Draft 0.1

This is our work-in-progress update to CPCCBC5018A Apply structural principles to the construction of medium rise buildings: https://training.gov.au/Training/Details/CPCCBC5018A.

We are working with industry experts to ensure the updated unit:

- meets current and anticipated industry needs
- complies with current Standards for Training Packages
- is written in clear understandable English.

Information on our training package review and development process is available here: http://www.artibus.com.au/project-stage.

Summary of changes from current endorsed unit

Re-templated to meet Standards for Training Packages 2012.

Sequenced Elements and Performance Criteria.

Specified what and how performance is demonstrated in Performance Evidence.

Captured critical Range Statement items and included industry relevant knowledge in Knowledge Evidence.

Stated mandatory conditions and specific requirements for assessment.

CPCCBC5018
Apply structural principles to the construction of medium rise buildings

Application

This unit of competency specifies the outcomes required to apply structural principles to the construction or demolition of medium rise buildings. It includes applying structural principles that meet building codes and standards

This unit applies to builders, project managers and related construction industry professionals responsible for ensuring the structural integrity of materials as well as building and construction work so that site safety and quality control measures are maintained during residential and commercial projects.

The design and construction of medium rise buildings require the input of a range of skilled professionals, including architects and engineers. The building and construction professional plays a significant role within this project team and requires the ability to communicate effectively with building design professionals, and develop sound and safe practices in relation to structural procedures on site.

Prerequisite Unit

CPCCBC5001 Apply building codes and standards to the construction process for medium rise building projects.

Unit Sector

Construction.

Elements and Performance Criteria

1. Apply structural principles to planning the erection or demolition of a structure.	1.1	Identify main structural principles that apply to the erection of medium rise buildings.
	1.2	Identify structural elements from project plans and specifications.
	1.3	Analyse performance characteristics of building materials and apply them to the planning of the construction work.
	1.4	Undertake demolition of existing structures in accordance with legislative and planning requirements and safe work practices.
2. Coordinate and manage site and job set-up.	2.1	Put in place processes to analyse the stability of soils and capacity of the site to support the construction loads.
	2.2	Identify structural requirements for retaining walls in conjunction with related industry professionals apply them to the planning process.
	2.3	Analyse structural function and requirements for temporary structural elements and apply to the planning process.

3. Coordinate and manage construction of footing systems.	3.1	Check set-out of building for compliance with documented building plans.
	3.2	Assess structural performance of specified footings in the specifications for compliance with accepted construction principles and relevant building codes.
	3.3	Excavate, prepare and lay footings to meet compliance with relevant building codes and accepted industry construction principles.
	3.4	Check damp coursing, termite barriers and provisions for tie down in accordance with building codes and standards.
4. Coordinate and manage structural elements of the construction process.	4.1	Identify and analyse technical construction principles and performance characteristics of construction materials in the project plan.
	4.2	Manage the installation of services as per building plans with allowable tolerances stated in building codes and standards.
	4.3	Manage the construction processes of compliant structural elements in conjunction with specialist personnel.

Foundation Skills

As well as the foundation skills explicit in the performance criteria of this unit, candidates require:

- technology skills to:
  - use communication tools and devices to communicate and collaborate effectively with others
  - use equipment and programs to access, extract information and develop relevant documentation

Unit Mapping Information

Supersedes and equivalent to CPCCBC5018A Apply structural principles to the construction of medium rise buildings.

Links

Companion Volume Implementation Guide: to be added.

Assessment Requirements for CPCCBC5018A Apply structural principles to the construction of medium rise buildings

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by applying structural design principles to one medium rise construction project and the demolition of one existing medium rise building using structural dismantling processes.

In doing this, the candidate must:

- supervise the support of the structural components by applying temporary structure elements
- identify typical faults and problems and rectify as required.

Knowledge Evidence

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

- government building and constrution legislation and regulation
- building codes, specifications and standards:
    - National Construction Code (NCC)
    - Australian standards
    - project specifications
- design principles and behaviour of structural members undergoing stress, strain, compression, bending or combined actions
- properties, characteristics and limitations of structural materials:
    - concrete, including reinforced, pre-stressed concrete and tilt-up panels
    - composite steel and concrete
    - masonry
    - steel (cold-formed steel) and aluminium
- applications 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, ground water, 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 and organisational quality procedures and processes
- temporary structural elements

Assessment Conditions

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

Assessment of performance must be undertaken in the workplace or in a simulated workplace environment.

Candidates must be provided with:

- relevant state and territory building legislation codes and standards
- environmental requirements and sustainability principles
- manufacturer's specification and installation instructions
- organisational policies, procedures and workplace safety requirements
- project plans and specifications
- sufficient equipment and materials to apply structural principles to the construction and demolition of a building.

Links

Companion Volume Implementation Guide: to be added.