

FLOOD RISK ASSESSMENT

24.11.20

FLOOD MITIGATION MEASURES

This report contains the details of Flood mitigation measures for 10 FOR STREET PINNER HARROW HA52HY. This report includes methods for water exclusion strategy above existing ground level. The methods below will be used at construction stage to prevent water ingress into the boiler room.

As required by the Boroughs drainage engineers; both resistance and resilient materials and techniques shall be used. The ground floor will be built with resilient materials and techniques. The document “Improving the Flood Performance of New Buildings – Flood Resilient Construction” published by DEFRA / Environment Agency provides guidance on this subject. Specific examples of such construction would include natural stone – or other durable – flooring and waterproof walls as well as running all cabling and pipes (i.e. all services distribution) downwards first floor level. Meters, distribution board and combi-boiler shall be positioned above this ‘GL + 0.3m’ level.

Foundations

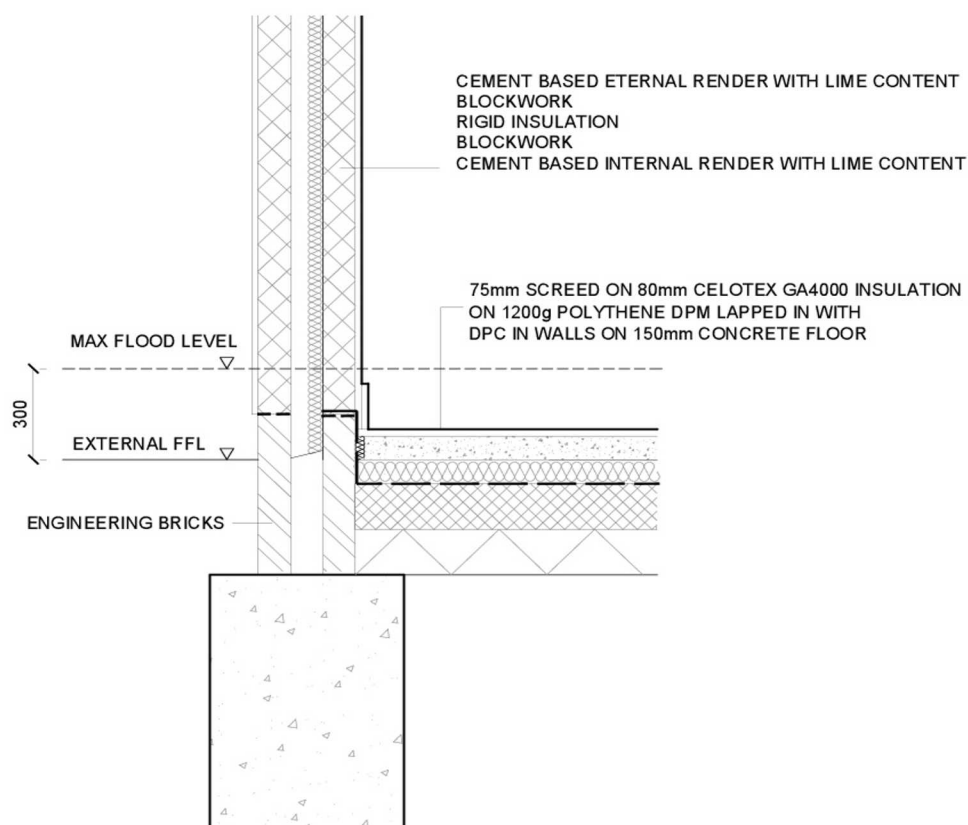
Concrete blocks used in foundations should be sealed with an impermeable material or encased in concrete to prevent water movement from ground to the wall construction.

Floor

Ground supported floors are the preferred option and concrete slabs of at least 150mm thickness will be specified for non-reinforced constructions. Hollow slabs are not suitable if the element are not effectively sealed.

Hardcore and binding: bed at least 100mm thick of well compacted inert material (to reduce the risk of settlement and consequential cracking) blinded with fine inert material to provide a smooth base.

Damp Proof Membrane (d.p.m): will be provided to minimize the passage of water through ground floors. Impermeable polythene membranes should be at least 1200 gauge to minimise ripping. Join membrane



sections with overlaps of 300mm, and also tape (mastic tape with an overlap of 50mm minimum).

Insulation materials

Water will lower the insulation properties of some insulation materials. Floor insulation should be of the closed-cell type to minimise the impact of flood water. The location of insulation materials, whether above or below the floor slab, is usually based on either achieving rapid heating of the building or aiming for more even temperature distribution with reduced risk of condensation. Insulation placed above the floor slab (and underneath the floor finish) rather than below would minimise the effect of flood water on the insulation properties and be more easily replaced, if needed.

Floor finishes

Suitable floor finishes include ceramic or concrete-based floor tiles, stones and sand/cement screeds. All tiles should be bedded on a cement-based adhesive/bedding compound and water resistant grout should be used. Concrete screeds above polystyrene or polyurethane insulation should be avoided as they hinder drying of the insulation material. Suitable materials for skirting boards include ceramic tiles and PVC. Ceramic tiles are likely to be more economically viable and environmentally acceptable.

Wall construction-Partial Fill Cavity:

External cement based render, with lime content (1 cement : 4 sand : ½ lime on concrete blockwork), external face consisting of blocks, rigid insulation, internal face consisting of blocks, internal cement based render preferably with lime content, the following mix is effective for flood resilience 1 cement : 6 sand : 1 lime on Aircrete

Doors

Sealed PVC external framed doors should be used and, where the use of wooden doors is a preferred option, all efforts should be made to ensure a good fit and seal to their frames.

Services

Where possible all services should be sealed 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 in situations where there is an identified risk of the fouls 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. Electric ring mains should be installed at first floor level with drops to ground floor sockets and switches.

Heating services: Boiler units and ancillary devices should be installed above predicted flood level and preferably on the first floor of two-storey properties. Electric underfloor heating should be avoided on ground floors and controls such as thermostats should be placed above flood level. Conventional heating systems, e.g hot water pipes are unlikely to be significantly affected by flood water unless it contains a large amount of

salts. The less common, hot air duct heating would remain effective provided it is installed above the design flood level.

Conclusion

The site is considered to be generally at a low risk from all sources of flooding.

However, the scheme has been designed to accommodate safe operations that incorporate suitable flood resilient measures for extreme flood events.

There will not be an increase in impermeable areas on the site. Based on the likely flooding risk, it is considered that the proposed development can be constructed and operated safely in flood risk terms, without increasing flood risk elsewhere and is therefore appropriate development in accordance with the NPPF.