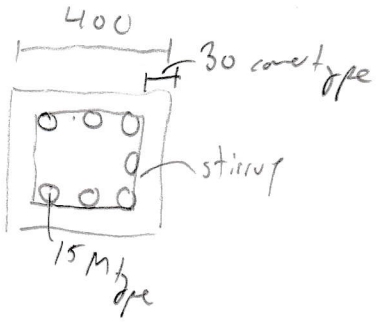
Reinforced Concrete Building



Q1: How will structure be used? This impacts
- ↳ Size, layout, spans, height
- ↳ loads (finishes, equipment, occupancy, use)
- ↳ location (environment, exposure condition, seismic, geotechnic)

Performance
- ↳ Safety (Building Codes)
- ↳ Serviceability
- ↳ Fire-protection
- ↳ Durability
- ↳ Service life

More
- ↳ Economical and constructable
- ↳ Aesthetically pleasing
- ↳ Availability of materials, systems, labour
- ↳ Time
- ↳ Site constraint (space, access, noise)
- ↳ Sustainability (embodied energy, carbon footprint, energy demand in service)

Structural Design Considerations
- Materials
- Appropriate gravity & lateral load structural system
- Analyse structure to determine force effects (M, V, N) and deflections (sizings)
- Calculate required reinforcement and detail reinforcement and connections
- Design foundations

Design Process

1. Collect info
   - ↳ Functional requirements
   - ↳ Other considerations
   - ↳ Performance requirements
2. Design Solution Developed
   - ↳ Meet functional requirement, and satisfy constraints and performance
   - ↳ Iteratively evaluate alternatives

* Important to focus on the system rather than individual members

Eg. Light structural steel building and steel - column connections