



**Australian Government**

**Assessment Requirements for  
CPCCB6014 Apply structural principles  
to the construction of large, high-rise and  
complex buildings**

**Release: 1**

# Assessment Requirements for CPCBC6014 Apply structural principles to the construction of large, high-rise and complex buildings

## Modification History

Release 1 This version first released with CPC Construction, Plumbing and Services Training Package Release 5.0.

Supersedes and is equivalent to CPCBC6014A Apply structural principles to the construction of large, high rise and complex buildings. Updated to meet the Standards for Training Packages 2012.

## Performance Evidence

To demonstrate competency, a candidate must meet the elements and performance criteria of this unit by applying structural design principles to the construction planning for a large, high-rise, or complex building project.

In doing this, the candidate must:

- coordinate professional input to evaluate structural integrity of large and complex buildings
- select, position and size all structural members that form fixed or temporary building structures
- clearly analyse structural impact of design decisions
- apply design principles relating to performance
- identify typical faults and problems and the action required to rectify such faults.

## Knowledge Evidence

To be competent in this unit, a candidate must demonstrate knowledge of:

- government building legislation and regulation
- building codes, specifications and standards:
  - the National Construction Code (NCC)
  - Australian Standards
  - project specifications
- design principles and behaviour of structural members undergoing stress, strain, tension, compression, bending or combined actions
- structural design:
  - aesthetics
  - economy

- equilibrium
- functionality
- stability
- strength
- properties, characteristics and limitations of structural materials:
  - reinforced and pre-stressed concrete and tilt-up panels
  - composite steel and concrete
  - masonry
  - steel (cold-formed steel) and aluminium
- performance characteristics of columns analysis:
  - bending behaviour and performance of loaded support beams
  - eccentric and axial load effect
  - load spanning elements for bending moments, shear forces, deflection and torsion
  - effect of connections
  - effect of slab behaviour in relation to spans and stress distribution
  - effect of slenderness ratio
- high performance structural elements:
  - castellated beams
  - connections
  - fire resistance
  - laminated beams
  - pre-stressed beams
  - slabs
  - trusses
  - use of steel to reinforce concrete
  - waffle slabs
- application of structural principles in buildings:
  - dead and live load calculations and characteristics
  - fire resistance of materials
  - impact of thermal effects
  - impact of time-dependent effects, including creep and shrinkage
  - impact of wind, snow, groundwater, earthquake, liquid pressure, rainwater and earth pressure actions
  - structural resistance of forms of construction
  - structural resistance of materials
- project working drawings and specifications
- work health and safety (WHS) and organisational quality procedures and processes
- temporary structural elements:
  - bracing
  - close sheeting

- formwork props
- pressure resistant formwork
- scaffolding sole plates
- shields
- shoring collar sets
- soldier sets
- ties.

## Assessment Conditions

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment can be undertaken in the workplace or in a simulated workplace environment.

A simulated environment is one that realistically replicates workplace conditions, materials and equipment, interactions with others and workplace irregularities, and which meets industry standards for safety and environmental practices.

Candidates must have access to:

- relevant current government building and construction and WHS legislation
- the NCC, and other relevant industry and Australian codes and standards
- environmental requirements and sustainability principles
- manufacturer's materials and product specifications and installation instructions for building materials in the project specifications
- project plans, design brief, working drawings and specifications.

## Links

Companion volumes to this training package are available at the VETNet website - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=7e15fa6a-68b8-4097-b099-030a5569b1ad>