

POMPIDOU CENTRE

RICHARD ROGERS, RENZO PIANO

PETER RICE

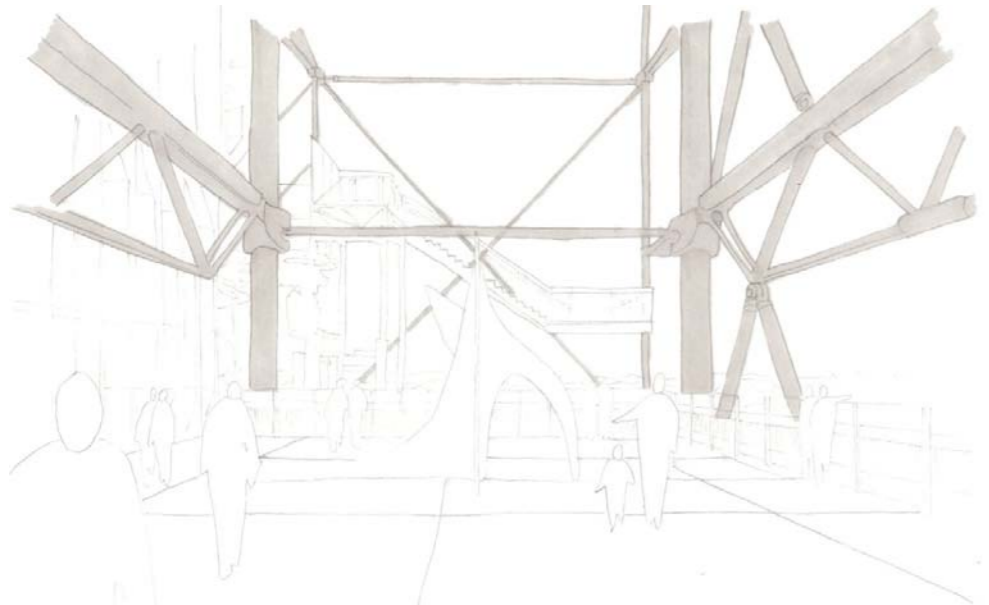
1971-1977



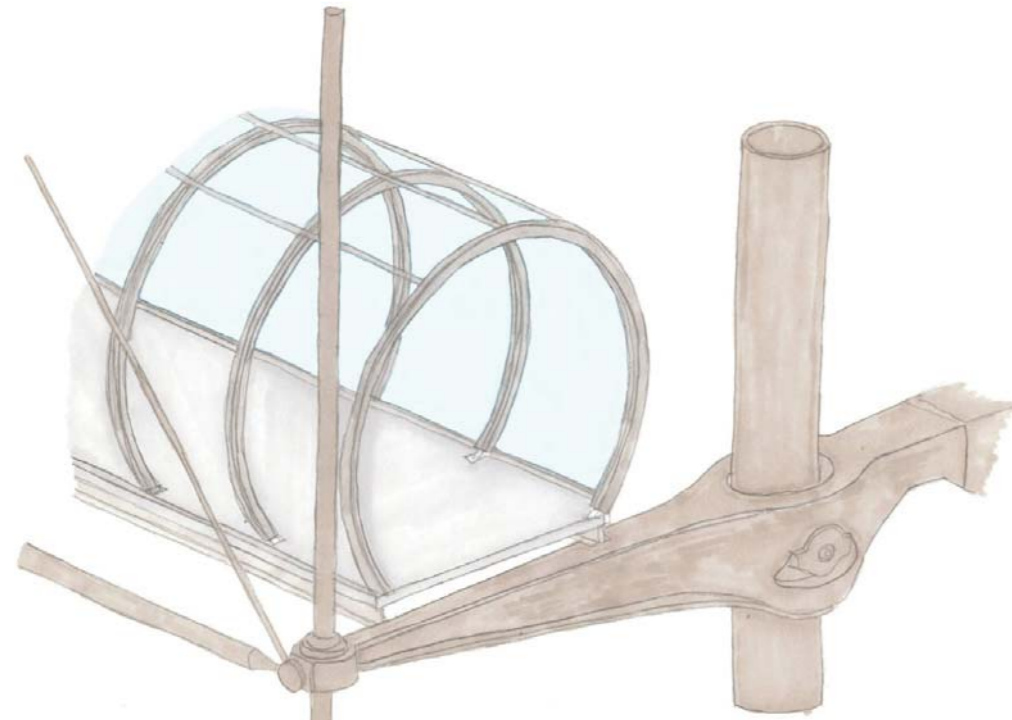
"Structurally expressionist in style, the Pompidou Centre, Paris is a gargantuan multi-function complex-housing the Public Archives, National Museum of Art, centre for research, auditoriums, galleries and more; all under one roof.

Designed by structural engineer Peter Rice in collaboration with architects Renzo Piano and Richard Rogers, the Pompidou Centre is constructed inside-out exposing its structural skeleton for all to see.

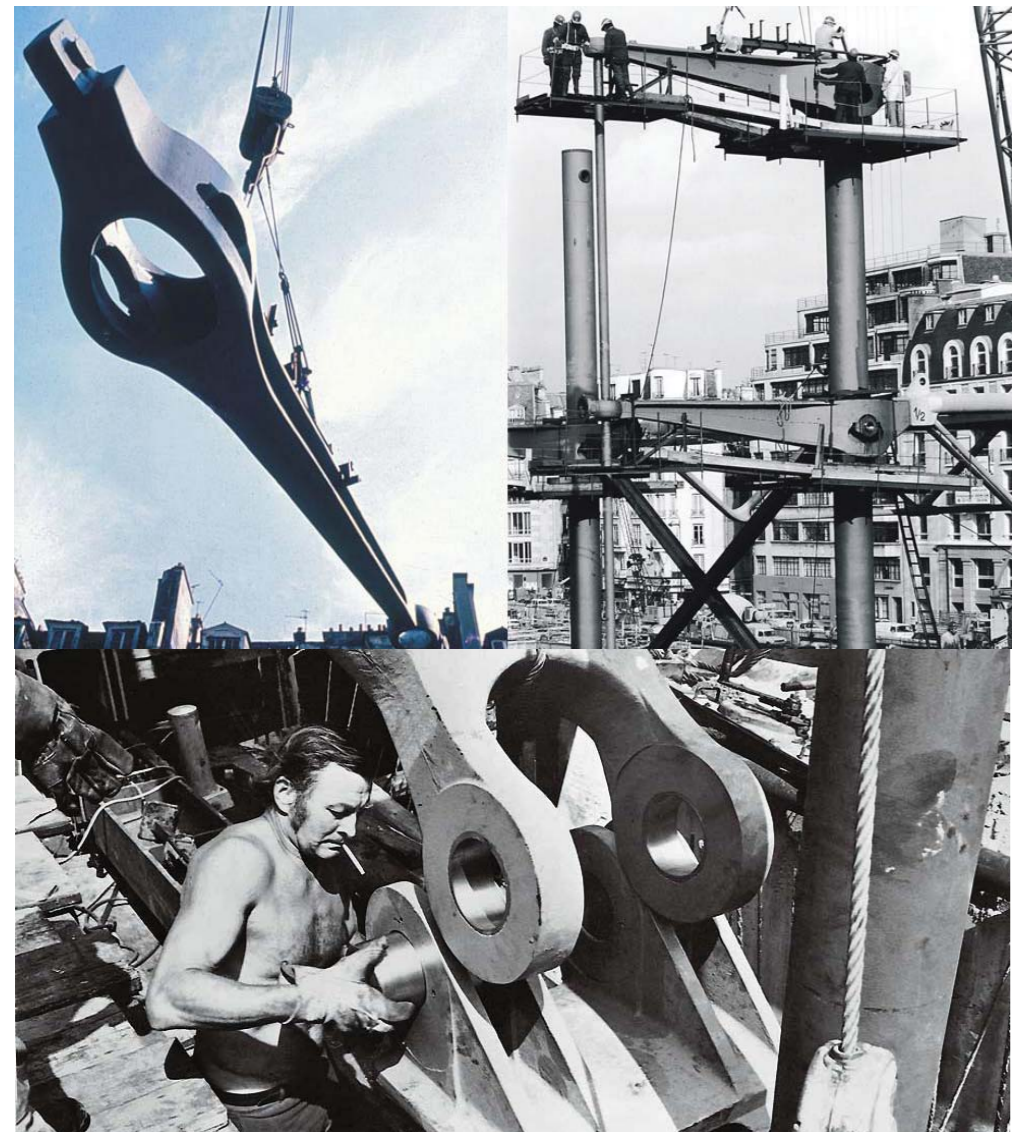
The detailed design and structural resolution was undertaken as an interdisciplinary exercise in teamwork. The structural concept for the facades was a system with a system that hinged on six elegantly tapered cast steel rocker beams known as gerberettes. The structure forms a permanent steel grid providing a stable framework, into which the moveable parts including walls and floors can be inserted, dismantled and re-positioned as necessary. The components and connections are of scale rarely seen in the construction industry-massive steel elements were fabricated off-site foundries and delivered by truck to the site during the night."⁽¹⁾



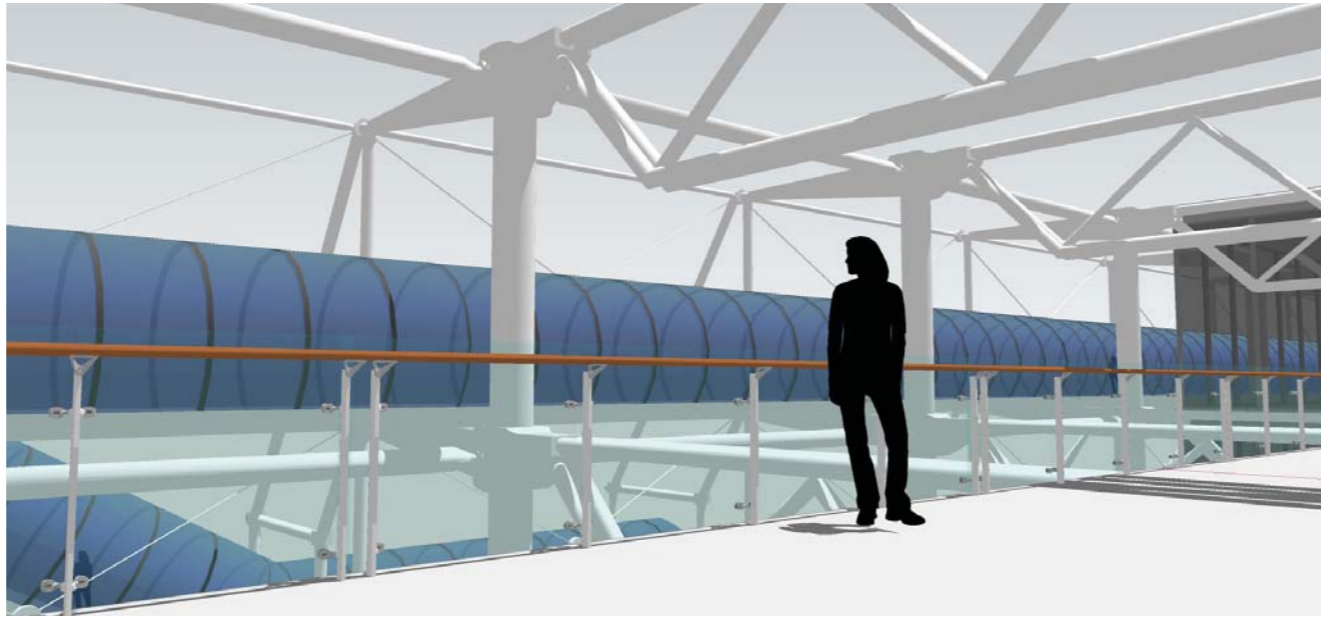
PERSPECTIVE VIEW



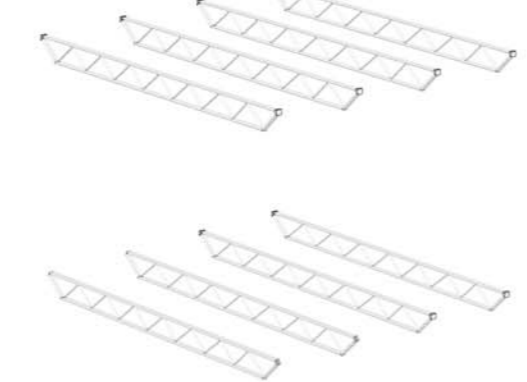
3D TUNNEL WALKWAY SKETCH



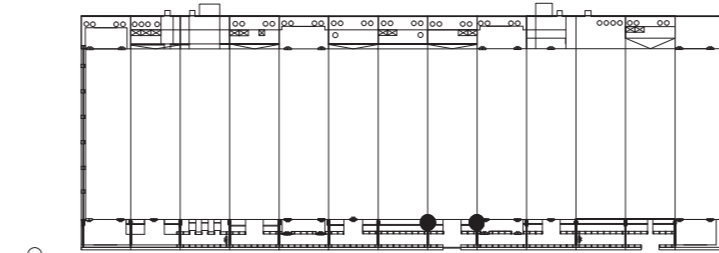
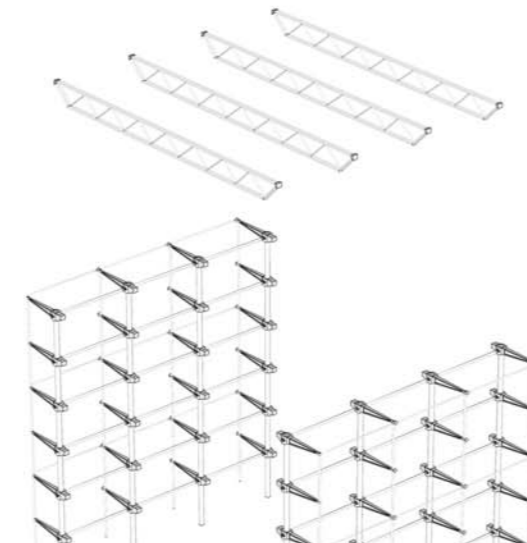
CONSTRUCTION PHOTOS^(2&3)



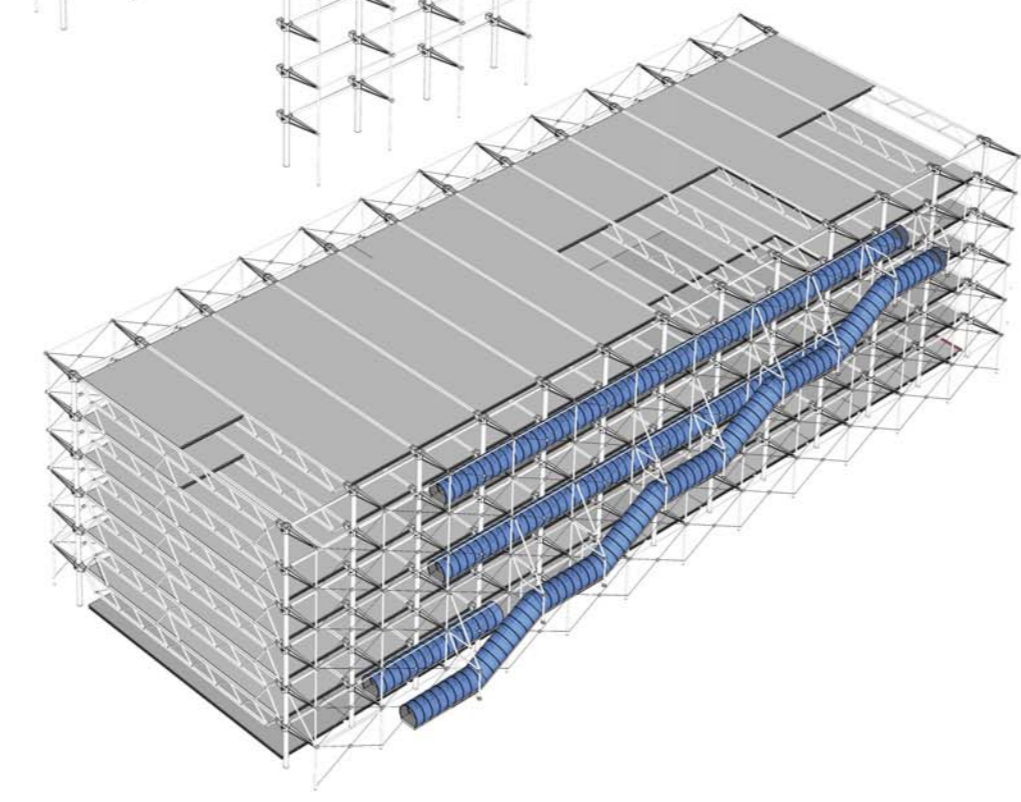
EAST ELEVATION
1:2000



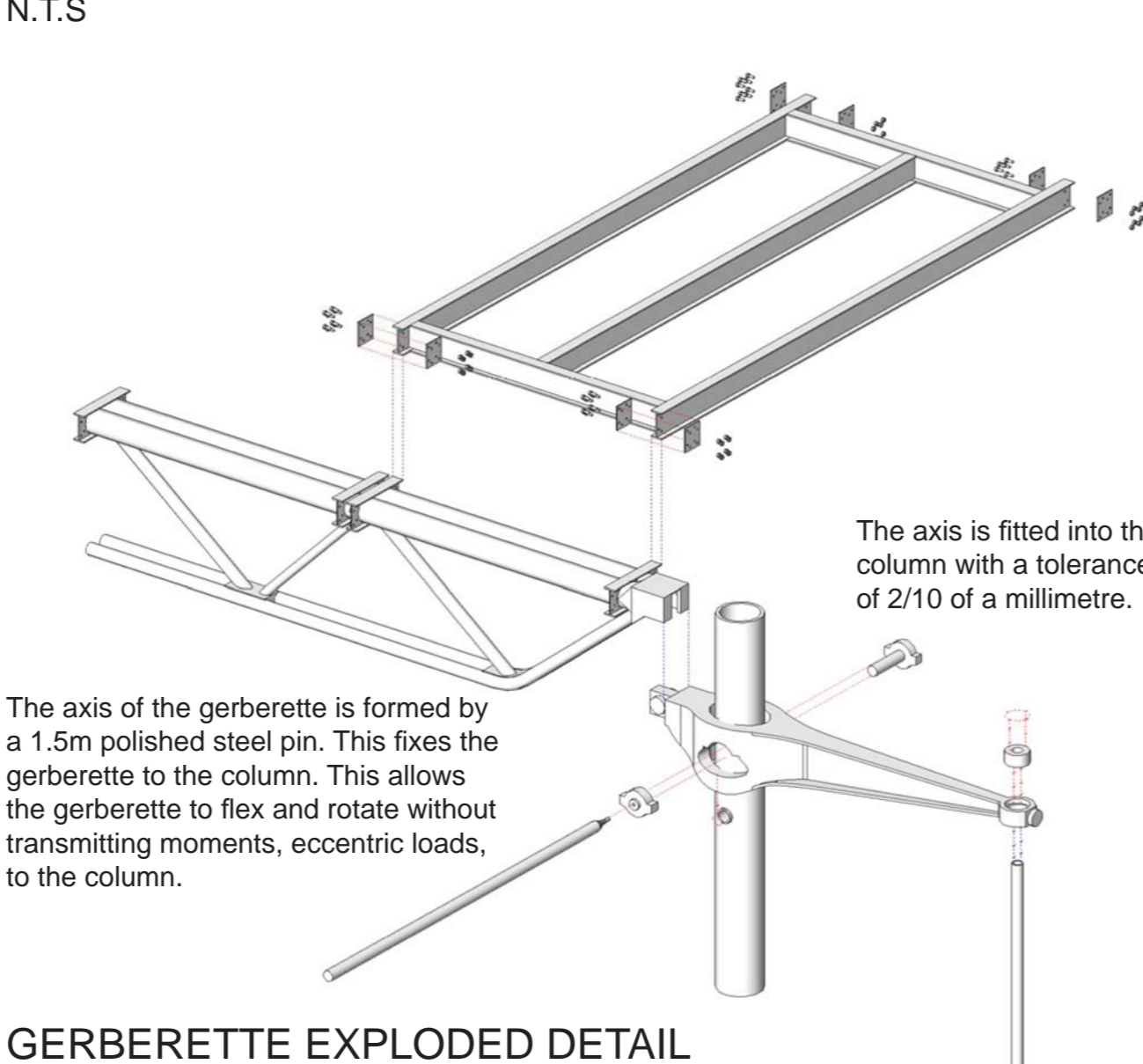
WEST ELEVATION
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GROUND FLOOR PLAN
1:2000



3D EXPLODED STRUCTURE
N.T.S

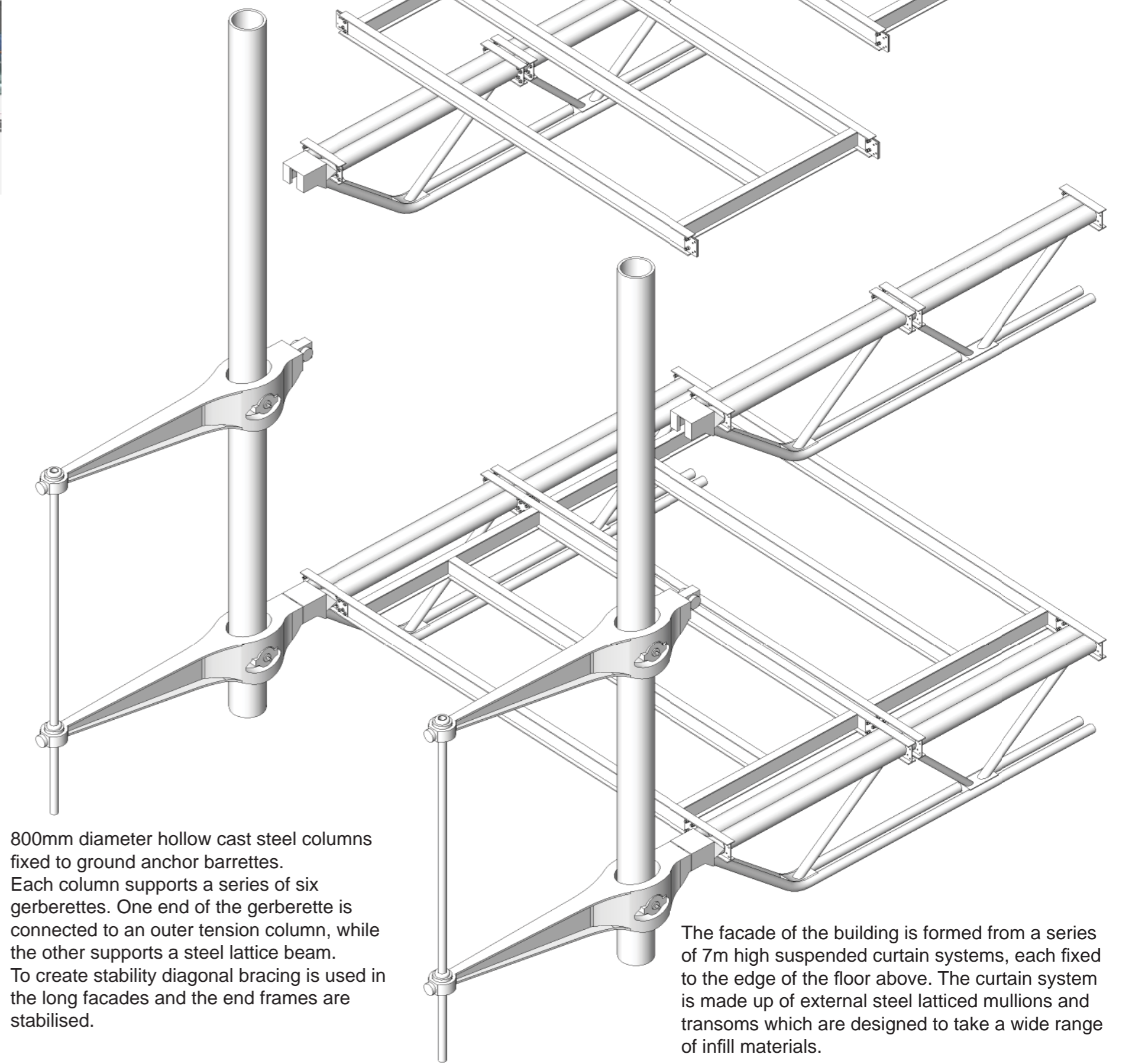


The axis of the gerberette is formed by a 1.5m polished steel pin. This fixes the gerberette to the column. This allows the gerberette to flex and rotate without transmitting moments, eccentric loads, to the column.

GERBERETTE EXPLODED DETAIL
N.T.S

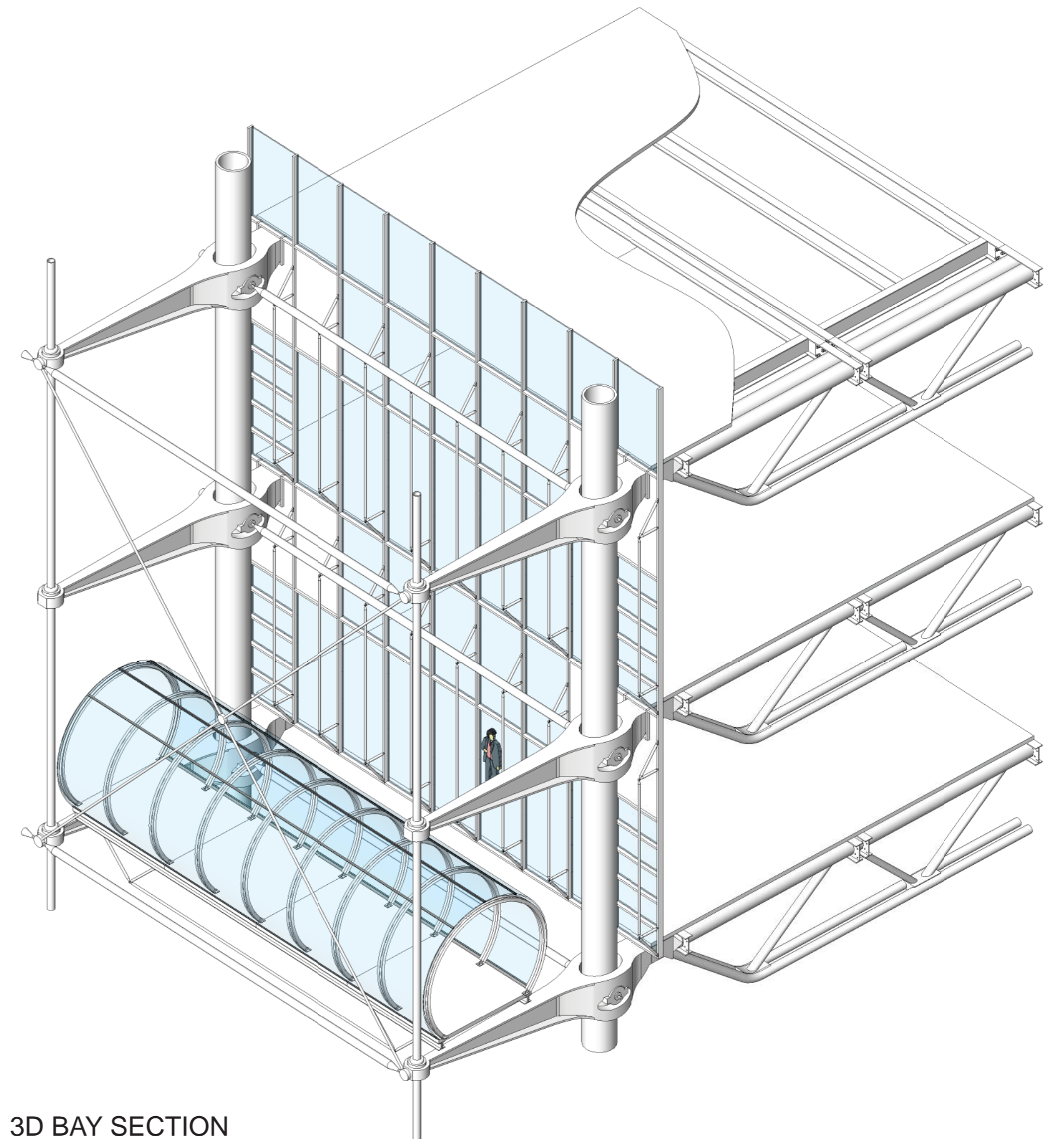
The 2.8m deep truss girders spanning 44.8m have a continuous double-tube compression chord, each being 450mm in diameter, and a continuous double solid round for the bottom tension chord (225mm diameter in the centre and 160mm diameter at the ends). These are welded into cast steel nodes (coupling) which lie between double compression or double tension members.

The main truss takes a grip on the inside brackets of the gerberettes. The pressure of the beam on the gerberettes is balanced by the tension ties. Between the trusses prefabricated floor sections made of 500mm deep I beams spanning 12.8m

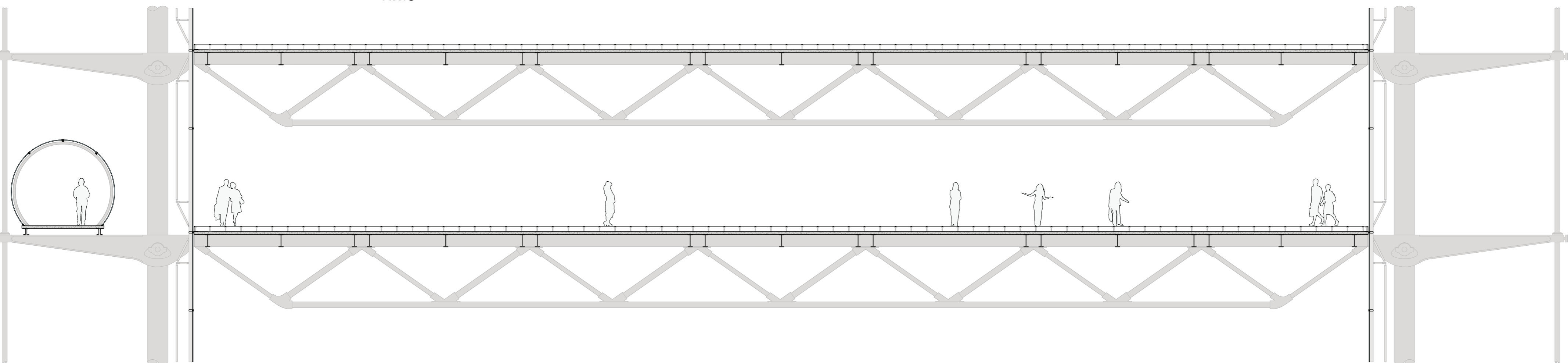


800mm diameter hollow cast steel columns fixed to ground anchor barrettes. Each column supports a series of six gerberettes. One end of the gerberette is connected to an outer tension column, while the other supports a steel lattice beam. To create stability diagonal bracing is used in the long facades and the end frames are stabilised.

The facade of the building is formed from a series of 7m high suspended curtain systems, each fixed to the edge of the floor above. The curtain system is made up of external steel latticed mullions and transoms which are designed to take a wide range of infill materials.



3D BAY SECTION
N.T.S



PART SECTION
N.T.S

References
1. <http://www.willmetz.com/paris/pompidou.html>
2. <http://www.fondazionezenzopiano.org/project/83/centre-georges-pompidou/images/page/2/>
3. <http://www.richardrogers.co.uk/renderer.aspx?siteID=1&navIDs=1,4,23,374,377&showImages=detail&imageID=53>



CONNECTION & COLLABORATION: LESSONS FROM PETER RICE

3rd & 4th YEAR ARCHITECTURAL TECHNOLOGY 2013

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