

CITY OF CAMBRIDGE

CAMBRIDGE
DEPARTMENT
OF PUBLIC
**THE
WORKS**

Flooding: Is Your Property Protected?

- Existing Conditions
- New Construction
- Climate Change

September 2016





Information Guide Flooding: Protect Your Property September 2016

Dear Cambridge Neighbor,

As you may know, there are many properties in the Cambridge area that are susceptible to the impacts of flooding; particularly those properties with basement spaces and first levels at a lower elevation.

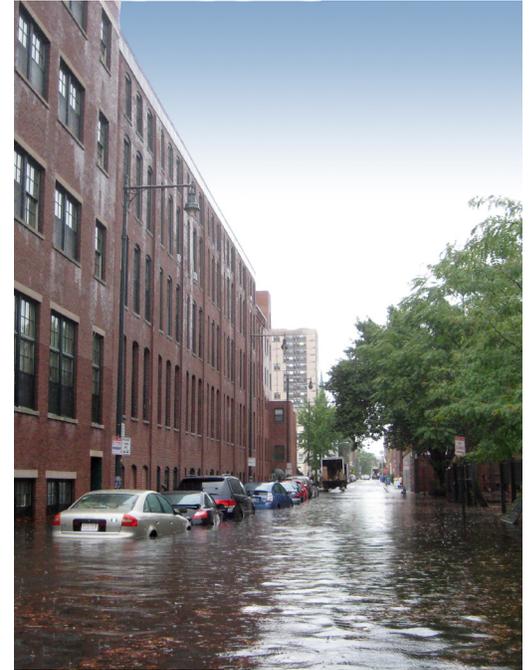
Unfortunately, the risk of flooding is increasing, as the impacts of climate change lead to more frequent and intense rainfall events. For more information about climate change as it relates to Cambridge, please visit our website at cambridgema.gov/climateprep.

Our hope is that the enclosed information will allow you take the necessary steps to help reduce the damage caused by flooding and will make the cleanup process easier. Whether renovating an existing basement, building new construction, or simply wanting to safeguard your home from the potential impacts of climate change, this information will help guide you.

While change remains an inevitable process, we are hoping to provide you with the right tools to understand your risk of flooding and what actions may be taken to protect your property.

Sincerely,

Owen O'Riordan
Commissioner
Department of Public Works



Ranjit Singanayagam
Commissioner
Inspectional Services Department



WHAT CAN I DO?

① Use Flood Resistant Materials

You can reduce the damage caused by flood waters and make cleanup easier by using flood damage resistant building materials. Building materials are considered flood resistant if they can withstand direct contact with flood waters for at least 72 hours without being significantly damaged. Flood damage resistant materials should be used for walls, floors, and other parts of a building that are below the anticipated flood level.

Flooring Materials

- Concrete, concrete tile, and pre-cast concrete
- Latex or bituminous, ceramic, clay, terrazzo, vinyl, rubber sheets and tiles
- Pressure-treated or decay resistant lumber
- Pressure-treated wood and cold-formed steel

Other

- Hollow metal doors and metal cabinets

Wall and Ceiling Materials

- Brick, metal, concrete, concrete block, porcelain, slate, glass block, stone, and ceramic and clay tile
- Cement board, cold-formed steel, and reinforced concrete
- Polyester epoxy paint
- Pressure-treated and decay resistant lumber
- Pressure-treated and marine grade plywood
- Foam and closed-cell insulation

TIPS

- Although using flood damage resistant materials can reduce the amount and severity of water damage, it does not protect your buildings from other flood hazards, such as the impact of flood borne debris.
- All hardware used in areas below the anticipated flood level should be made of stainless or galvanized steel.

ESTIMATED COST

- The cost of using flood damage resistant materials will vary, depending on the size of the project you undertake.



BENEFITS: HELPS PREVENT DAMAGE TO A STRUCTURE AND MAKES FLOOD CLEANUP EASIER.

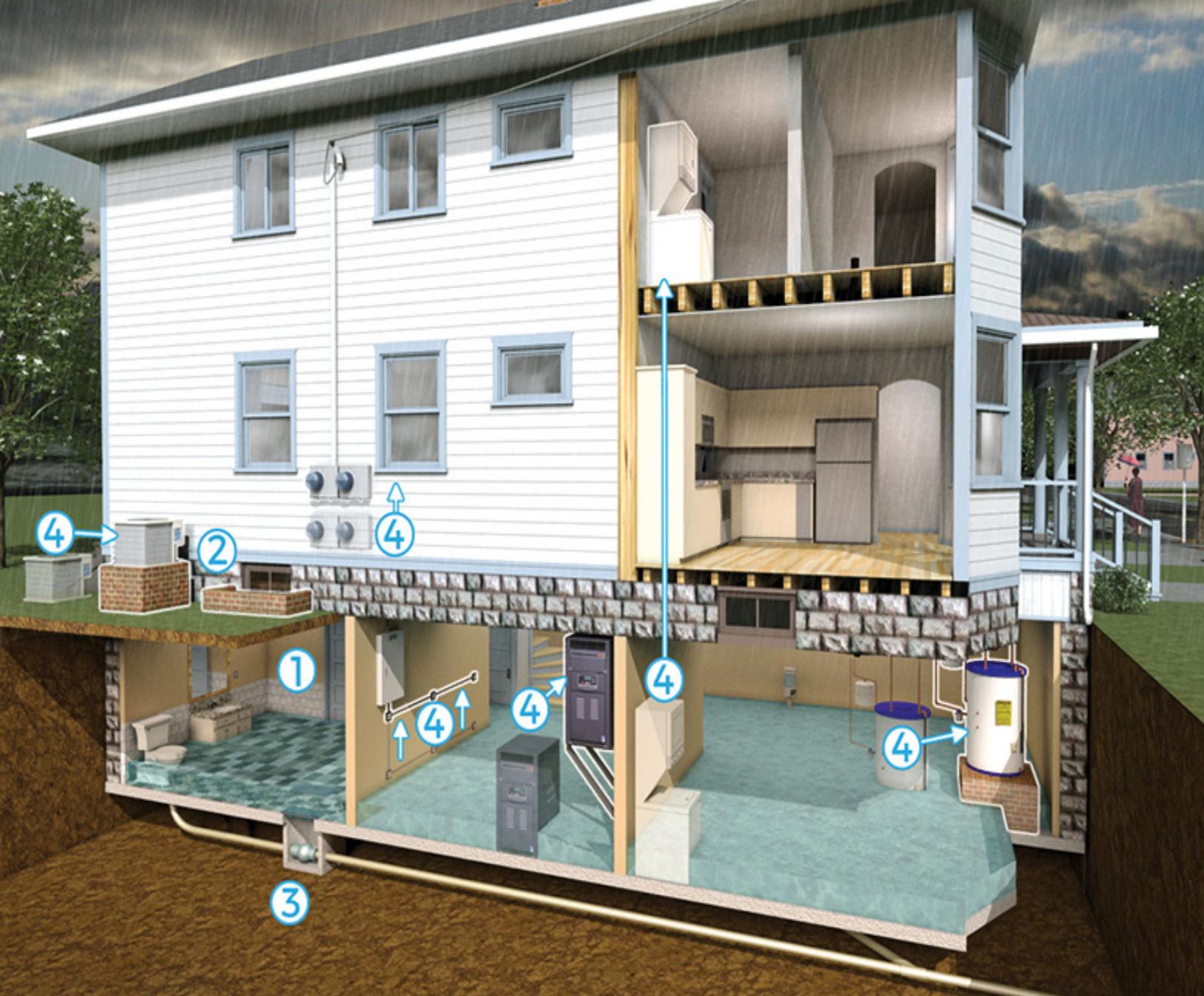
② Build Exterior Floodwalls

An exterior floodwall can protect a window well or stair against low level flooding. Constructed of concrete or masonry, the walls should be supported by and securely tied into a footing so they will not be undercut by scouring. Understanding your particular flood situation and soil conditions is important in order to properly evaluate if a flood wall is the right solution for you.

Construct a watertight flood wall around the perimeter of the opening. The wall should be designed by an engineer and be constructed of steel reinforced poured concrete or steel reinforced concrete masonry units to prevent failure under flood conditions.

Install a proper footing and anchor the floodwall to existing walls. Install a watertight, springloaded steel access door and watertight gaskets on sides and bottom of frame at any necessary opening.





3 Install Backwater Valves

Flooding can cause flow from sanitary sewer and drain lines to back up through pipes into buildings. These backups cause damage that is difficult to repair and also creates a health hazard. A good way to protect buildings from sewage and drainage backups is to install backwater valves; a device installed to prevent sewage and drainage from flowing backwards into basement fixtures, such as dishwashers, sinks, showers, toilets, washing machines, or floor drains. Backwater valves have a flap door inside which allows wastewater to flow in one direction, out towards the street, but closes automatically and does not allow flow backwards through your pipe and into the basement.

TIPS

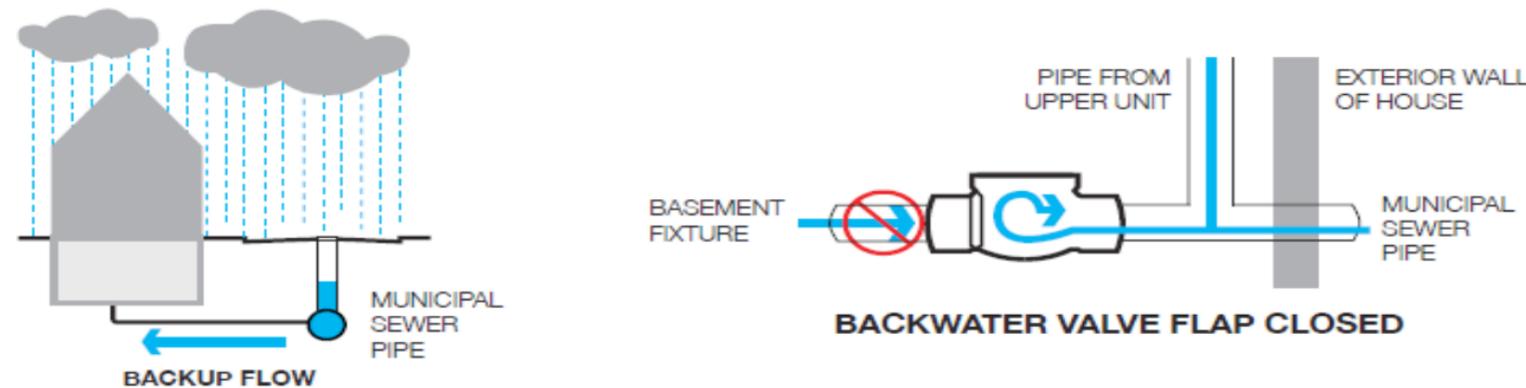
- Changes to the plumbing in your property must be done by a licensed plumber or contractor.
- Valves should be installed on sewer and drain lines that are connected to equipment that is below the potential flood level. Therefore, valves may be needed on washing machine drain lines, laundry sinks, floor drains, and sump pumps.

WHERE TO INSTALL

- Install on the plumbing of each basement fixture.
- Valves should be accessible for monthly maintenance.
- A licensed plumber can determine the appropriate installation location.

 **BENEFITS:** HELPS PREVENT DAMAGE TO A STRUCTURE AND AVOID HAZARDOUS AND COSTLY CLEANUP, AS WELL AS PROTECT THE HEALTH AND SAFETY OF THE OCCUPANTS OF THE STRUCTURE.

EXCESSIVE RAIN CAN OVERWHELM SEWER AND DRAIN PIPES, CAUSING BACK-UPS



During a rainfall or sewer backup event, the backwater valve closes to block sanitary sewage from entering your basement fixtures. Please be aware that closed valves also prevent basement wastewater from exiting into municipal sewer pipes.

4 Elevate/Relocate Utilities

Electrical system components, including service panels (fuse and circuit breaker boxes), meters, switches, and outlets, are easily damaged by flood water. Another serious problem is the potential for fires caused by short circuits in flooded systems. Raising electrical system components will help you avoid problems. All components of the of electrical system, including the wiring, should be raised at least one foot above the anticipated flood level.

TIPS

- Electrical system modifications must be done by a licensed contractor.
- Your contractor should check with the local power company about the maximum height to which the electric meter can be raised.
- If your property is equipped with an old-style fuse box or low-amperage service, you may want to consider upgrading to a modern circuit breaker system and higher-amperage service.

WHAT TO DO

- Outlets, switches, light sockets and junction boxes, as well as the main breaker or fuse box and electric motors, should be out of danger of getting wet.
- If a wire has to terminate below the anticipated flood level it should be specially marked in the panel box and turned off at the time of a flood warning.
- Change all outlets to ground fault interrupters (GFIs).
- Elevate water heaters, furnaces, air conditioning units, and washer/dryers.



BENEFITS: HELPS PREVENT FIRES AND DAMAGE TO ELECTRICAL SYSTEM COMPONENTS, RESULTING IN FASTER CLEANUP AND REPAIRS.

For more information: www.cambridgema.gov/theworks www.cambridgema.gov/inspection

Flooding Facts You Should Know

- ✓ The City's assessment on climate change vulnerability has shown that precipitation-driven flooding is likely to increase in frequency, extent, and depth.
- ✓ In the past five years, all fifty states have experienced floods.
- ✓ Flooding can occur outside designated flood zones.
- ✓ Just a few inches of water from a flood can cause tens of thousands of dollars in damage.
- ✓ Most homeowners' and renters' insurance do not cover flood damage.
- ✓ You can purchase flood protection insurance, even if your property is outside the flood insurance zone.

cambridgema.gov/climateprep

