



Structural Statement

Outline Functional Description

- The building will be concrete framed with Post-tensioned slabs and bands.
- Contiguous Piles will be used as the temporary and permanent retention system for the basement excavation.
- The Basement slab will be designed as a conventional floating slab. The floor will be isolated from the perimeter walls and once the layout is known, some sensitive pieces of equipment might be located on an isolated slab.

Summary of UNSW Facilities or User Workshop outcomes, directions and brief clarifications

- The design brief indicates that within the building there is to be an area of 300 square metres which is designed for VC-D vibration criteria. The current structural design does not have an allowance for this area.
- The brief also asks for the building to be designed for a vibration requirement of VC-A within the laboratories. A study has been carried out and this shows that if the building was designed to the residential criteria, then even the most sensitive equipment can be effectively isolated by the use of isolators.

Summary of Design Assumptions

- The building will be designed in accordance with the following Australian Standards:
 - AS3600- Concrete Structures
 - AS4100- Steel Structures
 - AS1170.0- Structural design Actions- General Principles
 - AS1170.1- Structural design actions- Permanent, Imposed and other actions
 - AS1170.2- Structural design actions- Wind actions
 - AS1170.4- Structural Design Actions- Earthquake actions in Australia
- Design Criteria for Laboratories:
 - Superimposed DL- 1kPa
 - Live Load- 5kPa
- Design Criteria for Perimeter Offices:
 - Superimposed DL- 1kPa
 - Live Load – 3kPa
- Wind Loads:
 - $V_r = 46\text{m/s}$
 - Region A2
 - Terrain Category - 3
- Earthquake Loads:
 - Design Category 2
 - Site Sub-soil class – De
- Vibration Criteria
- The brief asks for the building to be designed for vibration requirement VC-A. The laboratories have been designed to conform to this.

Structural

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