Draft 0.1

This is our work-in-progress update to CPCCBC6017A Evaluate services layout and connection methods for the planning of large building projects: https://training.gov.au/Training/Details/CPCCBC6017A.

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.

CPCCBC6017
Evaluate services layout and connection methods for the planning of large building projects

Application

This unit of competency specifies the skills and knowledge required to evaluate the layout of services and connection methods in large, high rise and complex buildings that comply with government building requirements and the National Construction Code (NCC). It includes cold and hot water supply, sewerage layout, electric and electronic installation, mechanical ventilation and air conditioning, smoke alarms and fire preventative systems.

This unit applies to builders and other related construction industry professionals and senior managers who determine and manage services installation and connection and resolve issues relating to the planning of services layout and solving related problems.

Prerequisite Unit

Nil.

Unit Sector

Construction.

Elements and Performance Criteria

1. Evaluate layout of water supply for general and firefighting use.	1.1	Identify, evaluate and record specified water supply layout and connection in project plans and specifications.
	1.2	Check water connection approvals and determine layout meets NCC performance requirements.
	1.3	Record installation of water services supplying fire hydrants, fire hose reels and fire sprinkler systems.
	1.4	Evaluate results of interconnected and non-return water tanks for fire services.
	1.5	Evaluate plumbing systems for general water supply is detailed and compliant with NCC.
2. Evaluate layout of sewerage and drainage disposal methods.	2.1	Check approval documentation from sewerage and drainage authority for any conditions related to the project.
	2.2	Identify and evaluate planned sewerage layout and connect for compliance with NCC and authority requirements.
	2.3	Identify, evaluate and record connection methods of main drains to local authority sewers across open ground and within buildings for the whole site.
	2.4	Evaluate local authority requirements for disposal of sewerage from fixtures situated below the level of local authority sewer mains.

	2.5	Evaluate and document design and installation of stormwater drainage systems.
	2.6	Evaluate and document methods for disposal of stormwater drainage systems.
3. Evaluate, mechanical services and ventilation layout and connection.	3.1	Establish mechanical ventilation control methods and use correct terminology to state how ventilation, volume, velocity and content is controlled.
	3.2	Identify, evaluate and record methods of air distribution and smoke hazard management and ensure compliance with NCC.
	3.3	Identify, evaluate and record functions, application and basic elements of air conditioning and mechanical ventilation for various occupancy types in buildings.
4. Select hot water systems.	4.1	Identify and evaluate design factors, height of installation, area to be serviced, number of outlets and energy sources available to select appropriate hot water system.
	4.2	Evaluate and document operating principles of various types of hot water systems.
	4.3	Evaluate layout and connection for selected hot water system.
5. Evaluate natural and artificial lighting.	5.1	Determine intent of natural lighting and aim of design from plans and specifications.
	5.2	Identify luminance requirements and compare artificial lighting types and sources for various service situations to meet relevant codes and standards.
	5.3	Evaluate layout and connection methods for lighting systems from plans and specifications.
6. Evaluate firefighting and fire detection systems.	6.1	Identify building classification and relevant authorities regulating to fire safety regulations and inspection.
	6.2	Identify and evaluate requirements for sprinkler systems, fire hydrants and fire hoses for compliance with the building classifications and codes.
	6.4	Identify and evaluate fire detection and alarm systems for compliance with the building classification and codes.
	6.5	Evaluate layout and connection of fire detection and firefighting systems.
7. Determine requirements for general electrical and electronic service installation.	7.1	Identify electrical design and requirements for service connection from electrical supply authorities.
	7.2	Evaluate layout and connection for general electrical supply and electronic services.
	7.3	Identify design and evaluate layout and connection of emergency warning systems, emergency lighting and exit signage systems.

Foundation Skills

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

- technology skills to:
  - use digital 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 CPCCBC6017A Evaluate services layout and connection methods for the planning of large building projects.

Links

Companion Volume Implementation Guide: to be added.

Assessment Requirements for CPCCBC6017 Evaluate services layout and connection methods for the planning of large building projects

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria of this unit by evaluating the layout of services and connection methods for the planning of one large building project.

In doing this, the candidate must:

- establish the class of building and determine that layout and connection of services meet the requirements of the National Construction Code and other relevant standards
- identify any non-compliances, determine solutions and seek suggestions from relevant professional expertise to meet compliance.

Knowledge Evidence

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

- relevant government building and construction legislation
- National Construction Code (NCC)
- organisational quality assurance systems
- design concepts and principles in relation to service installations
    - hot water system:
        - type of occupancy and area to be serviced
        - type of system
        - energy sources available
        - height of installation
    - general electrical and electronic service systems:
        - cabling and equipment layout for data, lift controls, power supplies, telecommunications
        - switch room and substations for electrical supply and distribution
        - emergency lighting and exit signage systems
        - emergency warning and intercommunication systems
        - fire stopping
        - service systems safeguards
        - service systems access for maintenance, repair and extension
    - lighting system
        - natural and artificial lighting
        - emergency and exit signage
        - terminology such as brightness, control of glare, installation of fire stopping, intensity, reflections, lifespan and locations for installation

    - sewerage connections:
        - local authority sewerage drainage system
        - septic or bio-chemical treatment unit
        - graded or vertical discharge pipes
        - inspection shafts and overflow relief gullies (ORGs)
    - stormwater:
        - design, installation and disposal
        - connection to local government water drains
        - use of soakage pits and on-site water detection systems
        - size, location and construction requirements for eaves and box gutters
    - downpipes and unground or concealed piping
    - water supply:
        - town supply
        - tank storage supply relative to public water supply and reservoir heights
        - single and two-stage pumping for multi-function and single function connected services
    - mechanical ventilation and air conditioning:
        - air conditioning applications
        - air distribution, including mechanical ventilation requirements for enclosed car parks
        - air filtration, including air filters, ducting and main filter types
        - air intake systems
        - fire dampers
        - fume discharge systems
        - installation of fire stopping
        - smoke control and exhaust systems
        - warm water and cooling towers
- general services installation terminology, definitions and installation methods
- nature of materials and effect of performance
- processes for the interpretation of working drawings and specifications
- construction terminology relating to services installation
- research methods
- processes for the preparation of documentation
- workplace safety requirements

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 government building legislation codes and standards
- National Construction Code
- environmental and sustainability requirements
- manufacturer’s specification and installation instructions

- organisational policies, procedures and workplace safety requirements
- project plans and specifications
- sufficient equipment and materials to evaluate services layout and connection methods for the planning of large building projects.

Links

Companion Volume Implementation Guide: to be added.