by gravity sewers, but in some cases stormwater pump/lift stations are utilized. Stormwater pump/lift stations may be privately owned and are operated or maintained by the local city, village or township maintenance department.

During some storm conditions, storm sewers and their discharge conveyances can become overloaded and cause higher groundwater and ponded surface water to contribute to wet conditions in and around a residence/structure.

Wet or Damp Basements-Solutions

There are a number of ways to **minimize and sometimes** eliminate wet and damp basements.

- Check for and repair/seal cracks, holes and other leaks in basement walls, floors, windows and doors.
- Clear overflowing eaves troughs and downspouts of leaves or other debris that prevents free and proper drainage.
- Ensure downspouts drain freely onto lawns or into rain gardens, ideally six to **ten** feet or more away from basement walls or foundations.
- Disconnect downspouts and sump pumps from sewers and instead drain onto lawns. This relieves loading on **sanitary or** combined sewers and helps keep lawns green, too.
- Install a backflow preventer in the building's sewer lateral to prevent sewer backups from entering the basement. (Consult with licensed plumber)
- Regularly inspect basement protective devices such as backflow preventers, sump pumps, floor drains and caps to ensure proper operation. **Verify sump pump check valves are installed and operating properly.**
- Consider soft surface landscaping (i.e., increased grassy or mulched areas, porous pavement) that allows stormwater to soak into the ground instead of entering the municipal sewer system. Hard surfaces such as asphalt and concrete driveways and sidewalks can quickly convey stormwater into local sewer systems, exceeding available capacity and **contributing to backups.**

- Do not block sewer connections by pouring grease into drains or flushing objects down toilets.
- Make sure the grade around buildings allows water to drain away from basement walls and foundations.
- Construct bentonite or clay dams around sewer laterals to prevent groundwater from following sewer trenches into building foundation drainage systems.
- Repair/replace damaged foundation drainage systems.
- Ensure building insurance coverage includes adequate flood **and sewer backup** insurance.
- **Plug/seal underground connections where downspouts and sump pumps are removed.**
- **Replace/repair laterals from homes.**
- **Eliminate basement gravity floor drains or use sump pumps if necessary.**
- **Clean sewer laterals and remove grease, roots and debris.**
- **Disconnect basement sanitary discharge and relocate to three feet below finished first floor.**
- **Put valves, stand pipes, plugs or caps on basement floor drains. (Note that this potentially can create excess pressure and damage to some basement walls and floors). (Consult a licensed plumber)**
- **Place basement furniture up on shims/blocks**
- **Place portable valuable equipment on basement shelves.**
- **Cover outside stairwells and remove gravity drains.**
- **Replace broken or missing clean-out caps.**
- **Install stone, tile waterproofing and outside sump pump on the outside of foundation walls.**

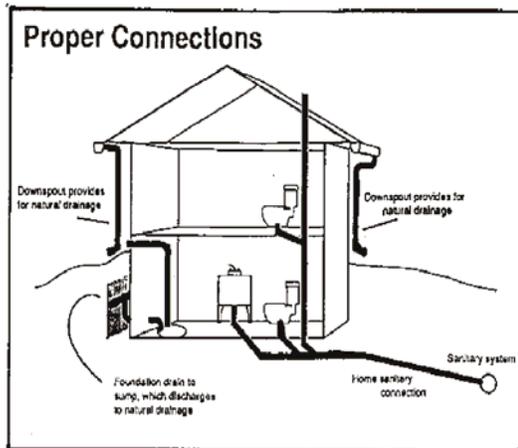
If you have a sump pump, check the following:

- Verify the sump pump discharge line is equipped with a working check valve.
- In combined sewer areas, disconnect sump pumps from sewer laterals and instead direct the discharge onto the ground away from the building.
Discharge ten feet away from the foundation.
- Install a backup sump pump. Pumps and motors can and sometimes do fail when needed. Backup sump pumps may be powered by electricity, batteries or District water pressure. Battery and District water pressure types are designed to operate during power outages. Local plumbers can assist with selection and installation of backup sump pumps. However, use caution, these do have flaws.
- Install a basement water detector. These can be purchased at many hardware stores and provide early alarm of water entering basements **and sump pump failure.**
- **Consider an emergency generator to operate the sump pump.**

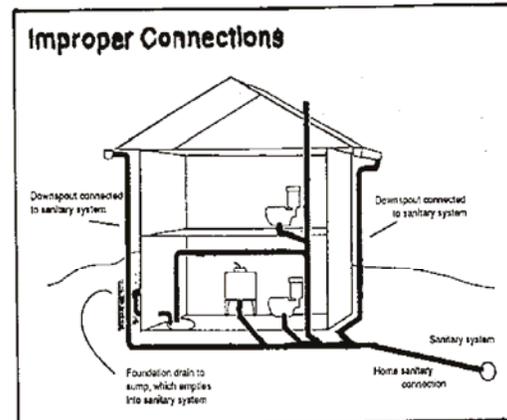
What to do if you experience a wet basement

- **Keep** valuables from wet and damp areas.
- Verify proper sump pump operation.
- Call a local plumber if you need additional pumping assistance.
- Call the District at 419-354-9090 (or the Sheriff's office during non-business hours at 419-354-9001) and report the problem. This will help the District identify problem areas and assist in developing long-term solutions.
- Take photographs to document what occurred. How high did the water get? Where did the water enter the basement? What time did the water start and when did it stop? This will help evaluate and solve problems.
- **Log and document as many variables as possible to verify the conditions in the surrounding area that resulted in a water problem.**

Please feel free to direct any questions to the Northwestern Water and Sewer District at 419-354-9090 or by e-mail at district@nwwsd.org.



Millions of dollars in otherwise unnecessary upgrades to the sanitary system can be avoided when rainwater is diverted away from the system, as shown above.



In this example, rainwater is channeled into the sanitary system, greatly overloading the system during periods of rain.