

1, 2 and 3 New Square, Bedfont Lakes

For:
MEPC / IBM
Joint Venture



The Architects were commissioned by MEPC and IBM to prepare a master plan for 423,000 ft² of office space and 1600 cars on an 18 acre site located to the south of Heathrow Airport. The plan consists of seven three-storey buildings formally arranged around a rectangular square similar in form and size to Berkeley Square, London.

The IBM accommodation is provided by three buildings arranged around the southern half of the square with two 18m deep buildings of 27,500 ft² on either side of a single 133,000 ft² building where office accommodation is arranged on four sides of a central glazed atrium.

All three buildings use the same form of steel frame construction to clearly express the structural form. Steel was favoured because it allowed early pre-fabrication and rapid initial erection of the superstructure and

developed a form of construction which was particularly efficient in its use of materials.

The ATM air-conditioning installed required the provision of flat soffits to all floor slabs, and for economy the overall building height was to be minimised. Consequently, the floors were formed from pre-cast concrete planks spanning 9m onto the bottom flanges of the steel beams (extended by welding on a steel plate). The primary members were all standard UC sections to ensure that they could be contained within the overall floor depth. The central spine beam was provided with shear studs to ensure composite action with the structural concrete topping.

The total structural slab thickness achieved was 335mm, without downstands on a 6m x 9m structural grid, with a total steel weight of approximately 35kg/m².

Although developed independently for this project, this form of construction has subsequently been promoted by British Steel as "Slimflor". This project has been used as a prime example of its potential to provide floor depths shallower than that which can be achieved with in-situ alone.

Column sizes change at each level reflecting the reduced loads they carry as they rise up the building. The exposed column to beam junctions are formed as steel castings which clearly express the nodes in the framework.

A fully glazed 18m wide re-entrant in the centre of the southern building signals the building entrance and leads through to the central atrium. Across the atrium a second re-entrant provides a broad vista to the lake and landscape beyond.

The office accommodation is 18m deep and wraps



around the 54m X 18m atrium. This is divided into two halves by steel bridges with inset glass block decks.

The atrium is fully glazed with a planar system hung beneath a grillage of tubular steel trusses. These trusses extend past the atrium and over the mechanical plant which surrounds the atrium at roof level. Shading to the

atrium is provided by 6m² "sails" made from PVC coated polyester stressed into position within the main steel roof grillage.

The layout of the side buildings is clear and simple, a central transparent "waist" contains the building entrance, lift, stairs and cloakrooms. The main entrances to these two buildings are distinguished by spiral stairs rising from the basement to the top floor.

A purpose designed aluminum cladding system with external louvres fits within the structural frame. The louvres, besides helping to articulate the facade, form an essential part of the environmental engineering of the building, minimising solar gains and enabling clear glass to be used for all windows without imposing excessive loads on the air-conditioning system.



Judges' Comments:

A highly developed language of steel detailing has provided order and simplicity, defining new criteria for the architectural standards that can be achieved in conventional office accommodation.

Steel is expressed throughout the project in the frame, external walls, shear walls and staircases, providing an authoritative design control, delivering a family of three well composed buildings.



Architects:
Michael Hopkins
& Partners

Structural Engineers:
Buro Happold

Steelwork Contractor:
Booth Industries Ltd

Main Contractor:
Costain Engineering
& Construction