

RC Design and Detailing of a Commercial Complex for a Leading Engineering Consulting Firm in the Construction Space

Executive Summary: The project worked for is a \$100 mn commercial complex comprising of basement and six stories on top with a slab area of approximately 400,000 sq.ft. Flooring at all levels were flat slab without column heads and the typical grid of columns were at 6m x 7.5m spacing. Complete building had eight staircases and twelve lift cores.

Client: The Client is one of the leading engineering consulting firms with around 7000 employees working on projects in more than 32 countries.

Business Issue(s) Addressed: The project involved cantilevered flat slabs at all floor levels upto 4.5m outside the column line and also cantilevered flat slabs at 2nd & 3rd floor levels upto 6.4m outside the column line. Our team had to keep in mind the existing structure at ground floor in some part which increased the complexity of the design. A hanger system to support a deck slab hanging portion 4.5m beyond column line was designed. In addition, a suspension system was designed from roof to 1st floor slab on top of the existing structure.

How Neilsoft Helped: Neilsoft did the Structural analysis & design of

- Superstructure consisting of six floors.
- Suspension system to cover a cantilevering slab of 9m span at 4 levels.
- Hanger system to support a deck slab hanging portion 4.5m beyond column line.

Preparation of RC detailing drawings; rebar schedules & Bill of Materials of pile caps, basement slab, ground & floor slabs, retaining walls and beams.

Tools Used(Platforms):

Structural analysis & design

- STAAD Pro 2004
- In-house prepared excel sheets

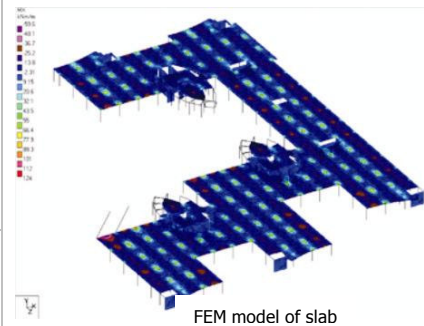
RC Detailing

- AutoCAD
- CADS-RC

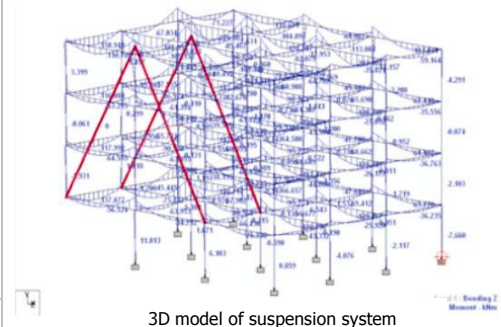
Standards & Codes used for Design & Detailing: BS 8110 (part 1, part 2), BS 5950 (part 1, part 2, part 3, part 4), BS 6399 (part 1, part 2, part 3), BS 4466

Company Profile: Neilsoft is a specialist engineering services & solutions provider catering to international clients in the construction (building systems and industrial plants), industrial machinery & equipment, automotive, shipbuilding, and software verticals helping them enhance their engineering efficiency. We are headquartered in Pune (India) which is considered the "Engineering Valley of India" and service customers across North America, Europe and Asia-Pacific through our local offices.

Our Construction practice provides Design, analysis, and detailed engineering services for building systems and industrial plants in multiple disciplines including design, structural engineering and MEP services.



FEM model of slab



3D model of suspension system

Key Achievements / Deliverables

- With a view to have more focus on the detailed design phase, the design was done using 'equivalent frame method' as well as 'finite element method'.
- Apart from cost savings of 35% on the engineering cost, the client benefited from fast turnaround time for the design and drawing deliverables as required by the contractor at site.

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