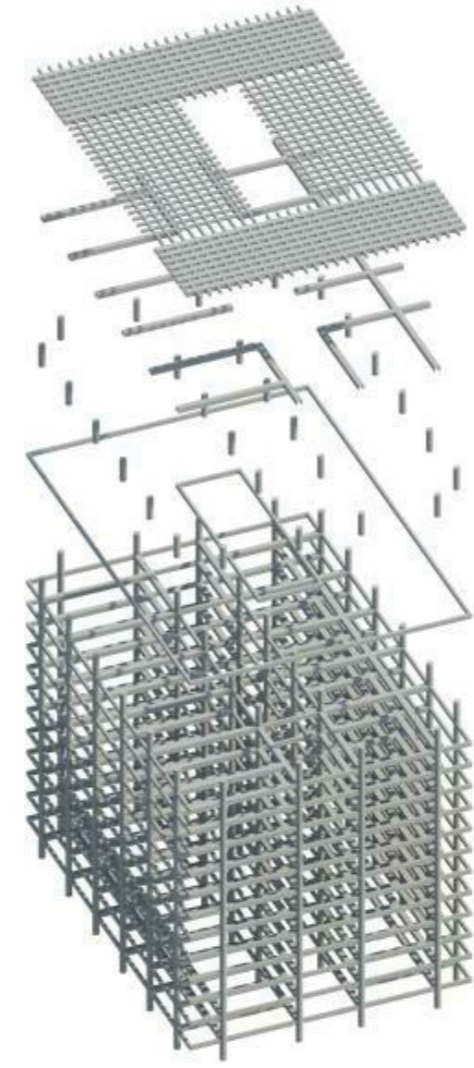
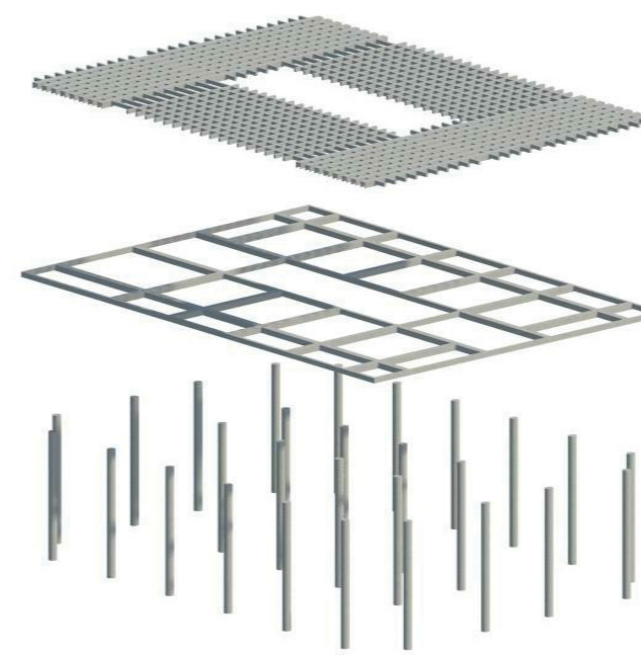


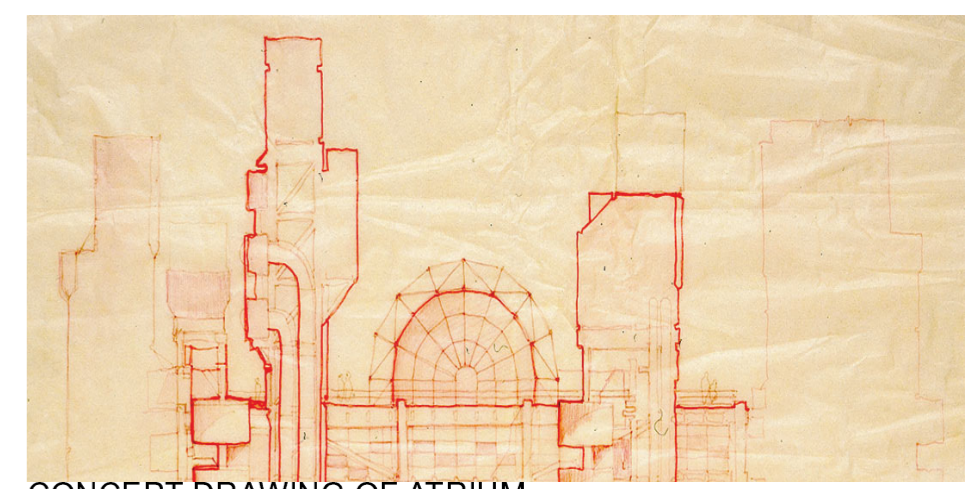
PICTURE / EXTENDED SKETCH OF THE INSIDE OF BUILDING



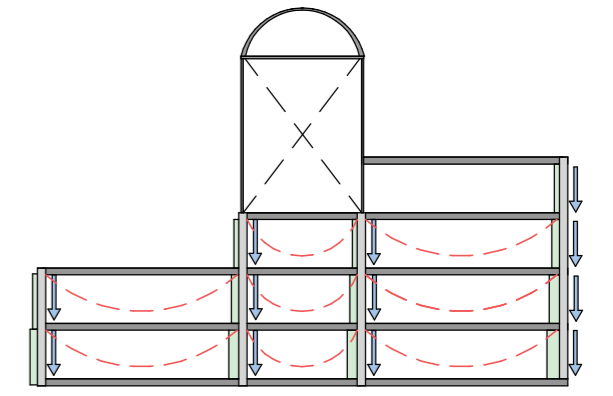
3D STRUCTURAL DIAGRAM SHOWING OVERALL STRUCTURE



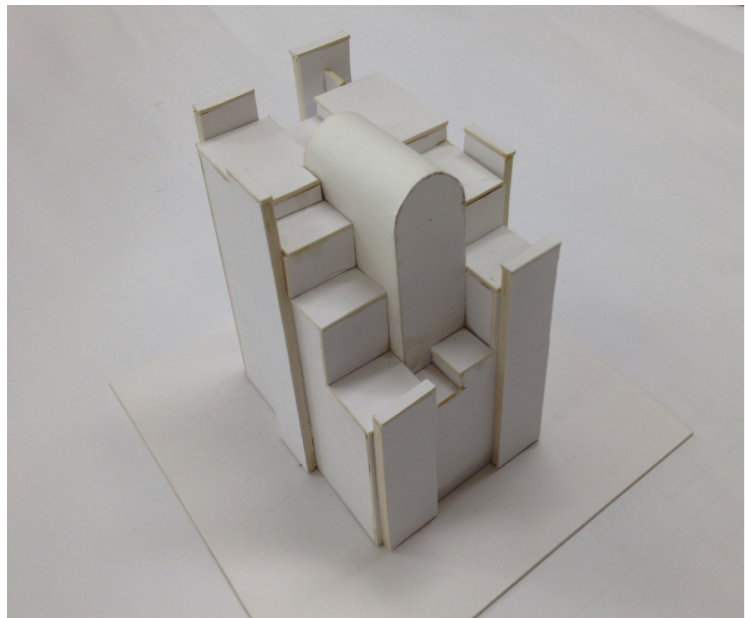
3D STRUCTURAL DIAGRAM SHOWING ONE FLOOR



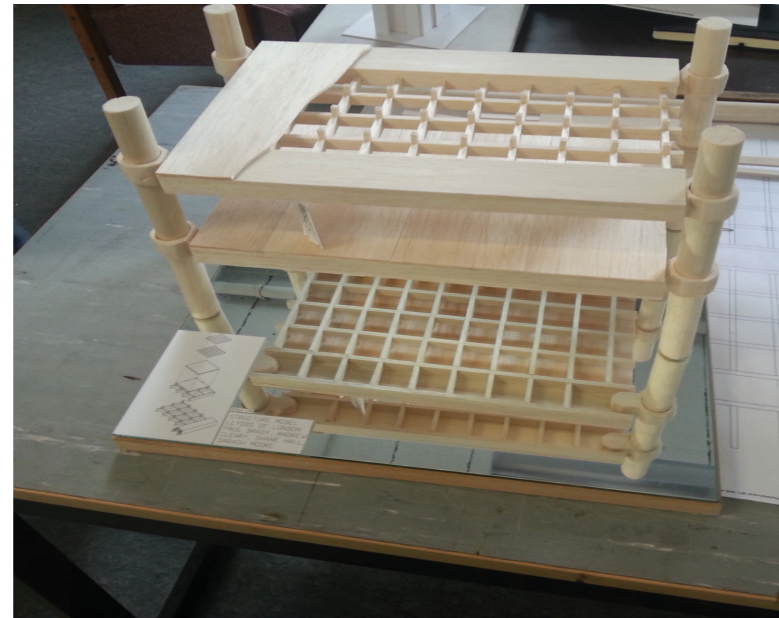
CONCEPT DRAWING OF ATRIUM



STRUCTURAL SECTION OF BUILDING SHOWING POINT LOADS AND BENDING MOMENTS



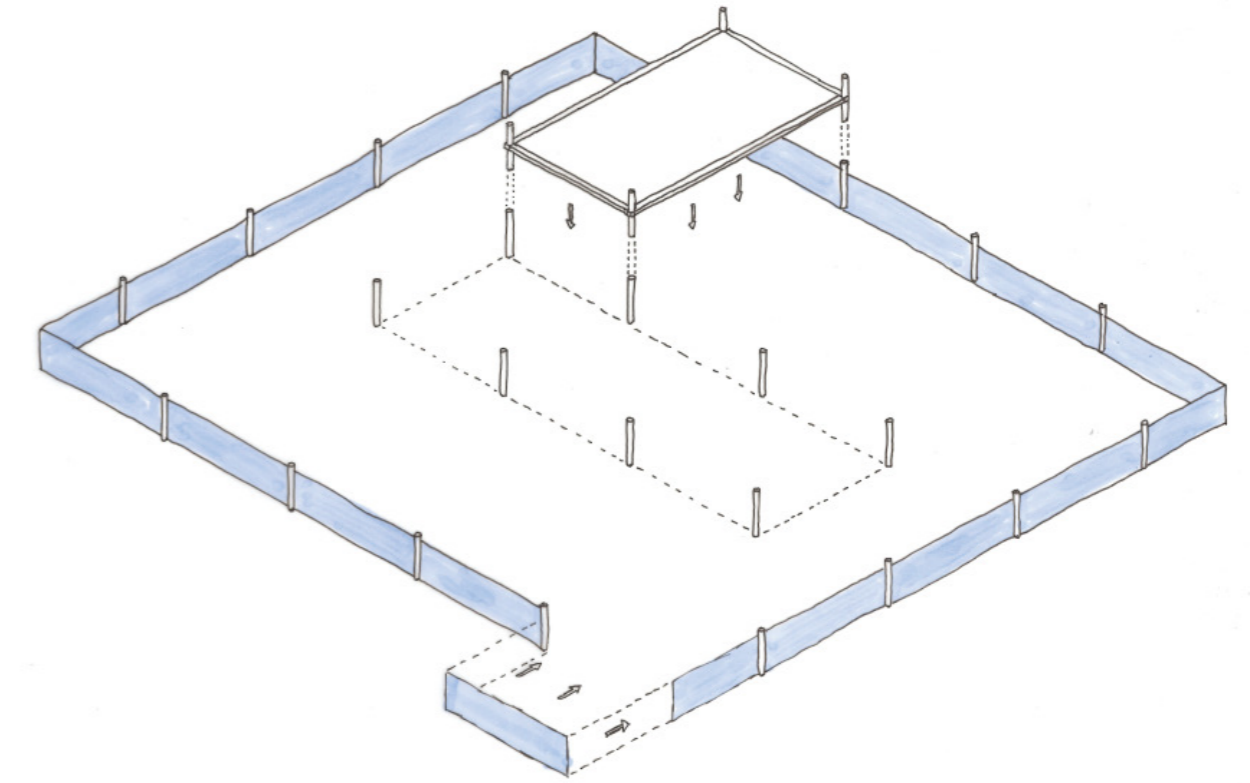
STUDY MODEL SCALE 1:1000



MACRO MODEL SCALE 1:50



MICRO MODEL SCALE 1:20



3D STRUCTURAL DIAGRAM SHOWING COLUMN POSITIONING

LLOYDS OF LONDON

RICHARD ROGERS 1986

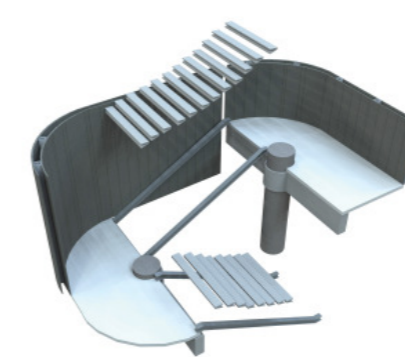


Work on this building first began in 1978, after Richard Rogers and Partners were the eventual winners of a competition set out by the executive committee of Lloyd's. Peter Rice was one of the members of the winning team and was appointed the primary structural engineer on the project. In his book "Peter Rice - An Engineer Imagines", Rice reflects on the parts of the building to which he had the most involvement with. He began by considering the clients needs and required functionality of the building i.e. an open office environment that had possibilities of further expansion and growth if ever necessary. Due to the larger than average spans that would no doubt be created if the clients brief was to be met, Peter designed a structural system that not only allowed the structural requirements to be met, but also created the desired aesthetics from Rogers.

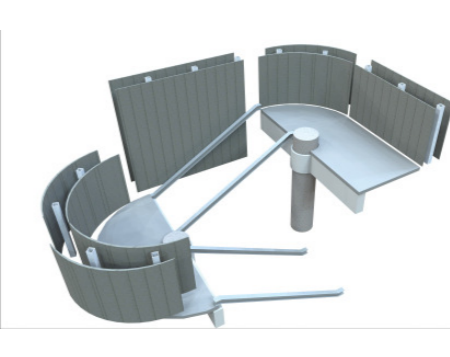
The plan of the building is a rectangular doughnut, 68.4m by 46.8m overall, with 18.2m span floor plates. In the middle is a spectacular full-height atrium, 12 stories high with escalators criss-crossing the void. The main structural elements consist of 28 in-situ concrete columns, just over a meter in diameter, set on a grid of 10.8m centres (20 along the facades and 8 in the atrium). These support the floor plates on a 18.2m x 10.8m grid with 5.4m cantilevered corners. The floor plates are formed from a 1.8m square grid of in-situ concrete beams, the first layer of the floor system. The beams have short concrete stubs at the grid intersections that in turn support a thin concrete flat slab. The zone between the beams and slab are used for building services. For speed and ease of construction, the slabs were cast using a permanent formwork of steel plates, from which the building services were later suspended.



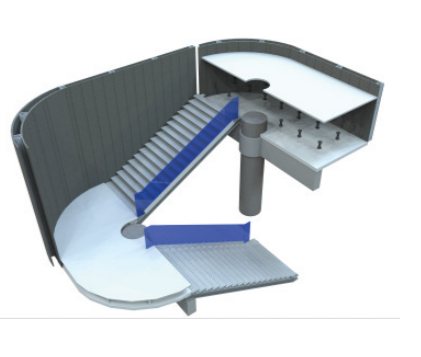
Metal supports for stairs placed on the cast in-situ concrete floor supported by structural frame



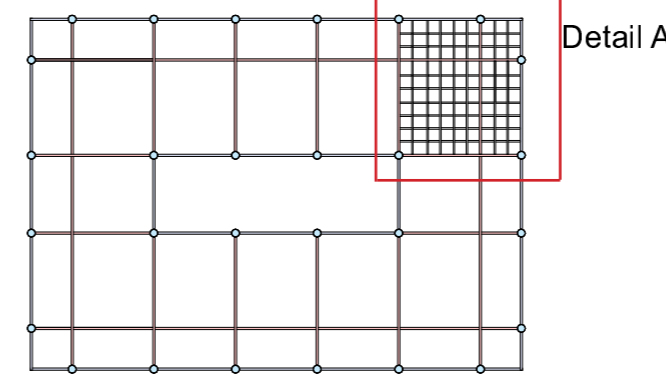
Walls surrounding the stairs consist of two layers of metal sheathing separated by steel studs



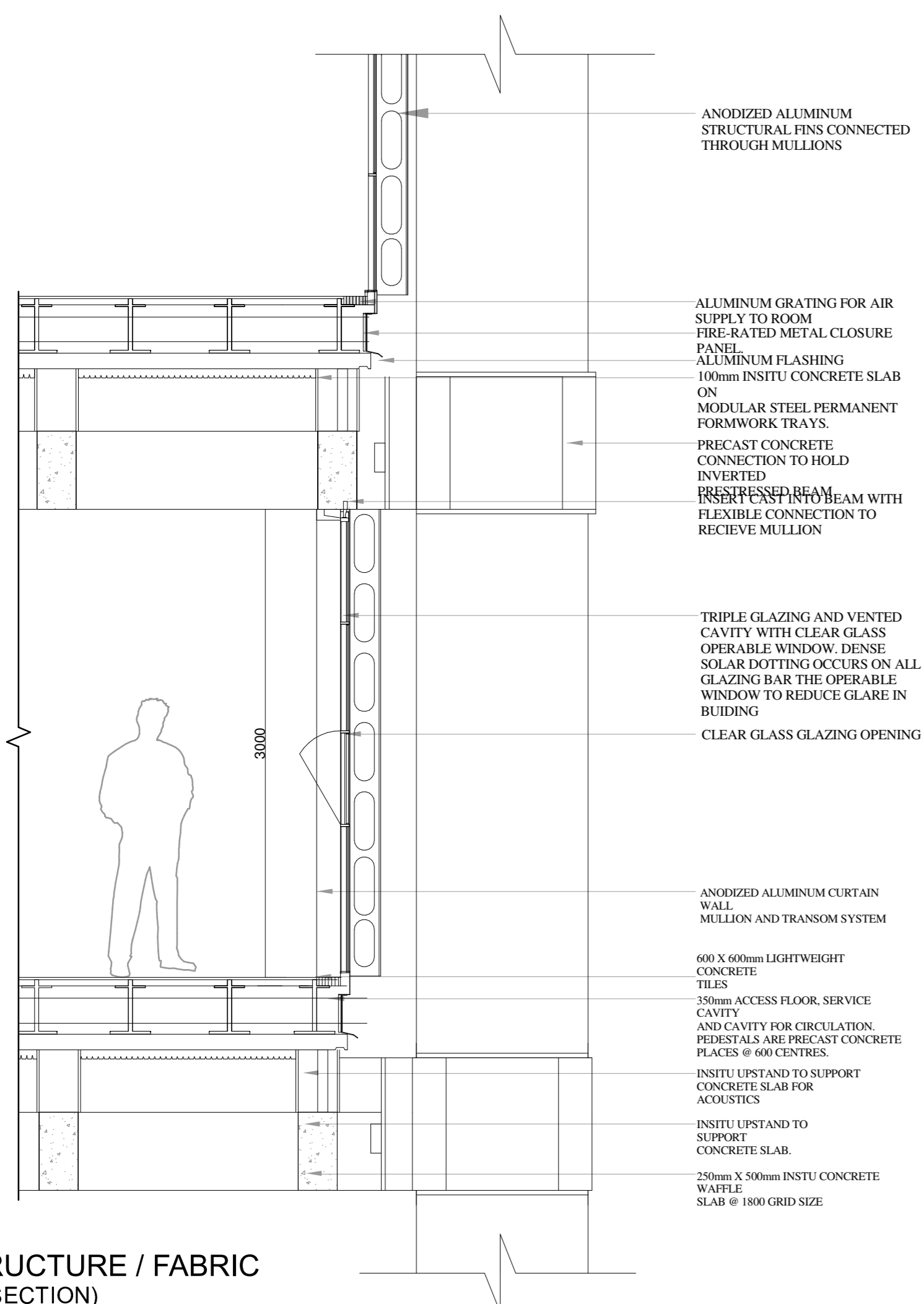
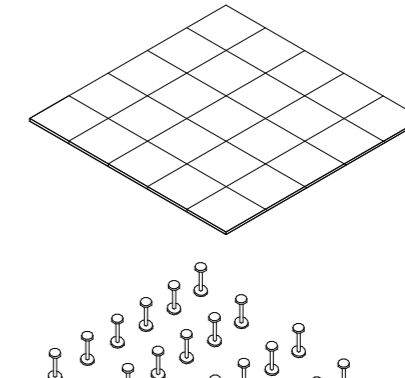
Risers are again made of steel and are fixed down onto metal supports



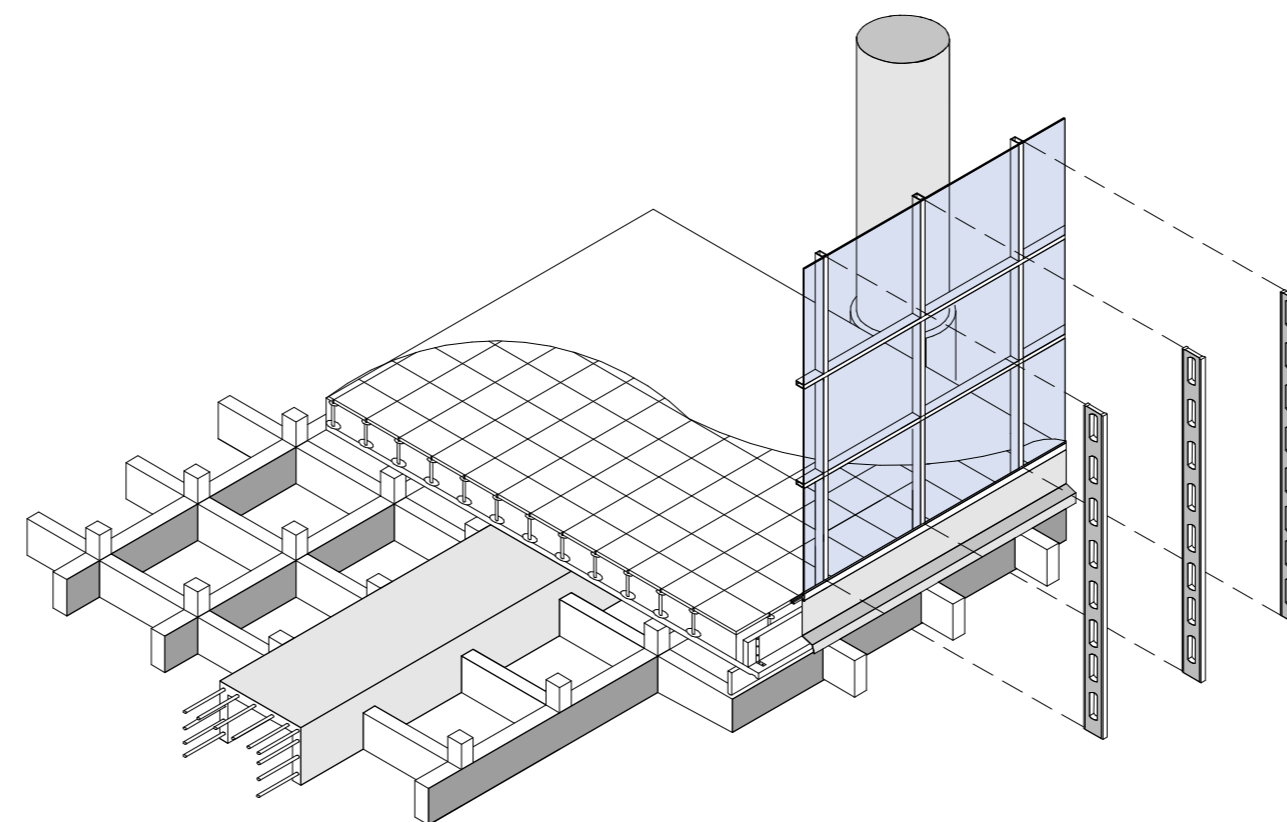
Glass balustrade is applied and floor is placed on cast in-situ concrete slab



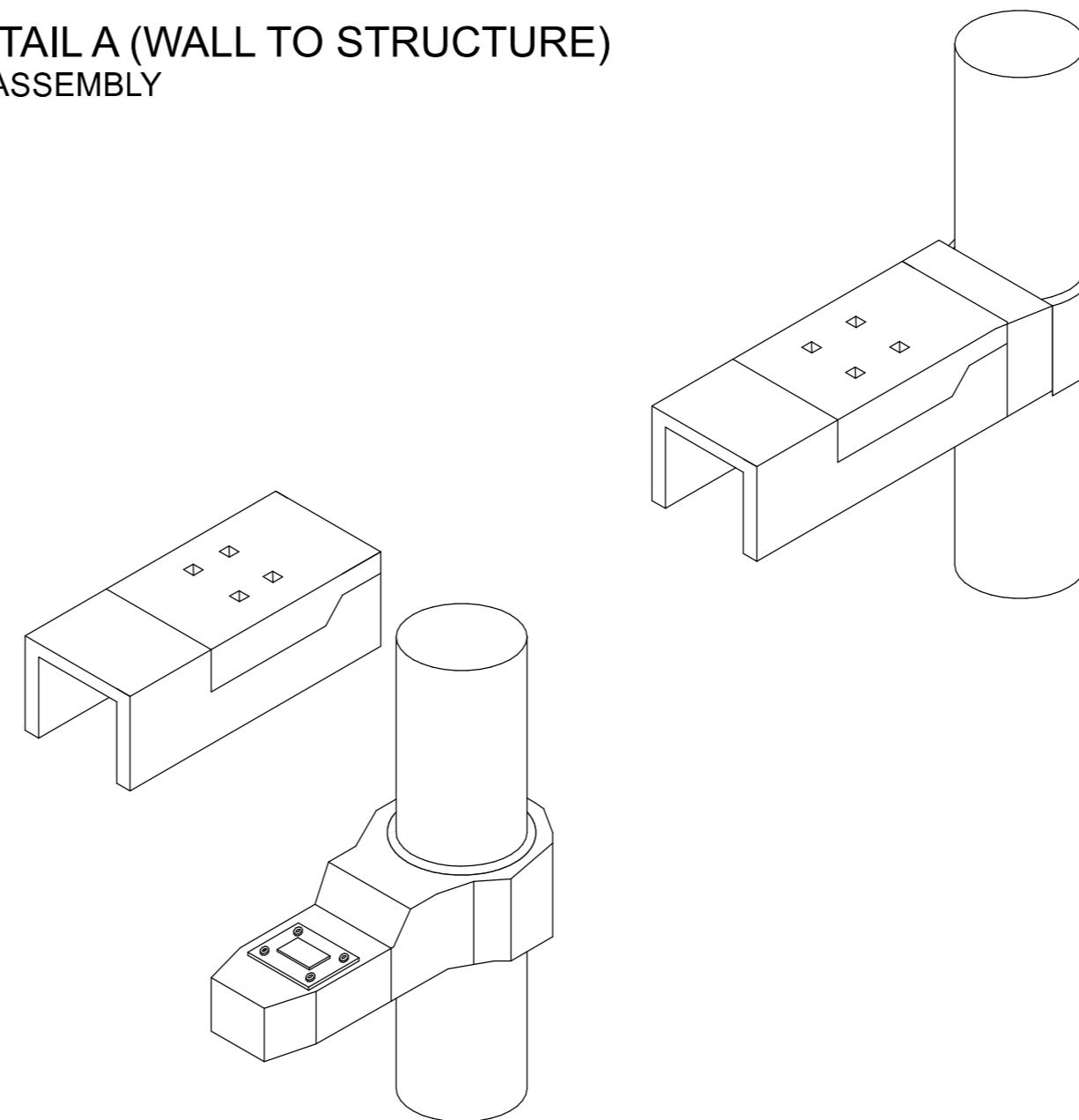
STRUCTURAL PLAN SHOWING LOCATION OF DETAIL A



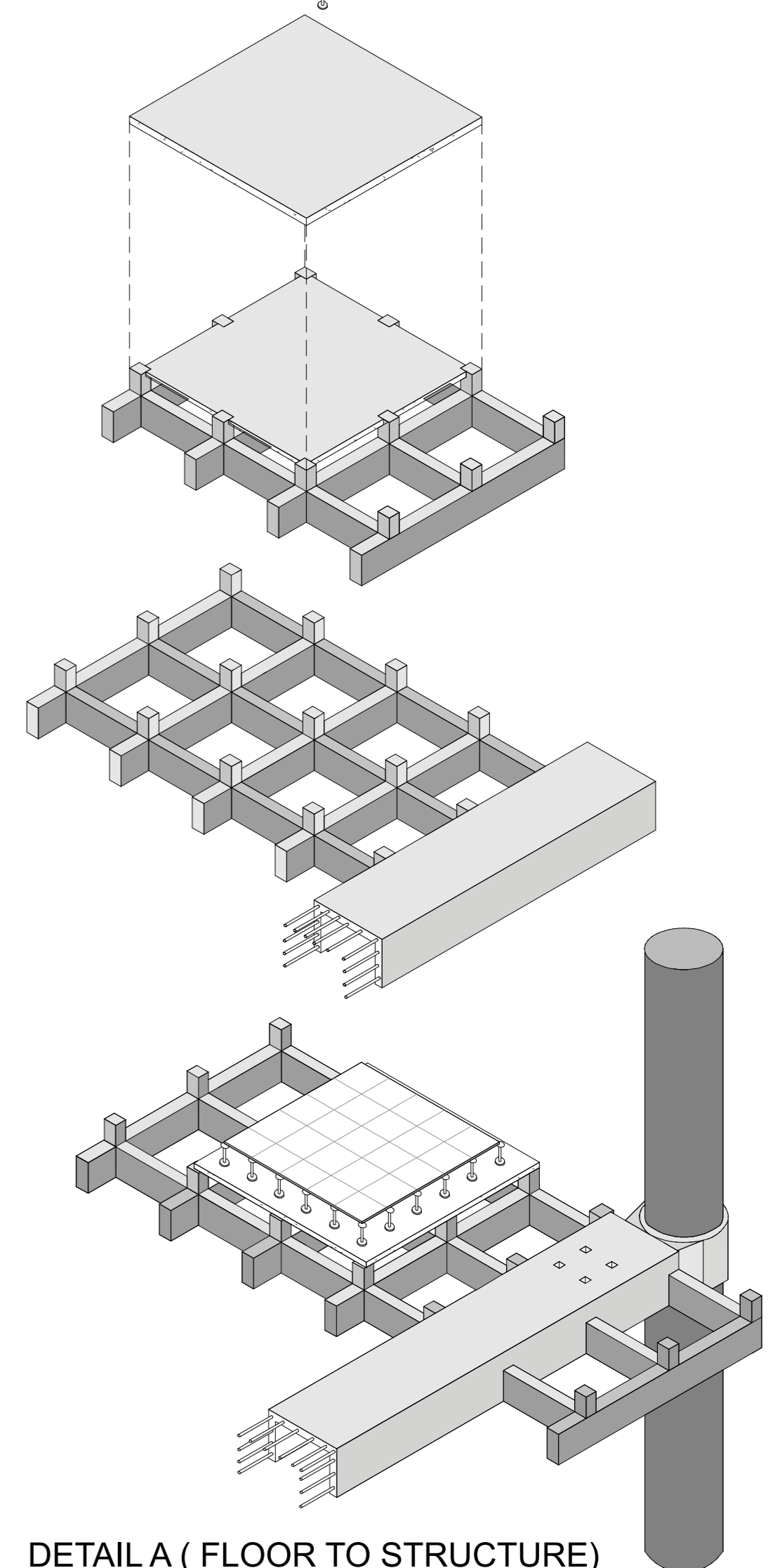
STRUCTURE / FABRIC (2D SECTION)



DETAIL A (WALL TO STRUCTURE) 3D ASSEMBLY



BEAM TO COLUMN CONNECTION 3D ASSEMBLY



DETAIL A (FLOOR TO STRUCTURE) 3D ASSEMBLY



CONNECTION & COLLABORATION: LESSONS FROM PETER RICE

3rd & 4th YEAR ARCHITECTURAL TECHNOLOGY 2013

Students: Milo Bashford, Gerard Bennett, Ross Boyce, Patrick Brady, Robert Burns, Robert G Burns, Sean Casey, Andrew Cleary, Carl Corcoran, Anna Cullen, Chris Daly, Adam Darby, Bernard Deay, Mark Denny, Vincent Doherty, Mark Doyle, Dean Farrell, Ciaran Ford, Shane Hall, Ross Harrell, Ben Harrison, Colin Hemon, Adam Henderson, Fatma Hinawy, Darren Hoey, David Holland, Brian Kennedy, Aki Klapauskaite, Davitt Lamont, Brian Lee, Peter Lemasney, Ciaran Lennon, Brendan Linnane, Sarah MacLoughlin, James Maguire, Peter Mahon, Brian Malone, Michael Malone, Jason McElroy, Kevin McFeely, Karl McGarry, Paucic McGill, Marcus McGuire, Joe McNally, Kevin McNully, Bryan Menton, Darragh Moore, Stephen Morris, Niall Murphy, Owen O'Flaherty, Ruairi O'Neill, John O'Sullivan, Daryl Phelan, Martin Philip, Ian Plunkett, Robert Quinn, Stephen Ralph, David Reilly, Jonathan Rogers, Anita Salako, Andrei Triffo, Aiga Veltensone, David Veltom, John Wolfe-Flanagan, Dominika Zubiak. Staff: Cormac Allen, Eric Bates, Noel Brady, Máirín D'Alton, Pierce Fahy, Rory Greenan, Orna Hanly, John Lauder, Tim O'Leary, Jim Roche, Sima Rouholamin, David Wright. Collaborators: Gerard Crowley, Peter Flynn, Declan McGonagle, Sean O'Laire.

