

Manchester Civil Justice Centre

Spinningfields, Manchester United Kingdom



Project

The new headquarters of the Department for Constitutional Affairs in the North West of England.

Location

Manchester, UK

Commencement on site

March 2004

Completion year

July 2007

Client

Gartside Developments Ltd
(part of the Allied London Properties group of companies)

Project Partners

Architect: Denton Corker Marshall
Quantity Surveyor: Gardiner & Theobald
Structural / Civil Engineer: Connell Mott McDonald
Mechanical/Electrical Engineer: Connell Mott McDonald
Project Manager: Second London Wall Project Management

Value

€166.5 million / £111 million

Bovis Lend Lease role

Design and Build Two Stage



The Civil Justice Centre is Manchester's most important and striking new building

The new Civil Justice Centre building, located opposite and parallel to the existing Crown Courts building in Manchester, is the headquarters of the Ministry of Justice in the North West, who consolidated their various office and court functions in the region.

The building sits on a North-South axis, with a slender rectangular plan and is vertically divided into different uses.

The central circulation spine rises to 15 storeys (82m) and sits between an 11 storey glazed public atrium on the west elevation, with the tallest hung glazed wall currently installed within Europe, and a 14 storey rectilinear block of courtrooms and offices on the east elevation.

This east elevation incorporates an environmental veil and has floor levels of varying length with distinctive cantilevered glass "fingers" projecting from the ends of the building (north and south).

The building provides 47 courtrooms (Technical, Family, County and High) and 75 consulting rooms, together with additional office and support space. The Civil Justice Centre is the largest court complex built outside London, and the largest built since the Law Courts in 1878.

Highlights

- Multi award-winning project
- Overall reduction in energy consumption of 20%
- Excellent BREEAM rating



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Project scope

The Civil Justice Centre is the largest court complex built outside London, providing forty seven courtrooms and seventy five consulting rooms, together with additional office and support space. The central circulation spine rises to fifteen storeys and sits between an eleven storey glazed public atrium on the west elevation, with the tallest hung glazed wall currently installed in Europe. There is a fourteen storey rectilinear block of courtrooms and offices on the east elevation. The building provides some 27, 870 square metres of space.

Design and Sustainability Challenges

The MCJC utilises a range of environmental aids including wind scoops, natural ventilation, an environmental veil and groundwater cooling to supplement more conventional heating and cooling systems. Advanced 3D computer modelling demonstrated compliance with targets for low energy, natural ventilation use and daylight during detailed and complex design development.

By maximising the use of natural light, fresh air and groundwater, the building's carbon dioxide emissions will reduce by around 505 tonnes a year with overall energy consumption reducing by around 20 per cent saving the client nearly £2 million.

Suspended above the ceiling is a light air duct system unique in the UK. The duct is a seven metre wide, fire rated, load bearing, airtight and light reflective structure, entirely constructed on site. Wind scoops were constructed at the north and south ends of each floor, facing the direction of the wind; the outside air enters at the sides of the atrium and travels along its airtight structure entering the public areas through air slots within the partitions and ceilings. The natural daylight enters through the glass sides and, due to the high reflectivity of the inner surfaces, is transmitted along the length of the building with the duct. Glass panels incorporated within the heads of the partitions allow the light to diffuse throughout the public spaces.

A host of green measures has helped the MCJC to receive an excellent BREEAM rating. It has also won the Green Major Project of the Year award, Best Public Building and Architect of the Year Awards, amongst others, demonstrating how architects and engineers can work together to make a virtue of environmental considerations and engineering systems.

Construction Cost Effectiveness and Challenges

The MCJC is a steel-framed building with large clear-span floors but limited structural floor depths. The sensitivity of the court rooms means that the human vibration response of the floor plates had to be twice as stringent as the criteria used for a standard office building. The unique solution for the MCJC, avoiding an increase in structural floor depth, was the use of a concrete anti-vibration beam, 600 mm x 600 mm. The beam adds mass and increases the floor response area. A prefabricated folded steel plate was developed to act as permanent formwork for the beam, facilitating easy and safe construction. Compared to traditional steel methods the depth of supporting beams has been reduced from 620 mm to 450 mm and the total steel weight reduced by nearly 25%, resulting in lower overall building cost.