

Traditional Vs Modern Building Flood Resilience Guidance



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Traditional Vs Modern Buildings

Introduction

When protecting your home against flooding, it is important to be aware of the age of the property and the implications that this may have, such as being listed or in a conservation area. Older, more traditional properties can be harder to protect against flooding and will require different methods of protection. Both resistance and resilience measures are useful at reducing the impact of flooding on both modern and traditional properties. However, if your building is listed, you will need to consult and seek approval from your local conservation officer at your Local Authority before installing any measures on the property. You can find out whether your building is listed by entering your postcode here www.historicengland.org.uk/listing/the-list/.



The image to the left is an example of a traditional property, which is likely to have been built before 1919 and the image on the right is a modern property. Traditional buildings are built of stone brick, or timber with lime based renders, which are breathable. On the other hand, modern buildings have cavity walls with cement mortars.

How they are built

Traditional buildings are often built of stone, brick or timber, with lime based renders and mortars. Lime renders allow moisture that is absorbed during a flood to evaporate through them, meaning they can be more flood resilient than modern buildings as they can deal with some short term wetting and drying. It is important that any pointing or rendering is done using a lime based plaster to enable the building to “breathe”.



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Modern building practices began around 1919, just after the First World War. In contrast to traditional buildings, they have cavity walls with cement mortars and renders which are used to prevent moisture percolating through. They often have suspended floors and a damp proof course to help prevent moisture rising through walls and causing damp.



Resistance and resilience measures for building structure

Using the correct materials, such as lime based mortar for repointing, is crucial on traditional buildings to ensure that it can absorb moisture and remain breathable.

On modern buildings, water resistant mortars and renders should also be used for any repointing or rendering work. Waterproof coatings may also be applied to walls up to the likely flood height (~500mm).

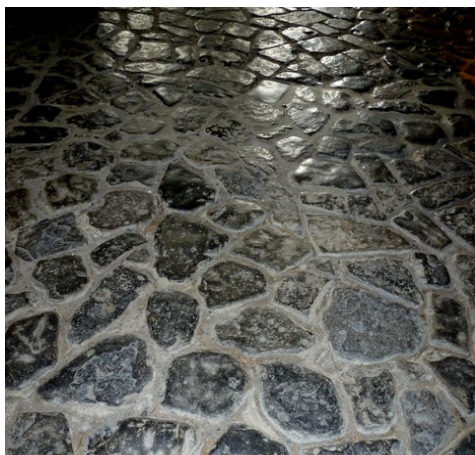
Many traditional buildings also have lime plaster on the walls. A benefit of this is that if the wall became damp, it can be allowed to dry out and the plaster doesn't need replacing. Lime based paints should also be used, however waterproof coatings should not, as they prevent the building from breathing. Breathable sealants can be used instead.

On the other hand, gypsum plaster is often used on modern buildings, but it is not breathable and would need replacing if the wall was damaged by flood water. Lime based plaster could also be used on modern buildings instead of gypsum to improve resilience. Using gypsum plasterboard and installing it horizontally will save time and money if your modern building was to flood, this is because less plaster boards would need to be replaced, unless the flood water rose over 3 or 4 ft.

Many modern buildings have air bricks which can be a potential water entry point during a flood, but permanently sealing these off could result in damp issues. Therefore air brick covers or automatic self closing air bricks may be the most appropriate solution to protect from flood water.

Differences in flooring

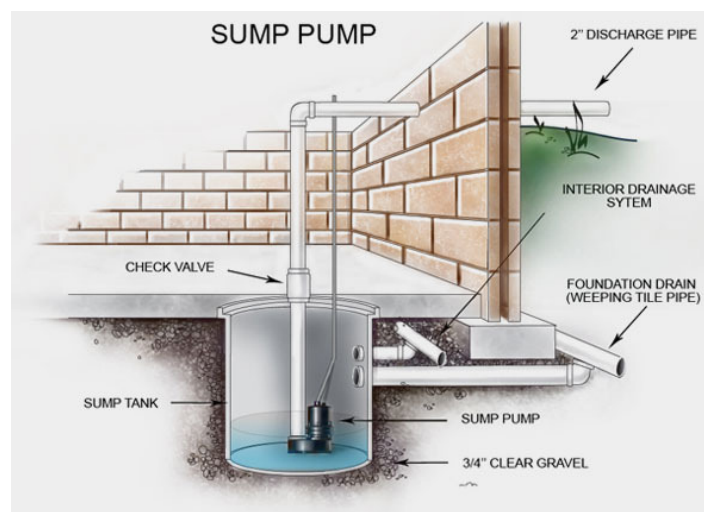
Older, traditional buildings generally have flagged or earth floors with water resistant or lime mortars, which have to be maintained to ensure they are in good condition. Stone flooring may just require a wash down and disinfecting after the flood water has subsided.



Modern methods of construction mean a property may have a suspended timber floor with a void beneath which could potentially be filled with water during a flood. An expensive measure to overcome this potential issue would be to replace the suspended floor with a concrete floor.

However, sump and pump systems can be used instead. They remove flood water from the property as it enters, using a submersible pump. This reduces the amount of time that water is in the property, the height of the flood water, and the consequential damage caused.

In both modern and traditional properties, using rugs is a better alternative to carpets, which are often destroyed during floods, as they can be rolled up and put away at the time of a flood.



Insulation

It is important to select the best insulation method for your home whilst improving your energy efficiency as much as possible. There are Building Regulations in place for this, with special exemptions and considerations for traditional buildings. It is important to choose the correct insulation type for traditional properties, as some can cause damp and condensation.

It is advised to choose an insulation type which is breathable and can dry out well to ensure any moisture from flood water causes minimal damage. Insulation media such as loose fill are breathable and porous, but they will fail and collapse if they were to become saturated with water and will be ineffective. In the aftermath of a flood, saturated insulation should be removed to allow buildings to breathe. Alternatively, insulation that is breathable and does not absorb water should be temporarily removed after a flood event if it is preventing the water evaporating and the walls from drying out. It should be put back in place after clearing.

Summary tips for resistance and resilience in older, traditional buildings

- Make sure basic maintenance such as pointing is in good order, and check that the gaps around pipes entering the property from the outside are sealed.
- You can fit temporary or permanent flood barriers. However, there needs to be storage for these and they must not affect the architectural aspect of the building. The fitting must be discreet, check with your local council if you want further advice on this.
- Fit temporary air brick covers and use sandbags for minor protection against flooding. These will not permanently disrupt the buildings architecture.
- Replace any damaged solid timber doors with timber doors again as they are water resistant compared to modern doors.
- Ensure that any Property Flood Protection measures installed on the property have a kitemark certificate, which shows that the product has been tested in a BSI facility and gives an indication of the quality of the product. If your property is located in a conservation area, it is important to discuss with your Local Authority why you are putting the product in place to show that it is fitting a purpose and will be of use. It may be important to acquire permission from them when fitting any products as it could affect the visual aspect of the traditional building.
- Draught proof windows and doors to prevent rainwater and flood water entering.

Sources used: Historic England, Cumbria Action For Sustainability and National Flood Forum