88 Wood Street

Project Basics

- Location: London, United Kingdom
- Latitude/Longitude: 51°31'01"N, 0°05'41"W, elevation 135'
- HDD, CDD, annual preciptation:
- Building type: Office Building
- Square footage/stories: 250,000 ft²/17-storey
- Completion date: 1999
- Client: Daiwa Europe Property plc
- Design team: Richard Rogers Partnership; Arup

Background and Context

During the project's earliest history, it posed some seemingly impossible challenges. By guarding sightlines to St. Paul's Cathedral, designed and built by Sir Christopher Wren, city planners interjected a height parameter for the building. Second, the heritage body wanted to have any obscure building spot-listed. As they did not address sightlines, they were more concerned with the preservation of historic structures, even if the buildings were to be adaptivly re-used. Last, and most arduous, was overcoming the financial restraints posed by the client—Japenese Bank Daiwa.

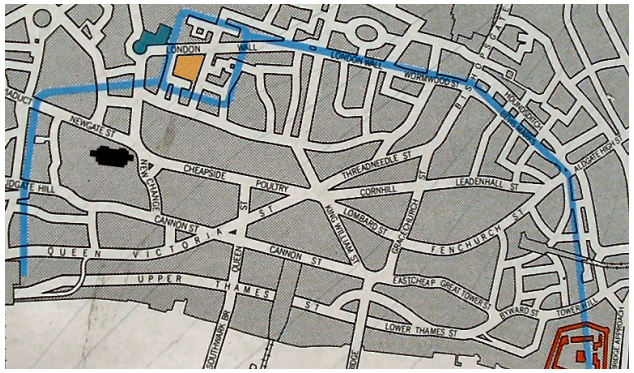
The project started as a competition that was won by Richard Rogers Partnership. The initial design was conceived a decade before its realiztaion as a drum-shaped building next to the historic London Wall.

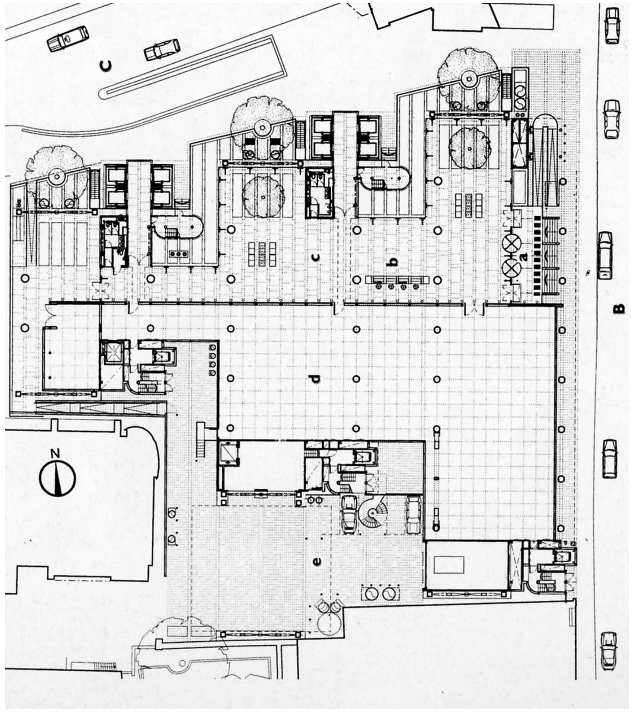
As the forces of preservation and finance became a burden, the project was put on "hold." After a two-year struggle, RRP aproached Daiwa to see if they could resurrect the scheme to build the office tower. Daiwa agreed, with the condition that the building needed 30% more occupancy, (22,000m² instead of 17,000m²) and for half the price.

The main challenge became space since they were still limited to the same volume. To gain the usable space, the design team reverted to a familiar building type—that used in Lloyd's Office Block. Although RRP felt this would lower costs and provide more space, it wasn't enough, so they called on Arup who engineered post-tensioned concrete floors that were much thinner than any other means of construction. This gesture accommodated an extra level, which was critical to the client. After the client's longstanding financial struggle, and with the reality that much of the proposed office space would be leased to other entities, the building formerly called Daiwa Europa House would modestly become 88 Wood Street.

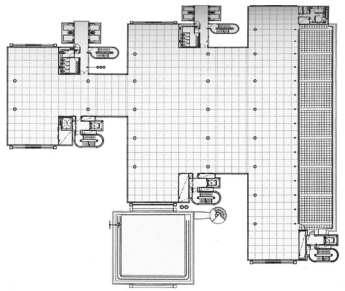
The London Wall was a defensive wall built by the Romans around Londinium, their strategically important port town on the River Thames. The wall was constructed largely from Kentish ragstone brought by water from Maidstone. It enclosed an area of about 330 acres with a series of moats around its perimeter. Though much of the wall was demolished in 1870, many remnants still remain. One moat was filled and is now called London Wall—a street perpendicular to Wood Street.

Though the area is medieval in context, there are larger commercial buildings to the north and east. Notable projects in this area, which came later, include the Moorhouse and Swiss Re Headquarters, both by Sir Norman Foster. 88 Wood Street is a bookend to the west and attempts to preserve the historic quality of the area by stepping down to





the level of historic buildings such as St. Paul's, a historic police station, the walled gardens of Barbican, St. Bartholomew's Hospital, and the medieval church of St. Giles Cripplegate.

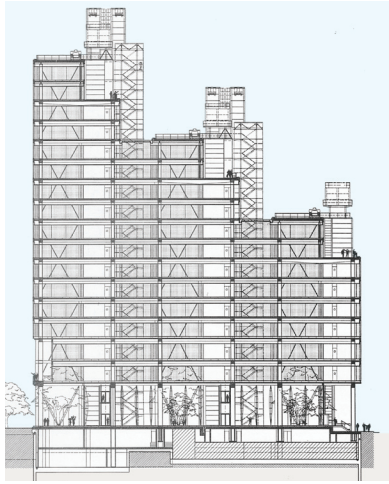


Design Intent and Validation

The form of the building was subject to many parameters. The building needed to step down to the level of the buildings lining Wood Street so, on this side, the building keeps to an understated eight stories and looks relatively citified. The building then steps up almost like three separate buildings. The three blocks are divided by deep cuts, which allow daylight into the building. The airiness comes from the floor-to-ceiling triple-glazing throughout.

SGG EKO LOGIK is a low-emissivity coated glass. This glass provides total comfort by preventing cold areas close to the glazing and also preventing condensation. Because the glass reflects radiation it can also act as a totally separate heating source, thus allowing for the large open office space. The East–West façades are clad in the largest triple-glazed units in the world, and the diamond glass has been use to create maximum transparency.

Though this type of glazing blocks much of the heat transfer, internal blinds have been integrated and controlled by photocells that ensure both climatic control and a uniform external appearance, although there are disadvantages.



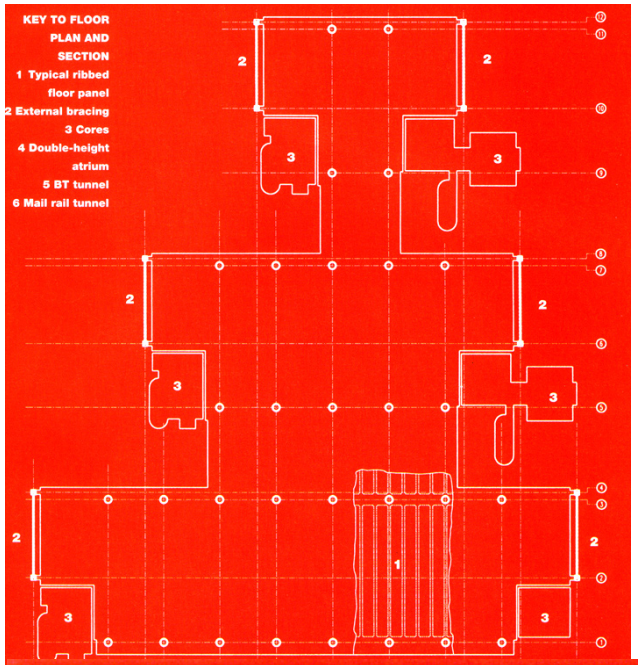
Key Design Strategies

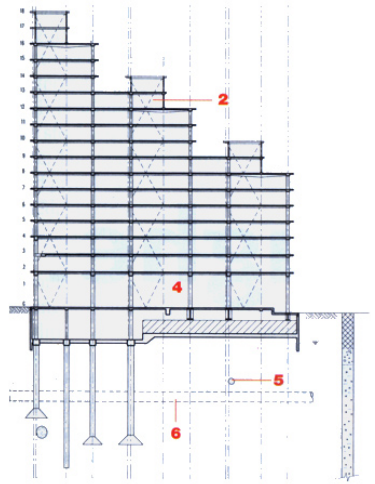
After the project's intial design, the client required more usable floor space. With Arup as the engineering consultant, the structure became a post-tensioned, ribbed-slab floor to accommodate less floor-to-floor distance and provide one more level.

Stability of the concrete superstructure is achieved through externally braced structures in the east–west direction and through the rigid connection between the concrete beams and columns in the north–south direction. This method of engineered floor slabs provided floor-to-floor heights of just over 13 feet.

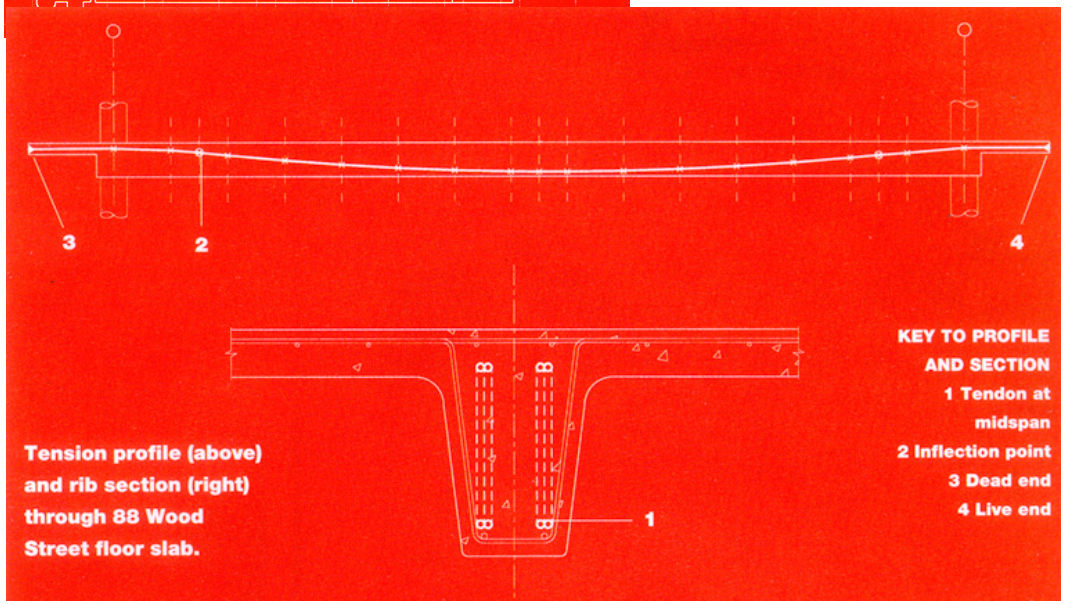
To the right is a diagram illustrating the post-tensioned (pre-stressed) concrete floor scheme specific to 88 Wood Street. Tension cables, or tendons, put compressive stress into the concrete before it begins its working life. Each tendon has a dead-end with a plug and a live-end which is pulled with a hydraulic jack to tension once the concrete has gotten stronger. At each end the tendons are then hidden and the concrete gets plugged.

Six core structures are located outside the main floor plate and are constructed in steel. These circulation towers each contain four passenger lifts, as well as toilet facilities and emergency stairs. These towers are largely transparent and incorporate slender elevators within glazed shafts thus creating a dynamic presence on London Wall.





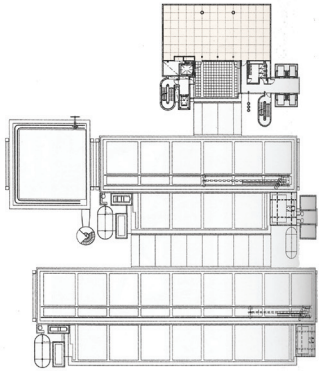
The six braced bays consist of steel columns encased concrete and diagonal pre-stressed steel Macalloy bars.



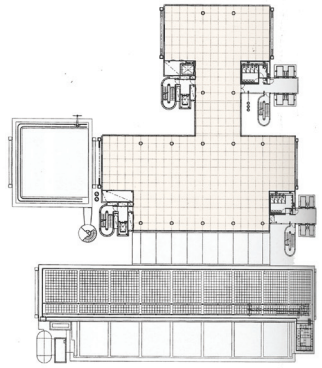
Tension profile (above) and rib section (right) through 88 Wood Street floor slab.

This drama of movement is common to RRP and the love of early twentieth century futurist and constructivist experiments, though the “legibility” of the building’s function doesn’t stop at the elevators. Color-coding is meant to let you work out how the building stands up. The primary steel structure is painted yellow; secondary grey; and as at the Pompidou Centre, fresh air goes in through blue ducts and used air is pumped out through red ones.

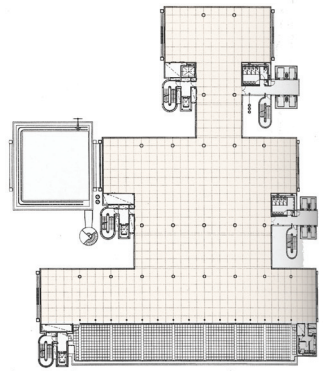
The office spaces get smaller toward the top of the building and progressivly receive more natural daylight accompanied by outside terraces. The re-entrant corners of the concrete structure coupled with transparent core structures deliver daylight to much of the building that would not typically receive it.



level 16 (offices)



level 10 (offices)



level 8 (offices)

Performance Studies/Awards

•The American Institute of Architects London/UK Chapter Excellence in Design Award Winner, 2002

•RIBA Award/Stirling shortlist, 2000

•Civic Trust Award, 2000

•Royal Fine Art Commission Trust Award, 2000

•Royal Academy Summer Exhibition Bovis/Lend Lease Award for Best Architectural Exhibit, 2000

References

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“Stressful Architecture.” *RIBA Journal* (May 1999): 64–66.

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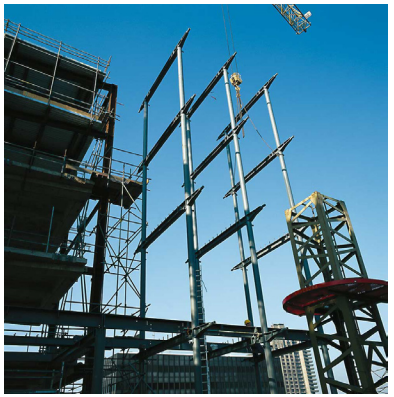
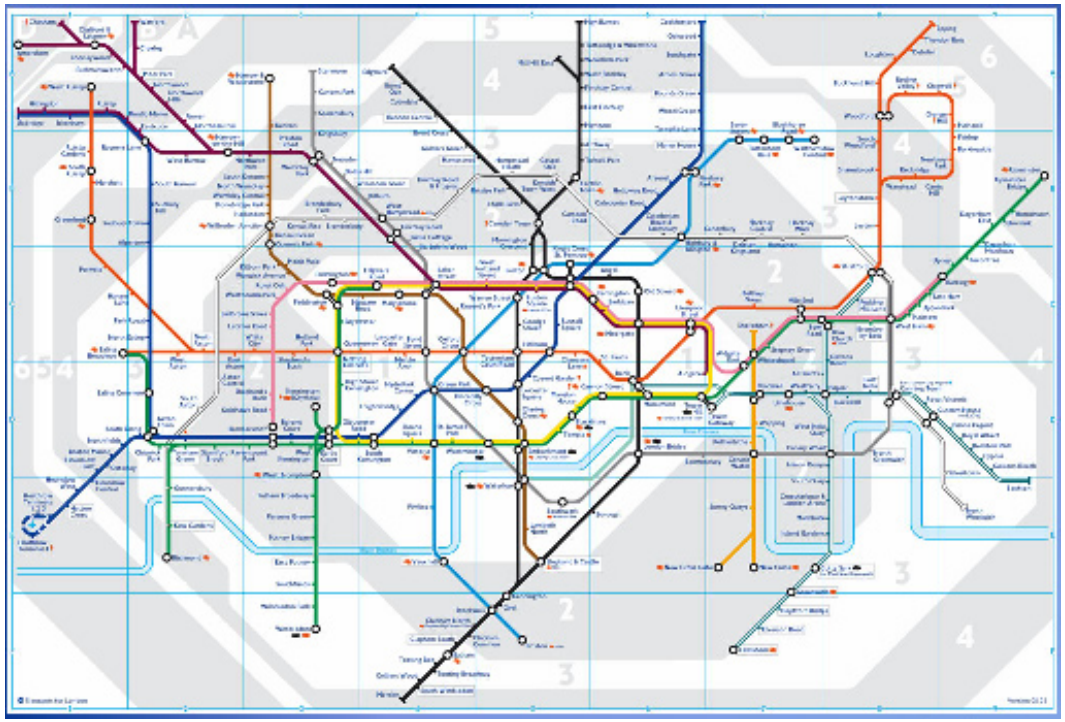


Map and Transport Options

- Start at Great Portland Street
- Take the Hammersmith & City Line towards King's Cross/St.Pancras
- or Circle Line towards King's Cross/St.Pancras
- or Metropolitan Line towards Aldgate
- End Barbican

Average journey time: 8 minutes

Zone: 1



Case Study by Charlie Baxter,
Spring 2006