

Flood Protection of New and Existing Buildings

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Introduction

In a changing climate, and with ever increasing urbanisation, flooding is increasingly being seen in places it's never been before and is causing damage to buildings which previously never had flood problems.

Many property owners are now finding that they need to review the risk of flooding to their properties and take steps to mitigate against potential flood damage.

Arup has a wealth of experience in designing flood protection solutions for new buildings and also in retrofitting flood protection measures to existing properties.

A number of issues need to be addressed when assessing what measures might be taken to protect a building and **Arup can advise on the most appropriate solution for your property.**

Possible solutions might include a combination of some of the following: -

- manual or automatic demountable barriers
- manual or automated flood doors
- UPS backup
- alarm systems
- non return valves
- pumps
- sealing systems for service penetrations
- sealed pressurised manholes
- monitoring wells
- flood warning systems

protecting your interests

A Sample of Arup Flood Protection Projects include:

- Mallow Flood Defence Scheme
- Eircom Flood Defence, Cork
- Mason, Hayes and Curran Office Building, Barrow Street, Dublin
- 50 Ringsend Road, Dublin
- Grand Canal Theatre and Offices, Dublin
- AIB's Headquarters, Dublin
- Hilton Hotel, Prague, Czech Republic
- Grand Canal Square Office Development, Dublin



Case Study 1 Mason, Hayes and Curran Office Building, Barrow Street, Dublin

Arup provided full civil, structural, mechanical and electrical engineering services for this high specification office development. Arup developed a detailed flood protection strategy which proposed protecting the building to a level of 3.9m AOD. This was achieved by a number of measures included the integration of 10 large flood protection doors into the façade.



Case Study 2 Eircom Flood Defence, Cork

Arup was responsible for putting a flood defence system in place at Eircom's main telephone network hub in Cork City as the building had issues in the past with flooding. As part of the defence system most of the existing doors were replaced with reinforced steel flood proof doors which are operated by mains power, with battery and solar back up. A flood sensor is placed at the lowest point adjacent to the door which can sense rising water levels and activate the air seal around each door. The seal will only decompress when the flood sensor is no longer being triggered. Also fitted as part of the defence system were non return valves on all underground drainage and three automated submersible pumps in new reinforced concrete sumps. The existing banks of cables were sealed at their points of entry into the building.



Case Study 3 50 Ringsend Road

Arup carried out a comprehensive review of the proposed development to ensure that business could operate to meet staff and client needs during/following an incident. Additional protective measures include:

- Flood Barrier
- Comms Room located on 5th Floor
- Main Plant at Roof Level
- Water break tanks & booster sets at mezzanine level
- All utility entries sealed
- Uninterrupted power supplies
- IT resilience