Yorkshire Flood Resilience

CAUSES OF FLOODING IN THE UK

For more information
www.yorkshirefloodresilience.co.uk

WORKING WITH RESIDENTS COMMUNITIES, BUSINESSES & AUTHORITIES

We are the Yorkshire Future Flood Resilience Pathfinder Project. We are one of three Flood Resilience Pathfinder Projects being run nationally by DEFRA and are working with partners at the Environment Agency, JBA Consulting, the Integrated Catchment Solutions Programme (iCASP) and the Living with Water Project. We are working with residents, communities, businesses and authorities across Yorkshire to raise awareness of the importance of flood resilience and the benefits of making your property resilient to flooding.

Rivers

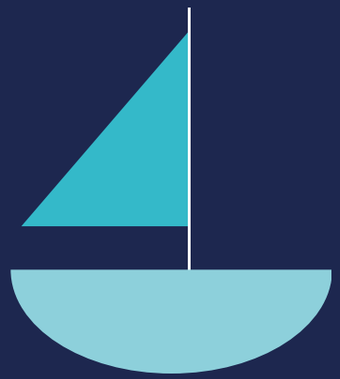
Rivers flood when a watercourse cannot cope with the volume of water draining into it from surrounding land, for example, when heavy rain falls on to a waterlogged catchment. The river channel cannot accommodate the large volume of water so it overspills onto its floodplain, also called fluvial flooding.

Groundwater

After prolonged heavy rainfall, the water table starts to rise over a period of weeks to months afterwards. Groundwater flooding occurs when water levels in the ground rise above the level of the ground surface and can seep up through the ground and through floors. It is most likely to occur in areas underlain by aquifers, areas underlain by permeable rocks such as chalk or sandstone, or more local sand or river gravels in valley bottoms.

Costal Flooding

High tides and stormy conditions can cause seawater to overtop sea walls and flood the land behind. If low atmospheric pressure coincides with a high tide, a tidal surge can occur, which can cause serious flooding. As well as water damage, the salt in seawater causes further damage to properties.



Surface Water

Surface water, or pluvial, flooding, occurs when the local drainage system becomes overwhelmed by the volume of water flowing into it, or when large volumes of rain fall onto saturated or impermeable surfaces. The water is unable to drain away so accumulates on the ground surface and causes flooding. This is the most common cause of flooding in the UK.

Sewers

Sewers flood if they are overwhelmed by heavy rainfall or become blocked. The likelihood of flooding depends on the local sewerage system's capacity. Land and property can be flooded with water contaminated by raw sewage as a result, and rivers can be polluted by sewer overflows.

TYPES OF FLOODS

PROPERTY FLOOD RESILIENCE

What is PFR?

Property Flood Resilience (PFR) aims to reduce the damage that flood water causes to your property. This can minimise the cost of flood damage and help you to move back in and recover quicker after flooding. Flood Resilience includes both flood resistance and flood resilience measures:

Flood Resistance

Flood resistance aims to prevent, or reduce the amount of, water entering your home. This can help to buy you time to move your possessions to safety. This might be through permanent measures, or temporary measures that you can store away and put in place when flooding is likely.

Flood Resilience/Recoverability

Flood resilience aims to reduce the damage that flood water causes to your home by making the cleaning and drying process easier. Flood resilience measures usually involve permanent changes to building materials, so you don't have to worry about when to install them.

Image courtesy of M3 FloodTec

Image courtesy of Flood Divert


Image courtesy of Flood Divert

Flood Doors and Windows

Flood doors and windows are constructed from water-resilient materials such as PVC, and look like a normal door, except they create a watertight seal when locked that prevents water entering your house. Make sure the seals are checked and maintained to keep them watertight.

Flood barriers

A frame is installed at the side of the property's door, into which one or more panels are manually slotted. The panel(s) are locked into place to create a watertight barrier in front of the door.

Self-closing airbricks

Ventilation points such as air bricks and tumble dryer vents allow water to pass through during a flood. Self-closing air bricks allow air through but have a flap inside that automatically closes to seal off the holes if water rises up to it.

Airbrick covers

A small frame is fitted around the outside of the airbrick. A cover can be clipped onto this to form a watertight seal over the airbrick openings in the event of a flood. These should always be removed after the water level recedes.

Water-resistant renders and mortars

Cracks or holes in brickwork can allow water to pass through. Waterproof sealant or mortar can be used to seal cracks, and water-resistant renders can be used on external walls to reduce the likelihood of water passing through the brickwork.

Non-return valves

During floods, sewers can become overwhelmed by the volume of water and back up. If this happens, non-return valves close automatically to prevent backflow into a property out of its plumbed-in appliances. The valve is installed into the property's wastewater pipe and has one or more flaps that close when the flow in the pipe reverses.

Toilet bungs

Toilet bungs can be pushed down into your toilet pan if a flood is likely to reduce the risk of sewer water backing up out of your toilet.

RESISTANCE

RESILIENCE/ RECOVERABILITY

Flood-resilient floors

Concrete, stone or ceramic tiles are much easier to dry and clean than carpet or wooden floorings. Remember to use water-resistant grout in between the tiles. Epoxy resin can provide a nice finish whilst increasing water resistance. Rugs can provide extra comfort but can easily be moved and safely stored in a flood.

Sump and pump systems

Pumps can remove water at the lowest level in a property. They can be installed in a sump, a pit in the floor that water will flow into to be pumped out of the building. The pumps run off mains electricity but backup systems are recommended in case of a power outage.

Flood-resilient kitchens

Resilient kitchens are made of water resistant materials which can easily be dried, wiped down and disinfected after flooding, meaning that you would not need to replace your kitchen. Materials such as solid wood and stainless steel are good options. Many resilient kitchens also have removable units that can be stored elsewhere during a flood, and raised appliances.

Raised sockets and electrical appliances
Raising sockets above floor level reduces their likelihood of being damaged by flood water. Boilers and other electrical devices such as televisions could be installed above the likely flood level, either on the first floor or mounted on a wall.

Flood-resilient walls

Walls can be covered by flood-resilient plasterboards, which are made out of materials such as magnesium oxide and are less likely to absorb water than their gypsum counterparts. Plasterboards can be attached horizontally rather than vertically so that if they are damaged by flood water, only the bottom boards need to be removed and replaced. Water-resistant membranes can be fitted behind plasterboards that channel water down into drainage and pumping systems beneath the floor, called cavity drainage systems. Lime plaster is also more breathable than conventional plaster, and walls can be coated in a range of interior renders and sealants to reduce flood damage to internal walls. Wallpaper should be avoided as this can easily be damaged by water.

Internal doors and woodwork

Solid, well-seasoned and treated wood products are able to withstand being submerged in flood water for longer than composite wood products such as MDF. Solid wood or UPVC skirting boards could be used on the ground floor of a property. Interior doors can be hung on rising butt hinges, which allow the door to be lifted off its hinges and moved to safety.

Image courtesy of Delta Membranes

PROTECTING YORKSHIRE FROM FLOODS

Have you signed up for Environment Agency flood warnings?

Make sure you know when to protect yourself and your family, and when to install any temporary resilience measures. You can receive warnings on your mobile phone.

Do you know how to install and maintain your PFR measures?

This is important to make sure that they function at their best during flooding. The person fitting your PFR products should show you, although you will then be responsible for maintaining them and organising tests. You could think about having a testing schedule.

Are your PFR measures kite-marked?

Many flood resistance products are covered by British Standards to ensure their quality and functionality. These products will be marked with the BSI kite mark. Not all types of PFR are able to be BSI kite-marked, but check a range of products before having any installed to see if kite-marked options are available.

Get professional advice from a range of sources.

A Property Flood Resilience Survey will assess your property's flood risk and any water entry points, and propose potential solutions. Get surveys and quotes from a range of suppliers to make an informed decision if you are thinking about installing PFR.

Image courtesy of M3 FloodTec

FURTHER CONSIDERATIONS

WHERE CAN I FIND OUT MORE?

Before the flood:

The Environment Agency – sign up for flood warnings at:

www.gov.uk/sign-up-for-flood-warnings

Contact the Environment Agency Floodline at 0345 9981188 for advice.

Visit the MET Office website to check for weather warnings:

www.metoffice.gov.uk/public/weather/warnings

Check the Government's website for warnings for river and sea levels:

https://flood-warning-information.service.gov.uk/river-and-sea-levels

During the flood

If there is an electrical hazard or a power cut, you can report it on the national 24-hour emergency line by dialling 105. If you have a problem with your power after flooding, you can also call 0800 375675. Contact the National Grid if there is a gas leak call 0800 111999.

If there is a sewer flooding emergency, contact Yorkshire Water at: 0345 124 2424. If you need to pump water out of your property, you might need a permit.

- If you need to pump water into a local river, stream or watercourse, contact your local Environment Agency office. The local offices for Yorkshire are in Leeds and York. You can contact your local Environment Agency office through their National Customer Contact Centre at: enquiries@environment-agency.gov.uk or at 03708 506 506.

  You can also call the Environment Agency Floodline at: 0345 9981188 for information and advice about how to keep safe.

- If you will be pumping into a drain sewer, contact Yorkshire Water at: 0345 124 2424.

- If you will be pumping into a street drain or highway ditch, or onto a high way, contact your local highways authority or Highways England (0300 123 5000).

- You can ask your local fire brigade for help with pumping, although there may be a fee for this.

  If there is a medical emergency, call 999.

After a flood

After flooding, it's important that you contact your insurer to start organising the repair and recovery process.

If you find that your premium or excess goes up after flooding or because your property is at flood risk, you could check out the Flood Re reinsurance scheme at: www.floodre.co.uk

The National Flood Forum are a charity that provides support & advice to people who have been affected by flooding.

Find out more online at: www.nationalfloodforum.org.uk

You can call the National Flood Forum for advice at: 01299 403055 or email them at: info@floodforum.org.uk

Flooding and the flood recovery process can be a difficult and stressful experience. If you would like to chat about it for further support, you could try contacting:

Mind: 0300 123 3393
or email info@mind.org.uk
Samaritans: 116 123

SEEKING ADVICE

If you'd like to find out more, find us online at **www.yorkshirefloodresilience.co.uk** or on Twitter at **@YorkshirePFR**, or contact us at: **YorkshirePropertyFloodResilience@york.gov.uk** for further information.

CITY OF YORK COUNCIL

Department for Environment Food & Rural Affairs

JBA consulting

Environment Agency

iCASP

LIVING WITH WATER

Yorkshire Flood Resilience