



Australian Government

Department of Education, Employment and Workplace Relations

CPCPPS5011A Coordinate services and penetrations within a building

Release: 1

CPCPPS5011A Coordinate services and penetrations within a building

Modification History

Not Applicable

Unit Descriptor

Unit descriptor This unit of competency specifies the outcomes required to coordinate services and penetrations within a building to minimise clashes with work on other building services and to ensure structural integrity.

Application of the Unit

Application of the unit This unit of competency supports development of fundamental skills and knowledge required for competent workplace performance in a consultancy, business or supervisory capacity in relation to plumbing services and construction hydraulics.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units Nil

Employability Skills Information

Employability skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.

Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Evaluate structural, architectural and mechanical services drawings.	1.1. Plans , elevations and sections are evaluated. 1.2. Multidisciplinary terminology is applied. 1.3. Service components are located. 1.4. Cast-in services are identified and located.
2. Overlay plans to ensure feasibility of building the service.	2.1. Reduced levels are checked to ensure compliance. 2.2. Drawings are overlayed to check for building services and building element clashes. 2.3. Service clashes are identified and rectified by design modification liaising with consultants.
3. Coordinate penetrations.	3.1. Product specifications, architectural finishes and structural elements are used to position penetrations. 3.2. Design modifications are made to ensure compliance. 3.3. Plans and documentation are updated to reflect design modifications.
4. Prepare a duct and penetration plan.	4.1. Duct and penetration information is collated. 4.2. Duct and penetration plan is prepared for a complex building project. 4.3. Maintenance access and testing provisions are located.
5. Coordinate fire services and emergency exit requirements.	5.1. Penetrations are positioned within ducts. 5.2. Landing valve penetrations are positioned to ensure regulatory requirements are met. 5.3. Required clearances in fire-isolated stairways are not obstructed by fire services. 5.4. Hose reels are located to comply with regulatory requirements.
6. Compile checklists for checking quality and legislative conformity of design and drafting.	6.1. Checklists for drafting quality and conformity with sketch designs and legislative requirements are developed. 6.2. Checklists for checking design and conformity with legislation are developed. 6.3. Checklists are developed to ensure correlation between drawings and specifications. 6.4. Checklists are developed to ensure on-site supervision with regards to checking that installation is in accordance with design and specifications.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Required skills for this unit are:

- communication skills to:
 - communicate with others to ensure safe and effective work practices
 - confirm job specifications and client requirements
 - enable clear and direct communication, using questioning to identify and confirm requirements, share information, listen and understand
 - read and interpret:
 - plans, specifications, drawings and design briefs
 - standards and manufacturer requirements and manuals
 - statutory and regulatory requirements
 - use language and concepts appropriate to cultural differences
 - use and interpret non-verbal communication, such as hand signals
- written skills to prepare documentation, including:
 - operation and maintenance manual
 - plans, specifications and schedules
- coordinating services and penetrations within a building to minimise clashes with work on other building services
- ensuring structural integrity of a building
- numeracy skills to apply measurements and calculations
- organisational skills, including the ability to coordinate, plan and set out work
- teamwork skills to work with others to action tasks and relate to people from a range of cultural and ethnic backgrounds and with varying physical and mental abilities
- technical skills, including the ability to draw accurate plans and develop specification lists.

Required knowledge

Required knowledge for this unit is:

- application of technical knowledge, including drafting principles and understanding of services
- workplace safety requirements, including relevant statutory regulations, codes and standards.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

This unit of competency could be assessed in the workplace or a close simulation of the workplace environment providing that simulated or project-based assessment techniques fully replicate plumbing and services workplace conditions, materials, activities, responsibilities and procedures.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

A person who demonstrates competency in this unit must be able to provide evidence of:

- coordinating hydraulic service plans to ensure compliance and resolution of clashes
- selecting and applying appropriate techniques to prepare a penetration plan for a complex building project
- complying with OHS regulations applicable to workplace operations
- applying organisational quality procedures and processes
- preparing detailed drawings for service risers
- preparing elevation and plan details for sanitary stack connections within the duct
- preparing a detailed drawing of a service penetrating a beam
- preparing checklists for use in coordinating services
- interactive communication with others to ensure safe and effective work site operations.

Context of and specific resources for assessment

This competency is to be assessed using standard and authorised work practices, safety requirements and environmental constraints.

Assessment of essential underpinning knowledge will usually be conducted in an off-site context.

Assessment is to comply with relevant regulatory or Australian standards' requirements.

Resource implications for assessment include:

EVIDENCE GUIDE

- an induction procedure and requirement
- realistic tasks or simulated tasks covering the minimum task requirements
- relevant specifications and work instructions, including design brief drawings, specifications, codes, design concepts and construction schedules
- tools and equipment appropriate to applying safe work practices, including computers, software and calculators
- workplace instructions relating to safe working practices and addressing hazards and emergencies
- material safety data sheets
- research resources, including industry related systems information.

Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support.

Method of assessment

Assessment methods must:

- satisfy the endorsed Assessment Guidelines of the Construction, Plumbing and Services Training Package
- include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application
- reinforce the integration of employability skills with workplace tasks and job roles
- confirm that competency is verified and able to be transferred to other circumstances and environments.

Validity and sufficiency of evidence requires that:

- competency will need to be demonstrated over a period of time reflecting the scope of the role and the practical requirements of the workplace
- where the assessment is part of a structured

EVIDENCE GUIDE

learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice, with a decision on competency only taken at the point when the assessor has complete confidence in the person's demonstrated ability and applied knowledge

- all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence.

Assessment processes and techniques should as far as is practical take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

Supplementary evidence of competency may be obtained from relevant authenticated documentation from third parties, such as existing supervisors, team leaders or specialist training staff.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Plans may include:

- architectural and base building plans
- interpretation of building services
- specifications for an appropriate building.

Service components include:

- beams
- lights
- mechanical
- registers
- ventilating.

RANGE STATEMENT

Building services include:

- air conditioning
- data and communications
- electrical
- fire
- gas
- hot and cold water supply
- mechanical
- sanitary plumbing and drainage
- stormwater
- trade waste
- ventilation.

Ducts and positioning may be affected by:

- building stress zones
- clearances
- other services
- positioning of reinforcing steel
- pre and post-tensioning bars
- regulatory requirements
- required services location
- slab thickenings.

Duct and penetration plan may include:

- cast-in pipework
- detail drawings of duct layout beam penetrations
- floor plan showing all ducts and penetrations
- highlighted potential problem areas or building set-out elements
- scale dimensions and sizes for all ducts and penetrations to gridlines.

Penetrations are positioned to take into account:

- branches
- fire collars and their operation
- junction
- other services to fit within the duct.

Unit Sector(s)

Unit sector Plumbing and services

Co-requisite units

Co-requisite units Nil

Functional area

Functional area