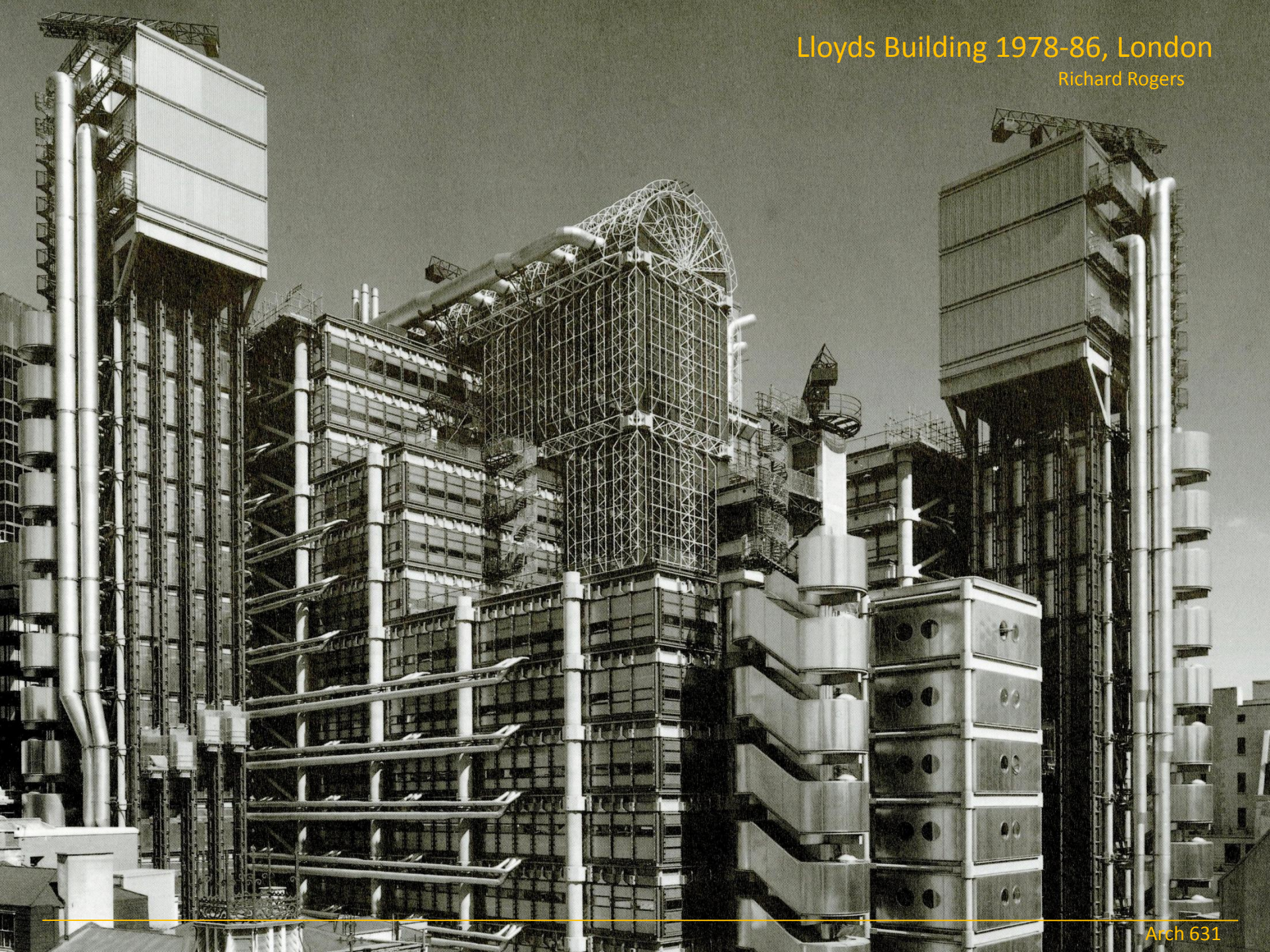
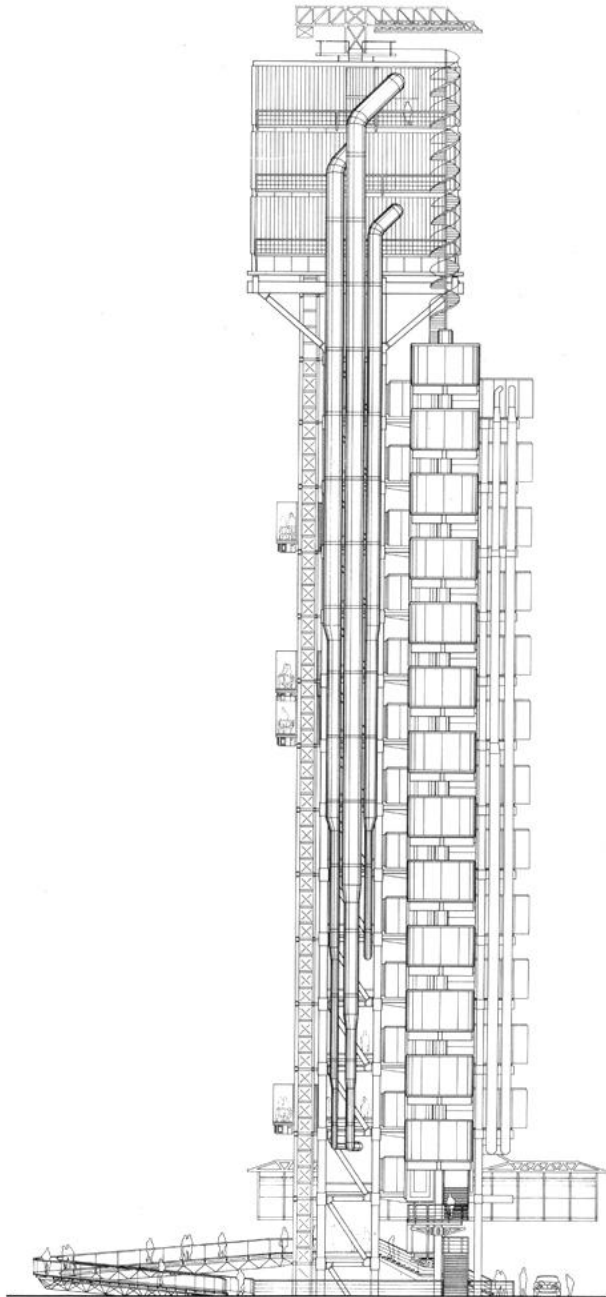


Lloyds Building 1978-86, London

Richard Rogers





- Client:** Corporation of Lloyd's of London
- Business nature:** Insurance
- Design Team:** Richard Rogers Partnership
- Structural Engineer:** Ove Arup & Partners
- Services Engineer:** Ove Arup & Partners
- Built Up Area:** 52,200 square metres gross area



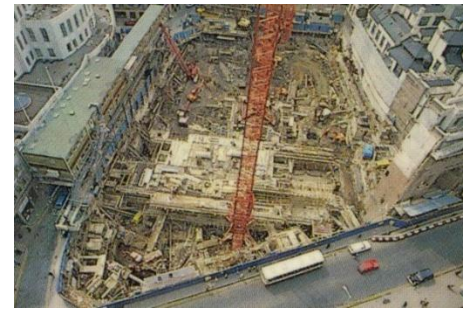
DECEMBER 1980



NOVEMBER 1981



MAY 1982



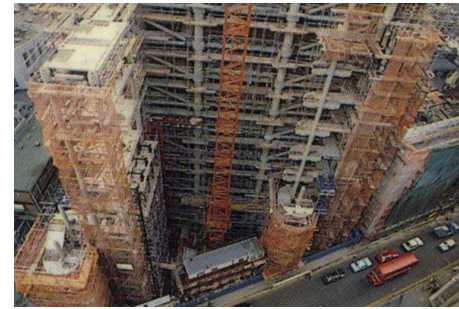
NOVEMBER 1982



APRIL 1983



JULY 1983



NOVEMBER 1983



APRIL 1984



AUGUST 1984



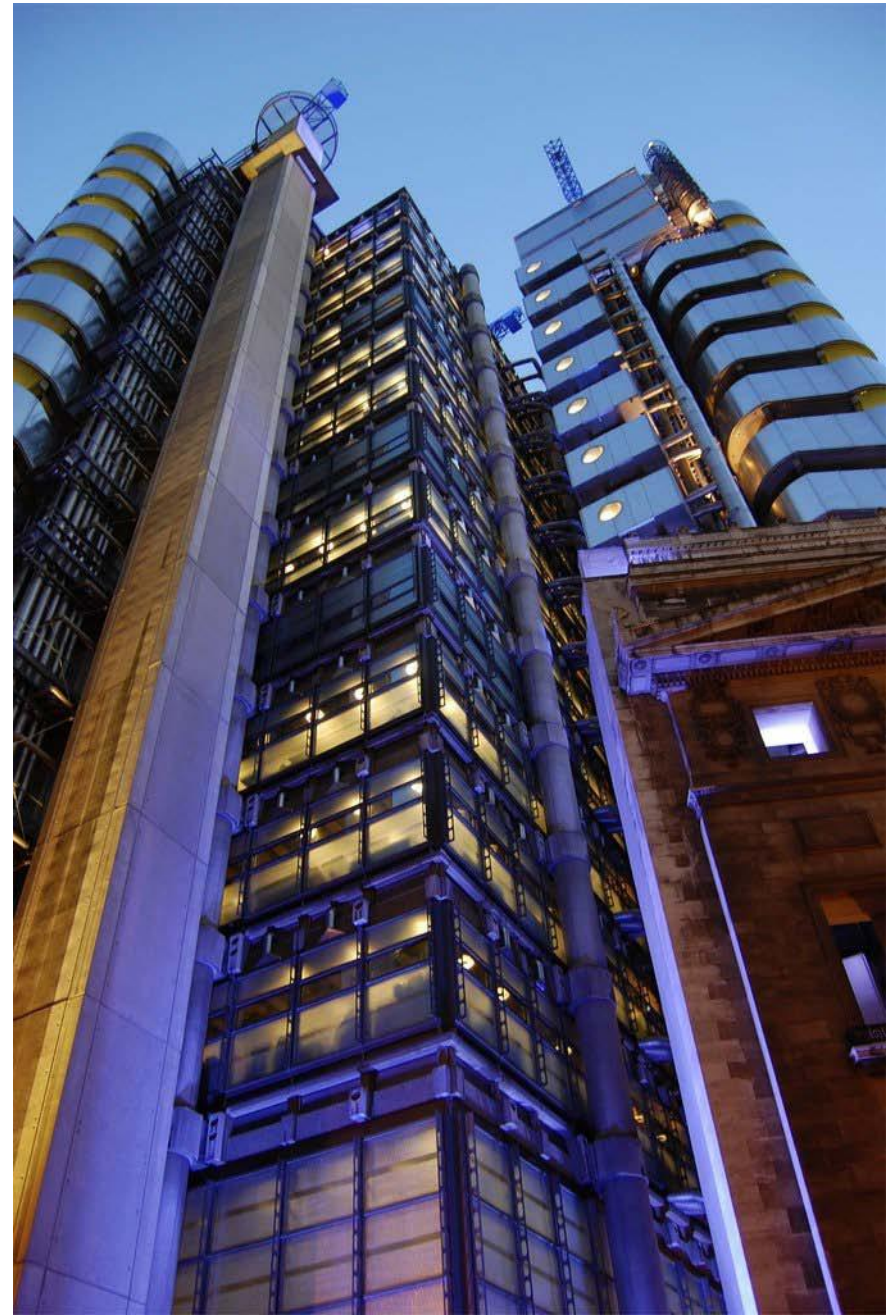
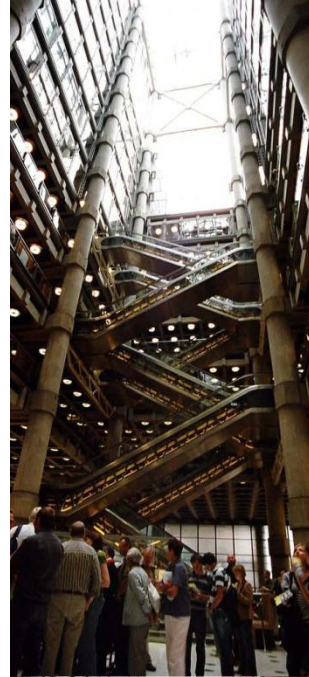
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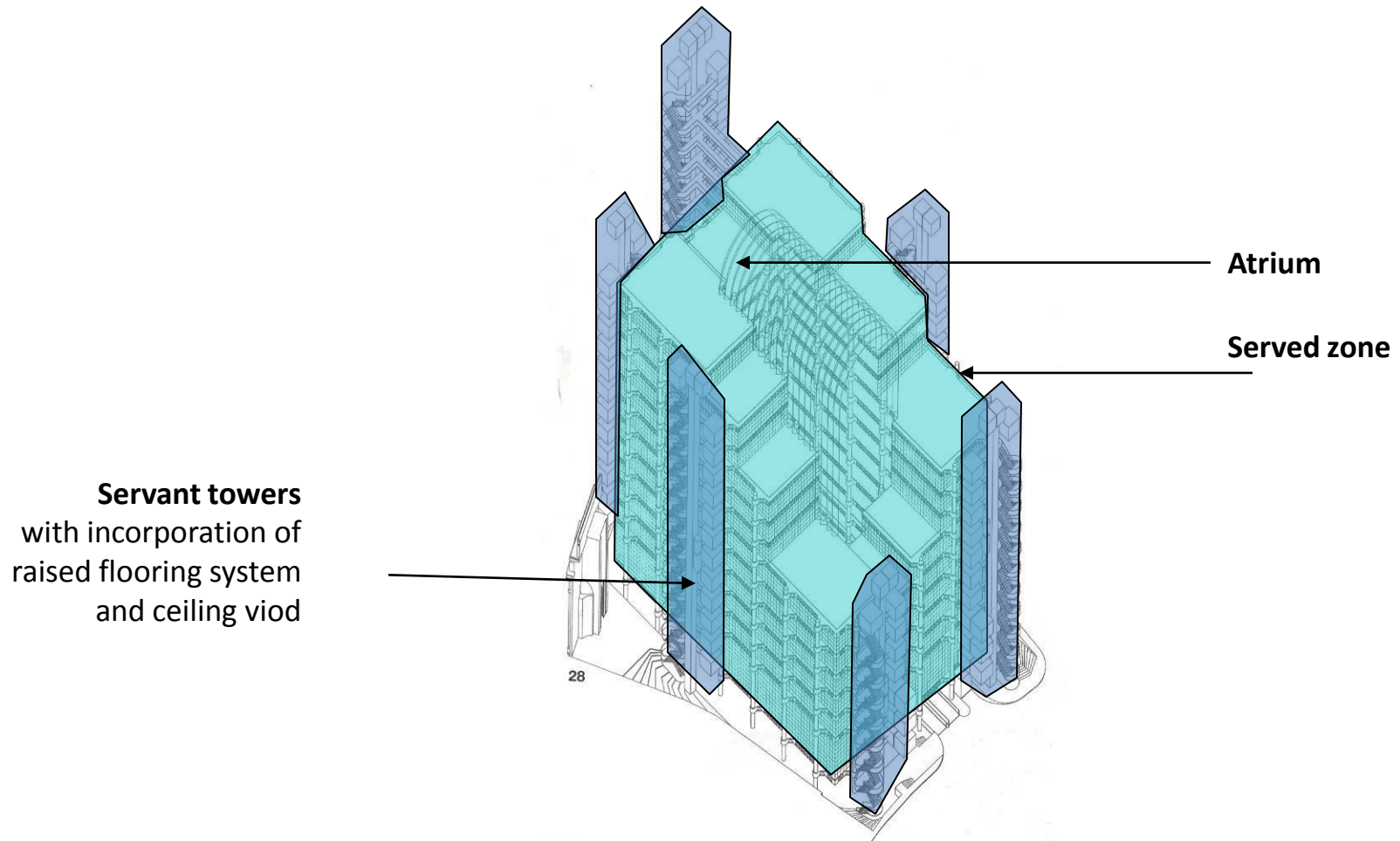
MAY 1985



JUNE 1986



Spatial Configuration



The Lloyds Building, consisting of twelve stories to the north, stepping down to six stories to the south

Structural Elements

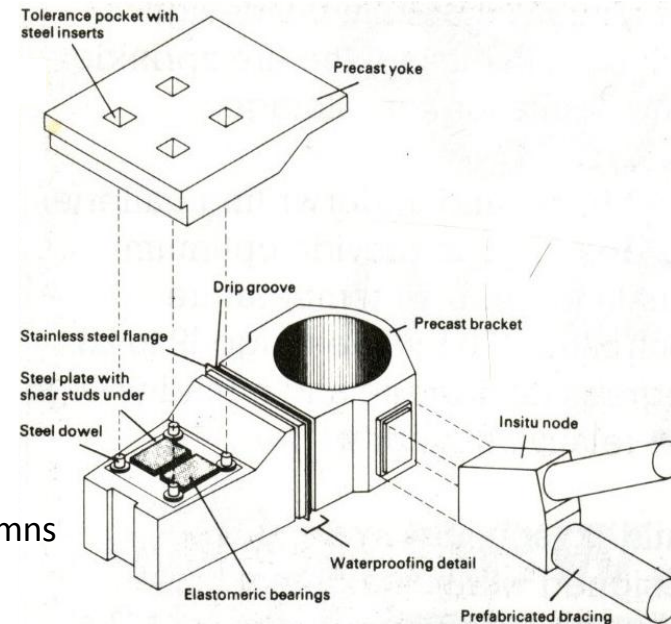
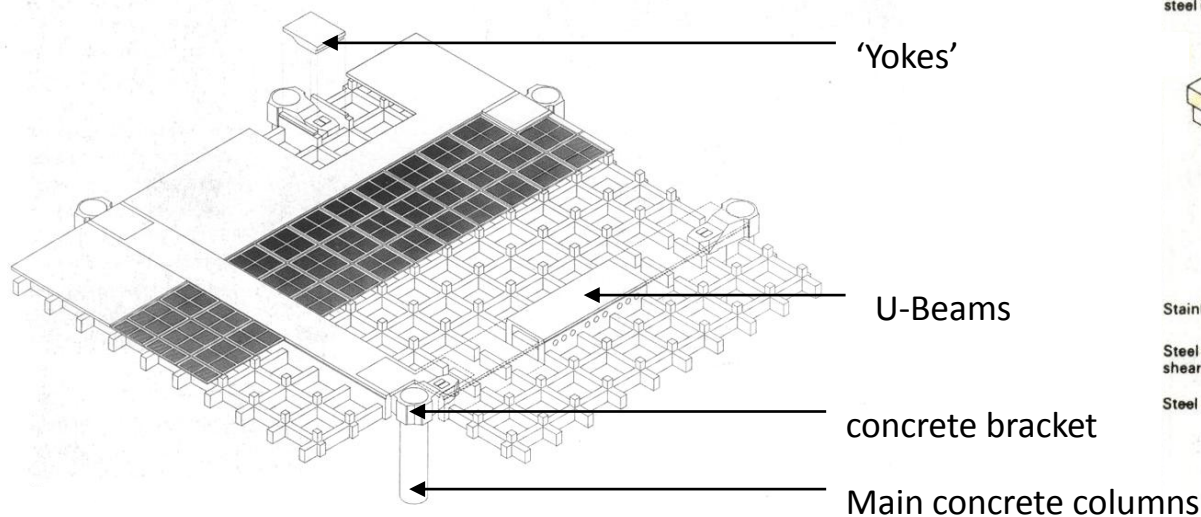
Material : exposed concrete

Floor : waffle beam grid – enables longer span.

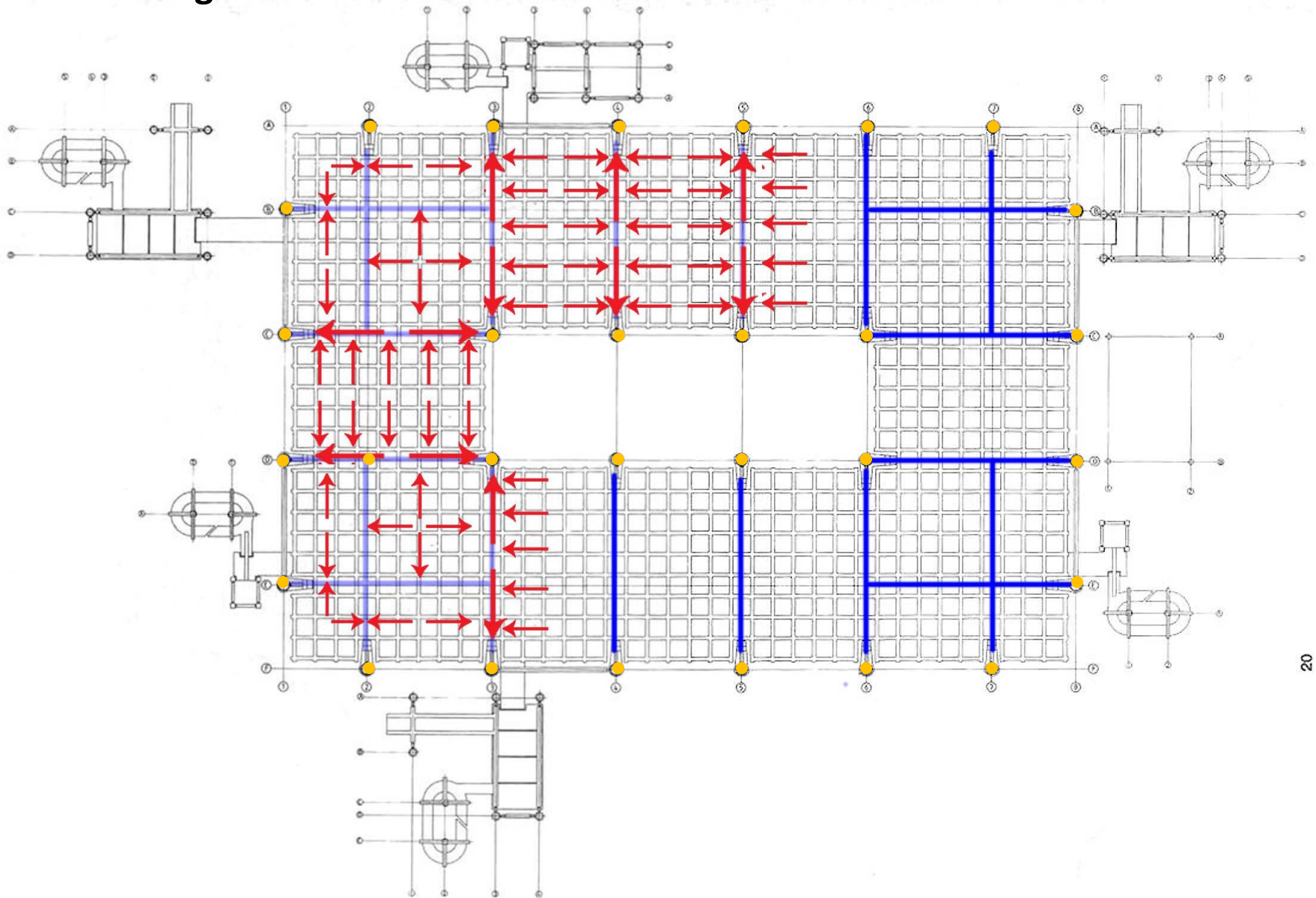
-The floors are composed of a network beams of **550mm x 300mm beams at 1.8m centres** supported by inserted in **situ U-beams** which are post-tensioned to allow the 18m span length.

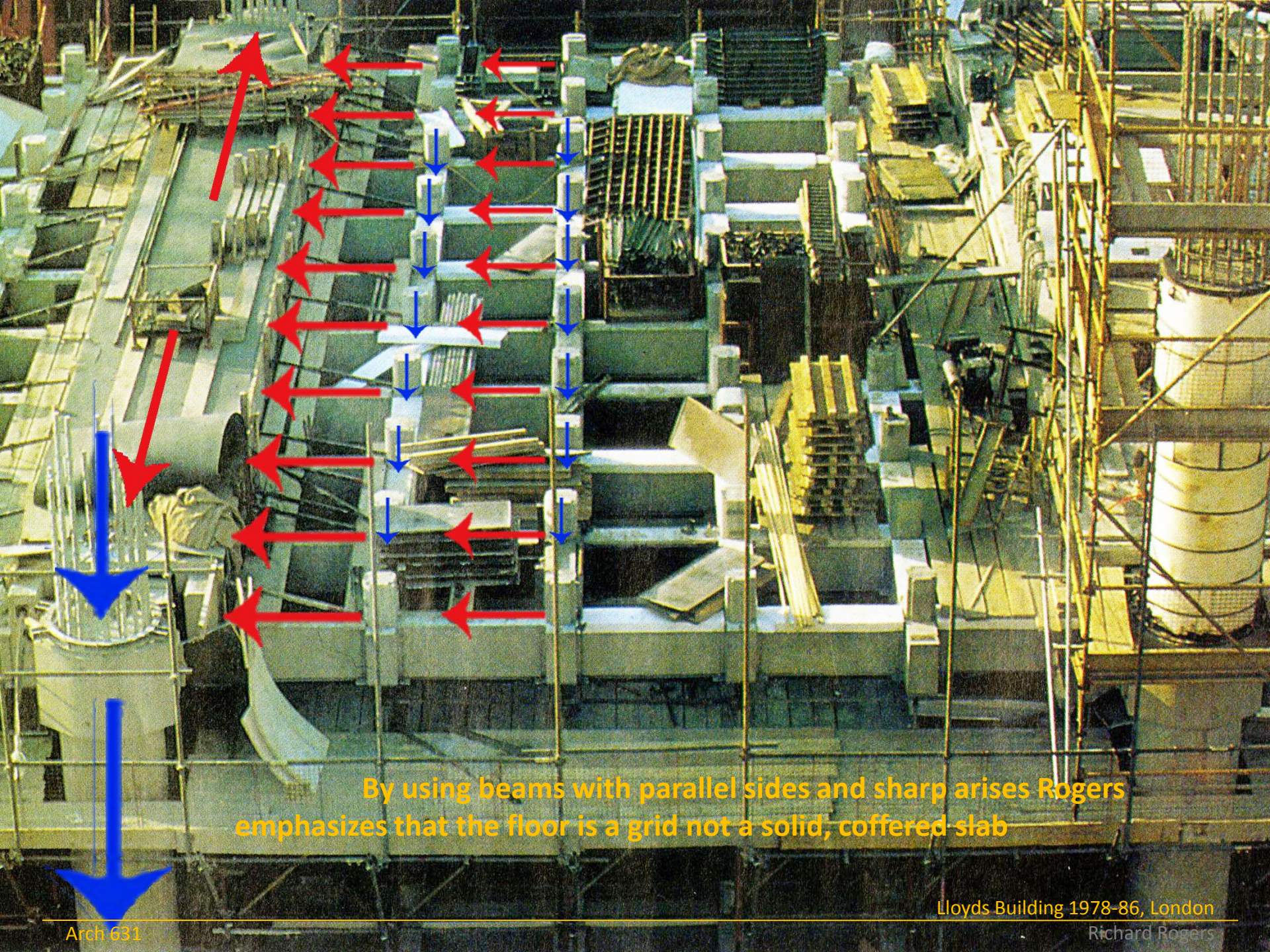
-The **corners** of the building are also **prestressed and post-tensioned** in two directions to limit the deflections of the floors.

-To create a **service void**, **stub columns** are placed on top of these beams which a permanent, specially-designed steel shutter incorporating an acoustic sandwich is positioned, and a non-structural concrete topping is then added to complete the floor.



Load Tracing

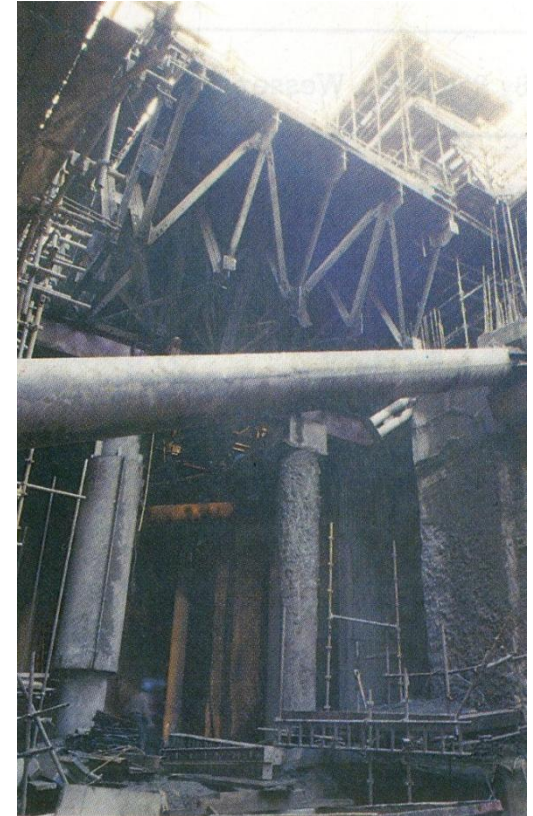


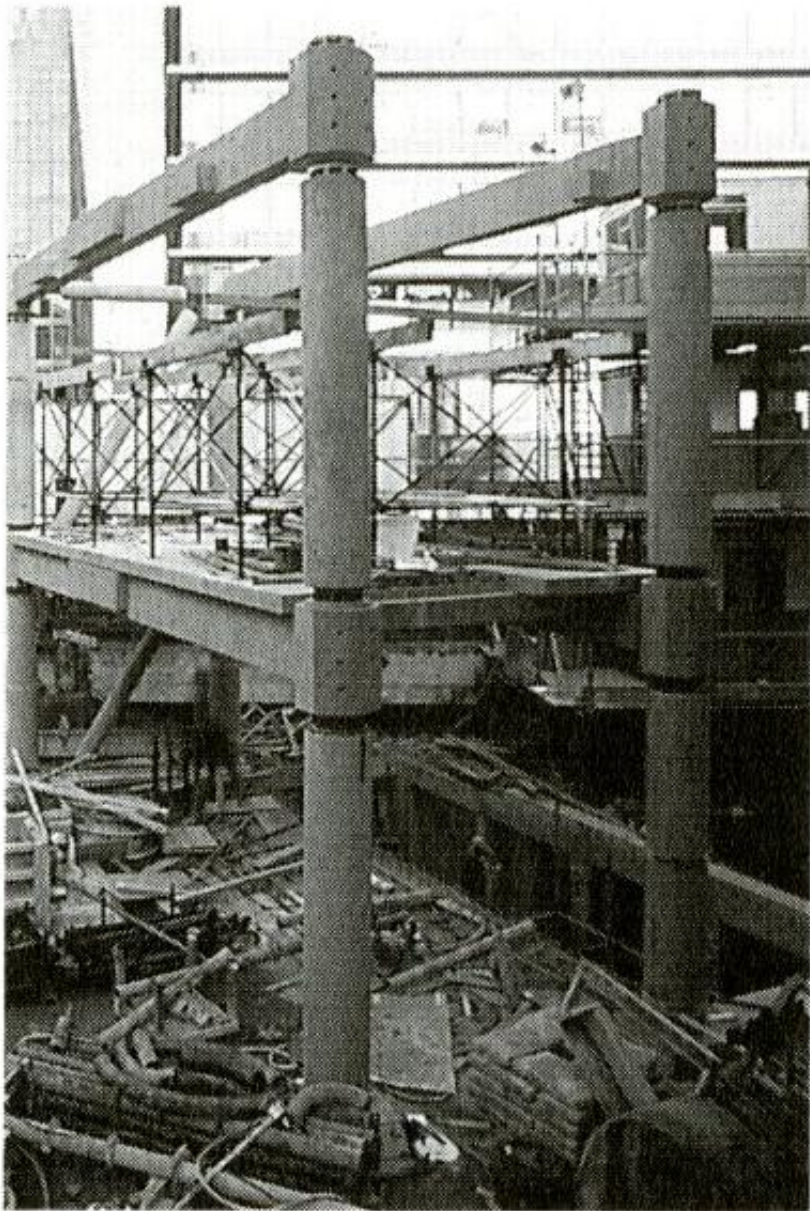


By using beams with parallel sides and sharp arises Rogers emphasizes that the floor is a grid not a solid, coffered slab

Soil and Foundation

- Constructed by Constain Group PLC
- **Pile foundation** with pile caps supporting main columns
- Over 300 piles, each 750 mm dia/ 26 meters deep
- **Diaphragm Walling** and **Cast-in-place Retaining walls** along edges of site
- **Soil** is mostly **clay** with a large deposit of **sand** on the north end of the site

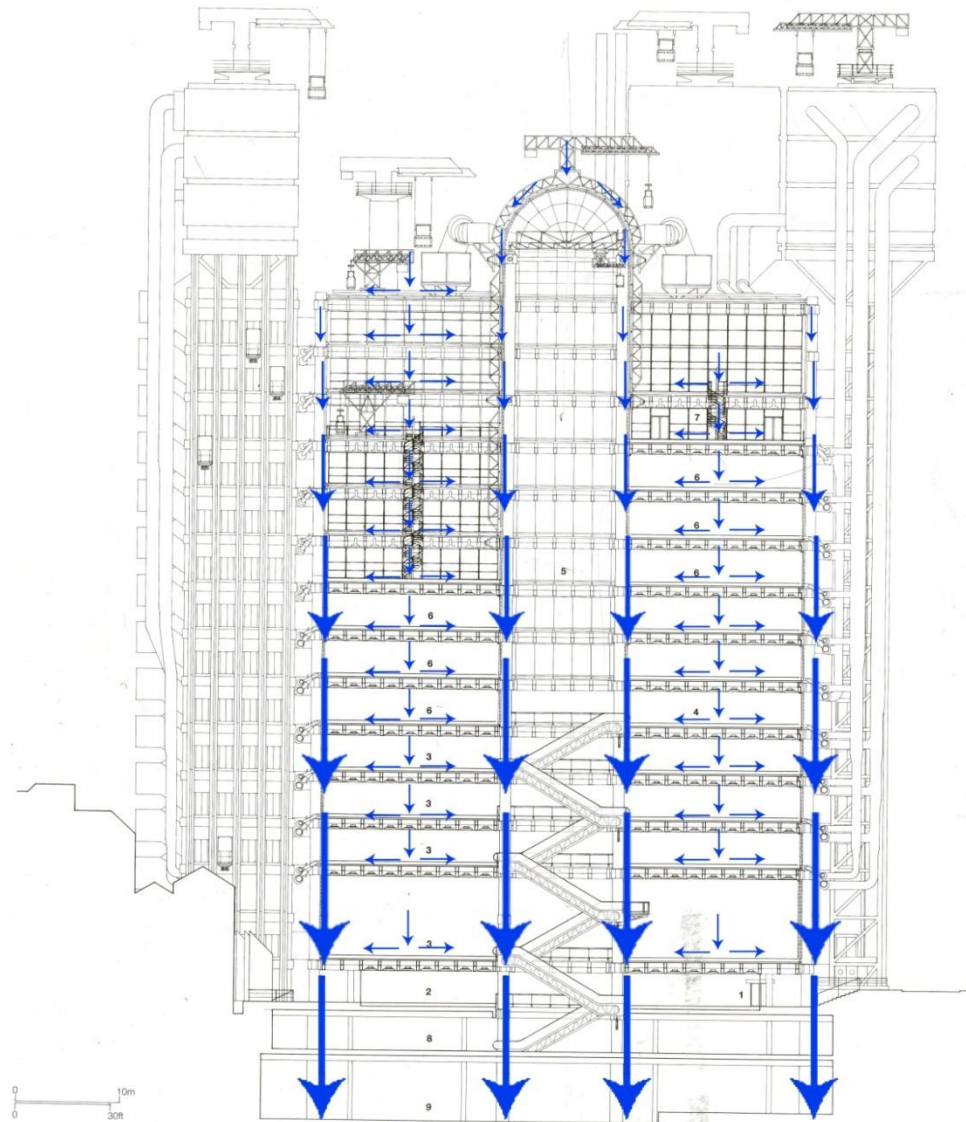




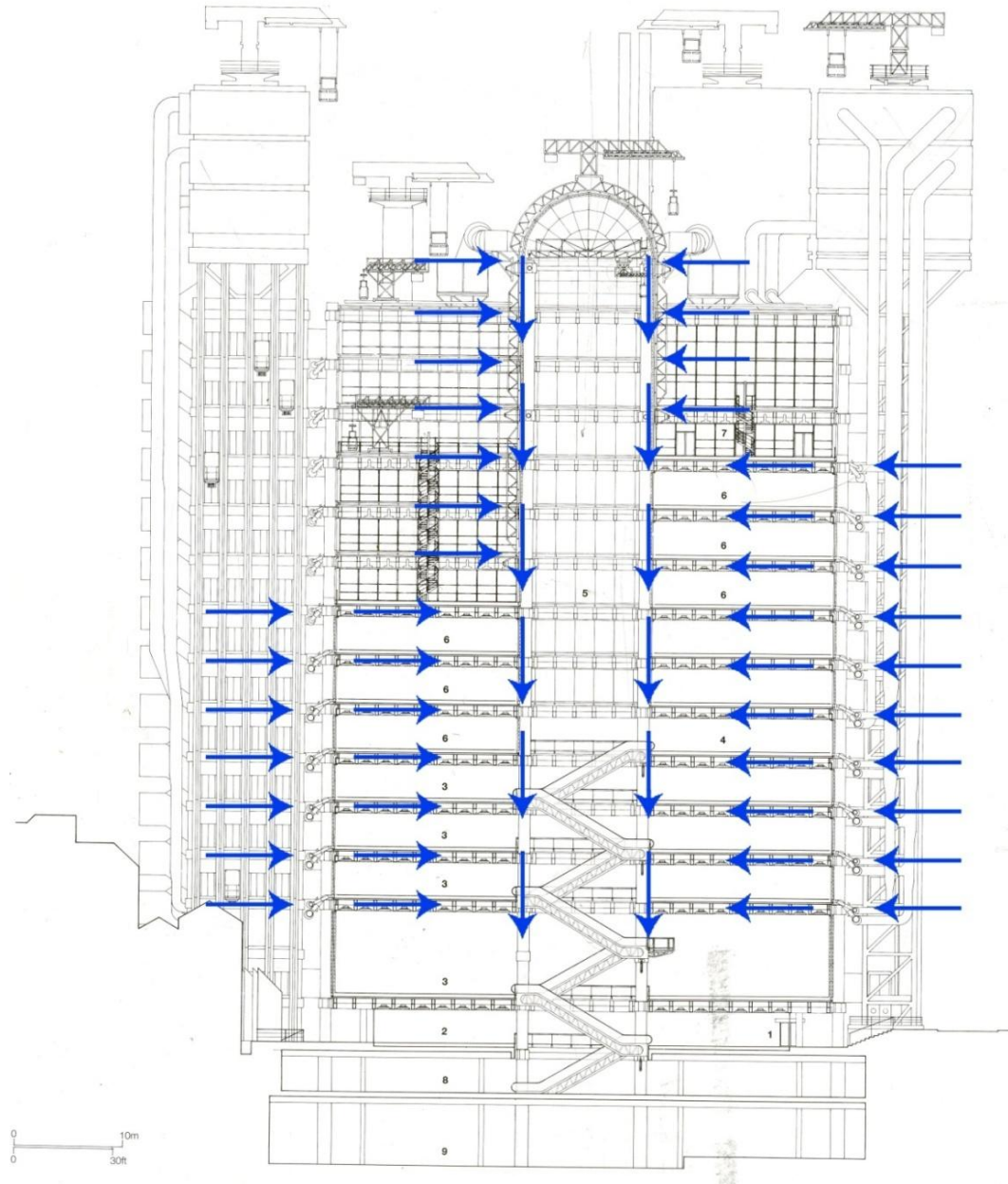
Service Towers :

The service towers consist of pre-cast concrete members, each designed as a “kit.” Each tower is tied to the main structure by a concrete connection at each floor.

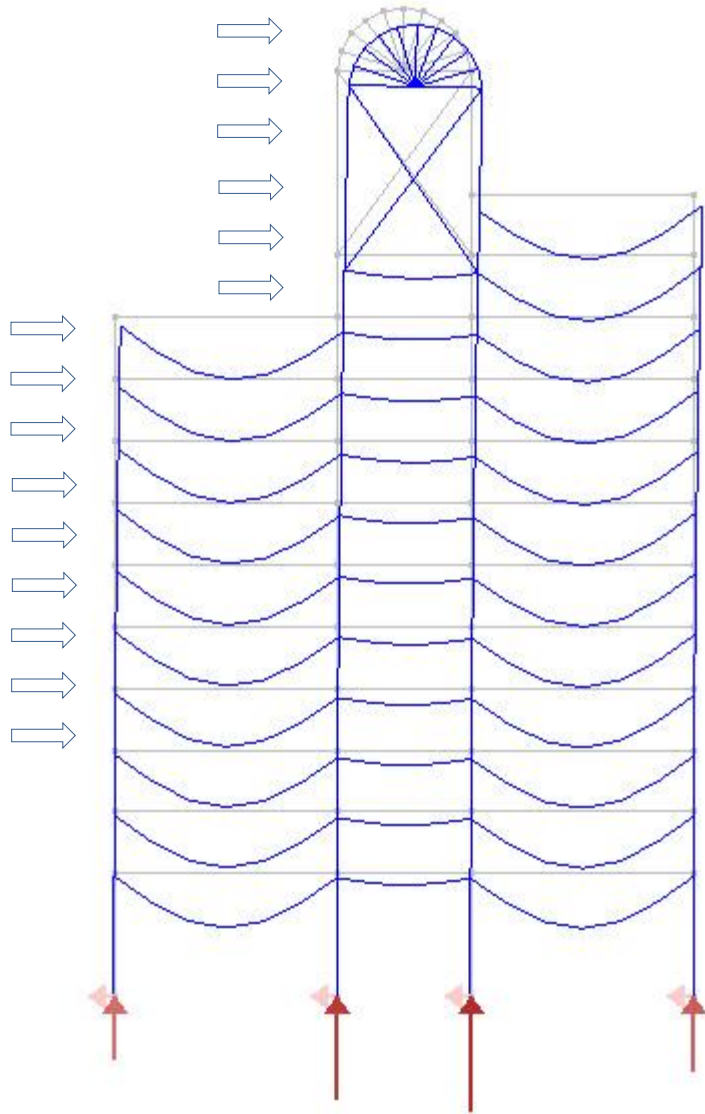
Load Tracing



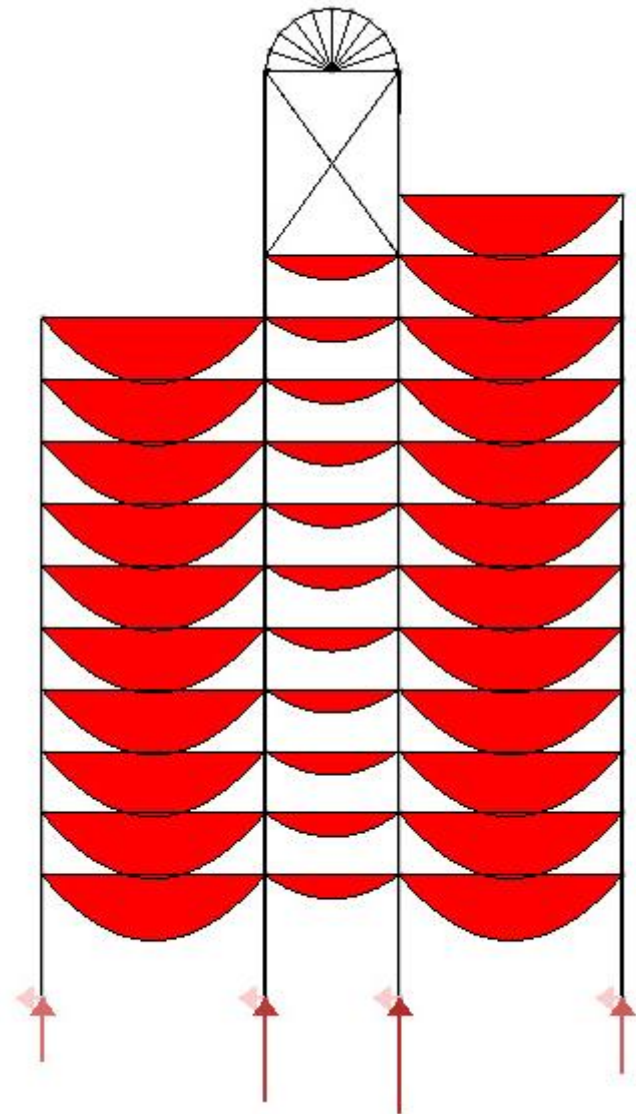
Lateral Load



Multiframe Analysis

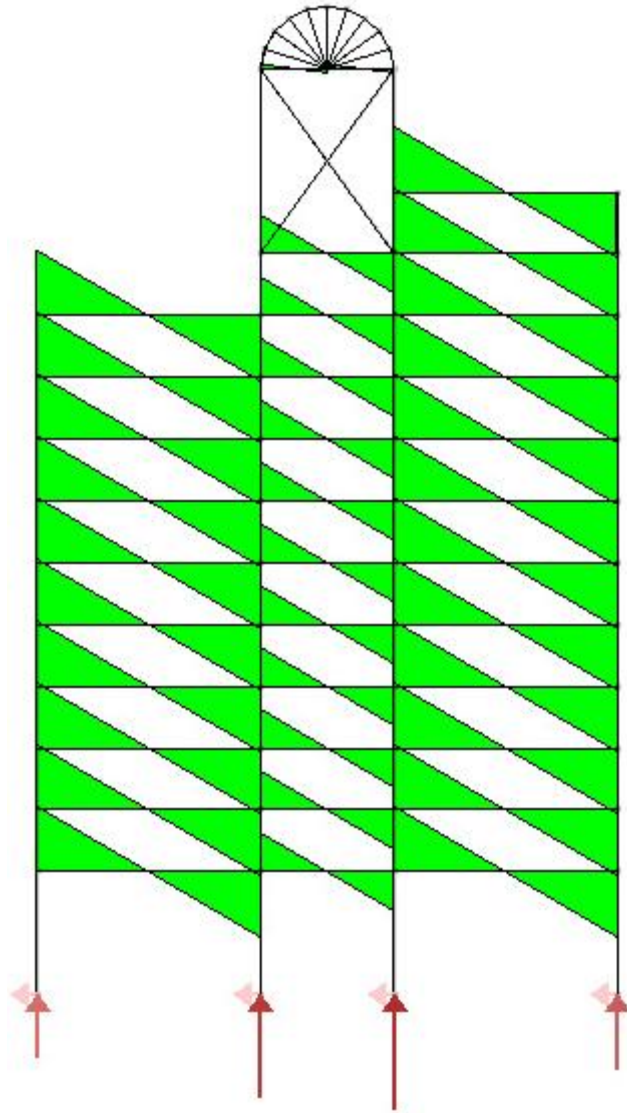


Deflections

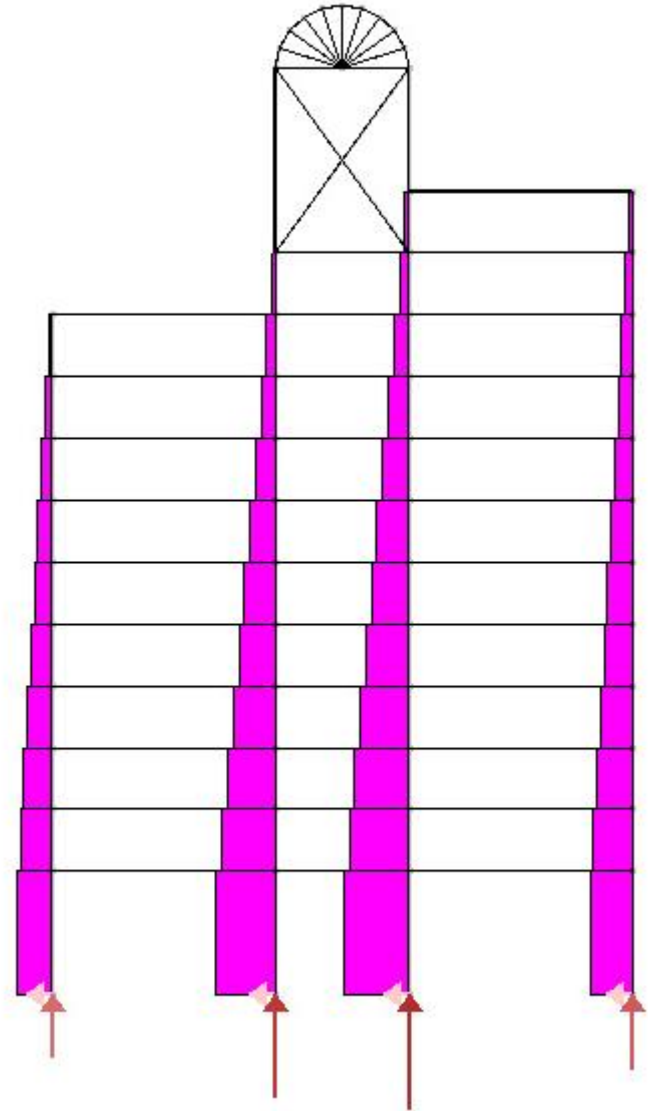


Bending Moments

Multiframe Analysis



Shear Diagram



Loads

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<http://www.lloyds.com/About Us/The Lloyds building/Visiting the Lloyds building.htm>

Thank You!

Anjali Venkataiah
Keun- Young Park

Daniel Haskovec
Deepen Dighe
Devang ladani