

Sandyford House, Newcastle upon Tyne

PROJECT TEAM

Architect: GT3 Architects

Structural Engineer:
JC Consulting and WB Engineers

Main Contractor and Client: Jomast



Sandyford House transforms a redundant 1970s concrete office building at a prominent gateway into Newcastle city centre into a residential development with a distinctive new identity. The project extends the retained structure both vertically and in plan, with a braced steel frame providing additional accommodation within the constrained budget.

A detailed feasibility study assessed the capacity of the existing reinforced concrete frame after removal of its heavy concrete cladding and the change from office to residential loading. Surveys and structural analysis also established whether the cores could resist the additional lateral forces created by the proposed extensions.

These investigations defined the parameters for a new braced steel frame. Steel's relatively low weight allowed additional floors and a plan extension to be introduced without significantly overloading the retained structure. This practical approach used the building's shallow plan and available structural capacity, avoiding replacement of the retained concrete frame.

The extension combines steelwork with precast concrete floor planks. Plan bracing provides stiffness to the new floors, eliminating the need for a structural topping and reducing additional dead load. It also created a more predictable connection between the new frame and existing concrete than attempting to form a single diaphragm across both structures.

Considerable engineering was required at the junctions between old and new construction. The design coordinated load transfer between the existing concrete shear walls and slabs and the new floor and vertical bracing. Local repairs were undertaken where required, allowing the retained and added structures to perform together.

Precast planks provided immediate working platforms as construction progressed, enabling access equipment to operate safely while the frame was erected. At one corner, restricted ground-level access prevented conventional construction, so hangers were introduced to support the ends of the floor beams.

The city-centre location and an upper floor 45m above ground created logistical challenges, while proximity to a Metro line imposed restrictions on lifting and sequencing. The steel and precast solution supported a phased, tower-crane-led construction programme within these constraints.

Retaining and repurposing the existing structure saved more than 1,375tCO₂e in the superstructure compared with a new-build alternative, excluding further savings from the basement and foundations. The completed development meets RIBA domestic embodied-carbon targets.

Sandyford House demonstrates how logical steel design can deliver value through retention, efficient construction and additional floors. Its practical structural interventions have given an obsolete office building a viable residential future and a warmer, more positive presence within Newcastle's urban landscape.

JUDGES' COMMENT

“The inefficiencies of a shallow plan concrete building have been turned to advantage through the use of structural steel in this transformation of redundant offices to residential apartments. This workmanlike piece of logical design and construction within tight budgets has resulted in a building that has new life and a positive identity.”