



Extensive refurbishment and conversion for new use

Project in brief

The premises at 14 - 18 Aston Quay is a hybrid multi-storey structure acquired by Shelbourne Development, and is a designated Protected Structure. It consists of four storeys over basement, with external and internal load-bearing masonry walls, historical steel framing with cast iron columns, slated timber double-pitched roofs, timber floors and stairs.

The structure combines elements of four original Georgian Houses; Victorian modifications circa 1899 that unified the block; further changes circa 1986 that enhanced open plan retail space; and additional modifications post 1986. This project involved its development for retail use at basement and ground floor level; gymnasium at first floor level; and the conversion of the previously abandoned second and third floor areas into luxury apartments.

The project included the refurbishment of the basement with cavity-drained construction; the construction of a basement swimming pool; and the refurbishment of the historical

structure comprising timber floors on steel beams on cast iron columns.

Key features

Strengthening

Increased loading from the change of use meant that the historical joists and beams on ground and first floor level had to be strengthened. This was achieved by a combination of twinned joists, span breaking beams, and beam stitching.

Flood control

The ground water level was just below existing basement level and regularly flooded when high tides coincided with heavy rains. Flood control measures were introduced into the drainage system.

Swimming Pool Design

The construction of the basement swimming pool needed extensive de-watering and temporary works. The pool services were incorporated in the pool walls to avoid penetrations through the drained-cavity construction.

Structural review

The wall thickness of the cast iron columns was investigated on site to ascertain the structural capacity of the columns. The structural review of the historical beam sections also required a detailed site survey.



LeeMcCullough
Consulting Engineers

Project 3405: Retail - Renovation

14/18 Aston Quay, Dublin

Client: Shelbourne Developments

Architects: Henry J. Lyons

Value: €9.5m (2004)

LeeMcCullough team:

Lorcan O'Flannery

Gerry McCabe

Project scope:

- *Basement Swimming Pool*
- *Retail Ground Floor*
- *Luxury Apartments*

Historical Renovation

At LeeMcCullough we have exceptional experience of revitalising existing buildings, which is often more complex than the structural engineering of new buildings.

Over many projects we have addressed and resolved a wide range of issues, including:

- Strengthening historical joists and beams to carry increased loading
- Masonry Decay/Delamination
- Threading modern services into old structures

At LeeMcCullough we always seek to identify and resolve issues early, innovatively address demanding building difficulties and deliver our solutions on time and cost efficiently.

When it comes to renovation and refurbishment, anticipating and resolving engineering issues effectively is the key to a successful outcome.