

SOME COMMON QUESTIONS ABOUT FLOODPROOFING

WHEN DOES FLOODING OCCUR?

Although flooding can occur at any time of the year, the risks of high floods are greatest in the spring and summer. Spring floods are usually caused by the combinations of snow melt and spring rain resulting in high flows. Spring floods mainly affect the larger river systems, such as the Mattagami River or Porcupine Lake.

Summer floods are most often caused by severe summer thunderstorms which can create sudden flash floods on smaller watercourses, such as Town or Crawford Creeks.

Seepage of flood waters through the ground in areas outside the area affected by surface flooding can also cause basement and foundation damages.

CAN MY PROPERTY BE PROTECTED?

Floodproofing is generally most appropriate in areas of low to moderate flood depth, where floods with low velocity and short duration can be experienced.

The flood characteristics of your property must be evaluated by someone with experience in floodproofing before an effective floodproofing method can be established.

Site specific information such as flood depth, velocity, rate of rise in flood levels and duration of high water condition will need to be considered. The conditions of your site such as the type of soil and the proximity of your site to municipal infrastructure (eg. storm sewers) must also be considered.

Much of the site specific information needed can be obtained through the Mattagami Region Conservation Authority.

WHAT SHOULD I LOOK FOR IN A FLOODPROOFING METHOD?

Ideally, a floodproofing method should:

- Provide adequate safety to persons on and adjacent to the site;
- Provide acceptable protection against future flood damages;
- Satisfy Conservation Authority and municipal regulations;
- Be cost effective (installation and long term operation/maintenance cost) and affordable; and,
- Be aesthetically pleasing.

DO I NEED PERMISSION TO FLOODPROOF MY PROPERTY?

Under the Conservation Authorities Act, the MRCA is responsible for the protection of lives and property from the effects of flooding and erosion within their jurisdiction. The Authority is responsible for the enforcement of land use regulations to:

- Prevent construction in areas subject to flooding hazard;
- Prevent the indiscriminate placing of fill in flood and erosion hazard areas; and,
- Regulate the interference with and alteration of watercourses.

Generally, Provincial regulations and MRCA policy prohibit any filling or new construction within a flood hazard area (minor or accessory structures such as tool sheds and car garages may be allowed). The Regulation also applies to renovations or additions, such as the floodproofing of existing buildings. Prior to any filling or construction in the flood hazard area, a permit must be obtained from the Authority.

Construction activity may also require municipal approvals under municipal by-laws or building codes, or from other government agencies.

HOW MUCH FLOODPROOFING DO I NEED?

Generally, the minimum level of flood protection in Ontario is the 1 in 100 year flood event. However, even with this level of protection there is a 39% risk that a flood will equal or exceed this flood event within the expected 50 year lifespan of the floodproofed structure.

In most cases, total protection from flood damage cannot be assured or afforded. Floodproofing involves taking reasonable efforts to protect property given the site specific conditions and flooding risk.

WHAT ARE MY FLOODPROOFING OPTIONS?

The physical characteristics of a structure, such as the type and quality must be taken into consideration when identifying appropriate floodproofing measures. The most common type of building located in the flood vulnerable areas of Timmins are brick, concrete, wood or metal siding.

Brick, wood or concrete block structures can resist the pressures from a flood depth of about 0.8 m. Poured concrete walls which are somewhat stronger and can withstand a water pressure equivalent to a depth of 0.9 m.

Brick, wood and concrete block structures leak almost immediately when contacted with water. Even sealants and asphaltic coating are often ineffective long-term floodproofing methods.

Any conventionally constructed basement floor under 0.2 m of water pressure may result in damages caused by the upward force on the basement floor.

Floodproofing measures fall into two general categories:

- Active measures which require some action by the home owner or operator, such as flood closure; flood shield; and flood emergency measures; and
- Passive measures which are permanent in nature, such as elevation of the structure; construction of a floodwall or levee; or the floodproofing of utilities.

Frequently a combination of floodproofing techniques can lead to a more significant hazard reduction. Floodproofing should only be carried out after seeking advice from a professional with floodproofing experience. Floodproofing methods must be approved by the MRCA.

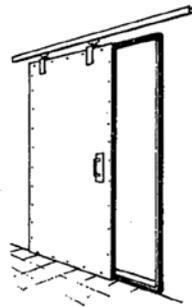
How much does it cost to floodproof?

The cost of floodproofing depends on the flood depth, the site characteristics, and the type of structure. Generally, closures and shields are the lowest cost alternatives, followed by earth levees. Elevating buildings are the most expensive alternatives and may not be suitable for all types of structures.

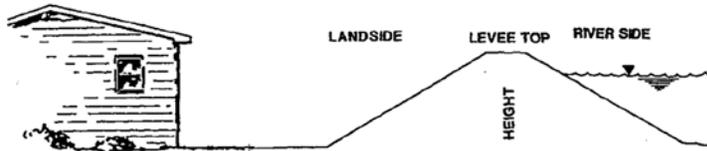
EXAMPLES OF FLOODPROOFING OPTIONS



Elevation of Structure (Passive)



Flood Closure and Shield (Active)
Shields and closures are usually temporary floodproofing measures installed prior to high water levels.



Floodwall or Levee (Passive)

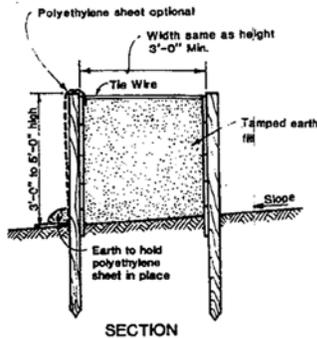
Depending on site conditions, properly designed floodwalls and levees can provide protection for almost all types of structures.

Emergency Measures

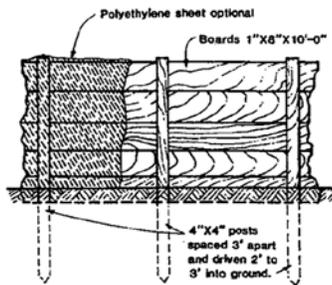


Sandbags

Sandbagging is an effective method of floodproofing with adequate advance warning. First, excavate a trench at least one bag deep and two bags wide. Bags in the trench and first layer are placed parallel to the channel with bags in each line overlapping. The second layer is placed perpendicular to the first, etc. The base width of the dyke should be 2 - 3 times its height.



SECTION



RIVERSIDE ELEVATION

Earth Fill Crib Retaining Wall

The earth fill crib retaining wall consists of two rows of "fencing" and braced with posts or wire. It is filled with soil and in some cases a waterproof plastic sheet is added.

WHAT YOU CAN DO TODAY

It is recommended that every household located in a flood vulnerable area prepare a Household Emergency Plan outlining actions to be taken before, during and after a flood emergency.

The following is a list of recommended tasks:

Before:

- Know your flood risk and design flood elevation
- Allocate tasks to be done by whom and in what order
- Develop a contact list for information during a flood emergency, or in a case of need of assistance
- Be familiar with City of Timmins evacuation plans, when and where to evacuate and the safe routes
- Prepare a list of essentials to take in the event of an evacuation
- Prepare a list of emergency equipment needed, such as a radio, flashlights, sandbags, pumps, etc.
- Install appliances and electrical services above design flood elevation
- Secure water supply and seal water wells
- Install basement floor drains
- Keep your automobile fueled

During:

- Disconnect gas and electricity
- Secure backyard furniture
- Vacate your house when advised to do so by local authorities

After:

- Inspect all appliances before re-connection
- Test well water before using and boil water until test results confirm safe usage. If in doubt contact your local public health authority
- Disinfect the entire premises
- Inspect all food before using