THE BUILDING
The building is an eight-storey office building planned over a first-floor plant-room 1.0m above the ground, 7.0m long and 3.0m wide. It rises 2.4m above Cannon Street and provides 3600 sq. m of lettable space. It is supported by columns set 1.5m in from the extremities of the building to avoid the future underground tunnels and concourse.

THE STRUCTURE
The frame is mainly of structural steel in order to keep the weight of the building within the limit imposed by the foundation conditions. A full-height lattice frame was adopted to carry the floors, capable of resolving the large cantilever movements created by the inset columns. By avoiding a heavy concentration of structure at one level, this allows the main air supply ducts to distribute from the plant-room to each floor level.

Both structure and duct work are located outside the line of the fixed glass curtain wall, thus providing uninterrupted office floor space. Floors are of composite steel and concrete construction and span 1.5m with an overall depth of 700mm. Floor beams are arranged to coincide with the planning grid of 1.0m with alternate members projecting through the curtain wall. These are supported by the lattice of its principal node points.

The lattice frame consists of a number of fabricated panels 3.2m wide and 1.4m high made up on intersecting diagonal tubes 19mm o.d. and top and bottom beams 12mm o.d. These are welded to the node sections which were bolted together on site using high-strength friction grip bolts.

The lattice was constructed in stainless steel so that it should comply with the weather protection requirements of the by-laws and also to meet the client’s requirement for no maintenance other than washing. Tubular sections were centrifugally spun castings to allow differing wall thicknesses while retaining the constant external diameter. These were welded to the cast node sections to form fabricated lattice panels suitable for transport and erection. All surfaces were machined and then sprayed with glass beads to achieve a consistent finish.

The lattice structure is water filled to provide the statutory fire rating. Fed from an appropriately sized storage tank at roof level each lattice section is supplied at low level from a feeder pipe circulating in the plant-room. Water does not pass through the bolted connections between lattices. Vents are located at the head of each column to allow steam to escape at atmospheric pressure should a fire cause the water to boil.

INTRODUCTION
With the Fleet Line Bill of 1975 London Transport sought powers to acquire the freeholds it required along the route between Charing Cross and Pimlico Street. The existing Bush Lane House occupied one of these sites and the owners, Tralfagar House Developments Limited, therefore considered the possibility of replacing this with a new building, designed to allow for the subsequent tunnel and station construction, below the site. Arup Associates were commissioned to test the feasibility of this approach and an outline design was prepared and accepted. The design was then developed and planning approval obtained. The brief was to provide the maximum permitted lettable office space with a high standard of finishes and servicing. The building is fully air-conditioned.

The requirements of London Transport imposed two prime conditions:
1. Foundations were restricted in location and extent to positions between areas allocated for the tunnels and shafts.
2. A clear headroom of 3.0m was required above ground level over the whole site area.

A condition of the Planning Authority was that the drum and dome of St Paul’s should be visible from the Monument. The building is directly in line between these two and therefore was restricted in height.