Flood Risk Assessment

PROPOSED REAR EXTENSIONS TO DWELLING
AT
220 BRIDGE ROAD
SUTTON BRIDGE
SPALDING

Flood zone map



Low risk means that each year this area has a chance of flooding of between 0.1% and 1%. This takes into account the effect of any flood defences in the area. These defences reduce but do not completely stop the chance of flooding as they can be overtopped, or fail.

Surface water flooding

The map below indicates the extent of flood from surface water. As you can see it is minimal risk and does not affect the proposed extension or existing dwelling. Rainwater from the new roof will be discharged into soakaways.



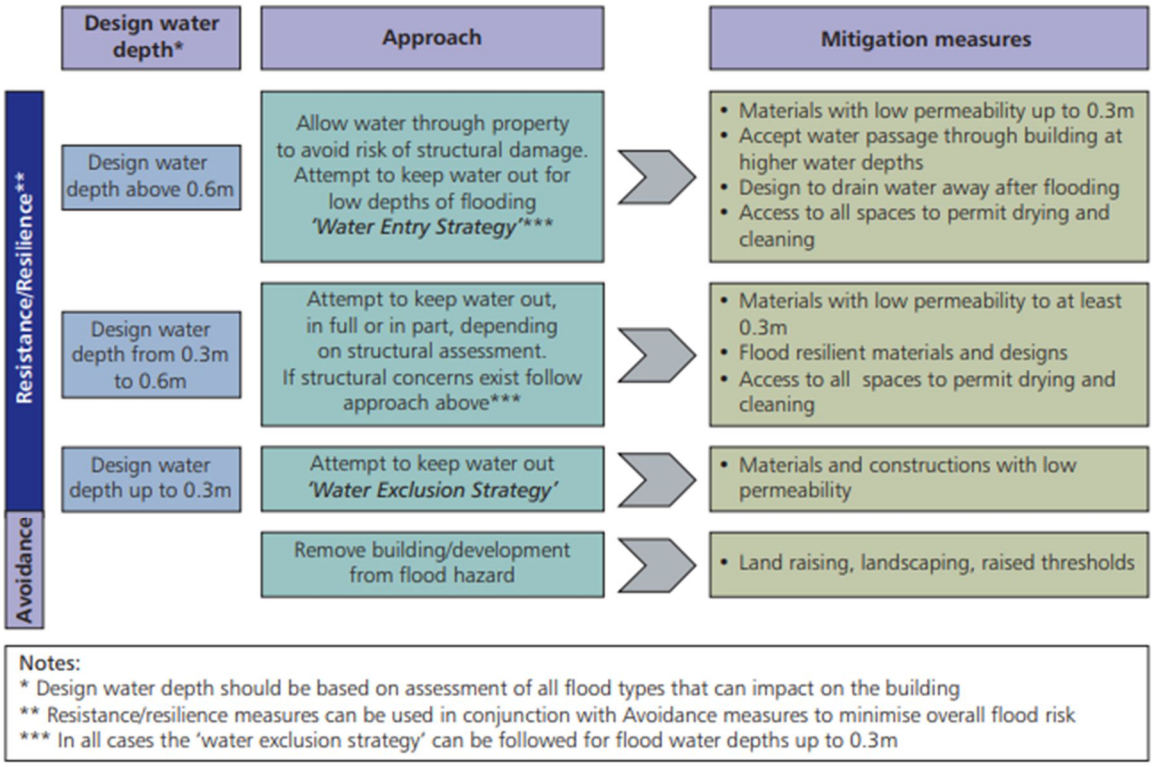
Reservoir flooding

The map below indicates the extent of flooding from reservoirs.



Flood Resilient Measures

Any proposed flood resilient measures should follow current Government Guidance. Ensure high quality workmanship at all stages of construction. The proposed works will be set at no lower than the existing level.



Framed walls:

Avoid timber framed walls containing construction materials that have poor performance in floods, namely oriented strand board and mineral fibre insulation. Timber framed walls are generally not recommended, unless a sacrificial approach is adopted whereby some materials will be stripped to allow drying. Steel framed walls may offer a suitable alternative option but specialist advice needs to be sought on how to incorporate resilient materials/construction methods in the design. The possible use of bituminous paint on steel plates may be a means of preventing corrosion. External renders should not be used as they provide a barrier to water penetration and may induce excessive differences in depth between outside and inside of the property resulting in possible structural problems.

Insulation:

External insulation is better than cavity insulation because it is easily replaced if necessary; however it is generally protected by rigid lining which may create a barrier to water.

Cavity insulation should incorporate rigid closed cell materials as these retain integrity and have low moisture take-up. Other common types, such as mineral fibre batts, are not generally recommended as they can remain wet several months after exposure to flood water which slows down the wall drying process. Blown-in insulation can slump due to excessive moisture uptake, and some types can retain high levels of moisture for long periods of time (under natural drying conditions).

Internal linings:

Avoid internal cement renders as these can prevent effective drying. Use standard gypsum plasterboard up to the predicted flood level (plus freeboard of 50mm) as a sacrificial material. Splash proof boards do not necessarily offer better protection against flood waters, which may remain for some time and exert pressure on the board.

Above predicted flood level (plus freeboard) the use of plasterboard or internal cement renders is appropriate. Anecdotal evidence suggests that internal lime plaster/render can be a good solution. Lime plaster depends on contact with the air to set and harden. Because of this, full strength lime plaster, which typically requires over 6months, was not possible to test. Consequently, no assurance can be given for its performance. Tests performed when young showed that it crumbles very easily under high water pressure.

Doors:

Raising the threshold as high as possible, while complying with level access requirements, should be considered as the primary measure. In addition, sealed PVC external framed doors should be used and, where the use of wooden doors is a preferred option, all effort should be made to ensure a good fit and seal to their frames.

Hollow core timber internal doors should not be used where the predicted frequency of flooding is high. Where sufficient flood warning is given, butt hinges, that allow internal doors to be easily removed and stored in dry areas prior to a flood, should be used.

Where the frequency of predicted flooding is low or where there is no warning (e.g. overland or sewer flooding) it may be necessary to replace the doors after the flood.

Windows/patio doors:

Windows and patio doors are vulnerable to flood water and similar measures to those used for doors should be taken. Special care should be taken to ensure adequate sealing of any PVC window/door sills to the fabric of the house. Of particular concern would be excessive water pressure on the glazing of patio doors.

Double glazing conforming to the relevant standards would in principle adequately resist the pressures generated by flood waters; debris carrying flows may cause damage.

Ensure high quality workmanship in the application of fittings. Although a sacrificial approach can be adopted whereby fittings are designed to be replaced after a flood, it is advisable to specify durable fittings that are not appreciably affected by water and can be easily cleaned (e.g. use of plastic materials or stainless steel for kitchen units). The cost of these units may need to be balanced against the predicted frequency of flooding.

Avoid wood fibre based carcases and use easily removable solid wood doors and drawers. Place fittings (e.g. electrical appliances, gas oven) as high as practical above floor to minimise the risk of being affected by flood water. When allowing water in, it is important to provide means for effective drainage and cleaning.

Providing gaps behind kitchen units will facilitate drainage and will allow access for forced drying, if proved to be necessary. Ensure high quality workmanship in the application of fittings. Where possible, all service entries should be sealed (e.g. with expanding foam or similar closed cell material).

Pipework:

Closed cell insulation should be used for pipes which are below the predicted flood level.

Drainage services:

Non-return valves are recommended in the drainage system to prevent back-flow of diluted sewage in situations where there is an identified risk of the foul sewer surcharging. Maintenance of these valves is important to ensure their continued effectiveness.

Water, electricity and gas meters:

Should be located above predicted flood level.

Electrical services:

Electrical sockets should be installed above flood level for ground floors to minimise damage to electrical services and allow speedy re-occupation (see Figure 6.13. Note a dado rail which provides a limit for replacement of any wall covering). Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches.

Flood Warning

As the site is located within an area considered to be at risk of flooding, the applicant should sign up to the Environment Agency's free flood warning service. The service offers three levels of flood warning and can give the applicant vital time to prepare their property for flooding.

Warnings can be received by telephone, fax, text message, pager and email.

To sign up call Floodline on 0345 988 1188

which is open 24-hours or visit www.gov.uk/flood

Pollution Prevention

Only clean, uncontaminated surface water should be discharged to any soakaway, watercourse or surface water sewer.
Any slurry, washdown water and contaminated surface water should be designed in accordance with Defra "Code of Good Agricultural Practice for the Protection of Water" for subsequent site disposal. Details can be found on the Defra website.

References

CIRIA and EA (2003). Flood protection products – a guide for homeowners. CIRIA, London and Environment Agency, London

CIRIA (2005b). Improving the Flood Resilience of Buildings through Improved Materials, Methods and Details. Report Number WP2c – Review of Existing Information and Experience (Final Report), by J. Wingfield, M. Bell and P. Bowker, June 2005

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