



Australian Government

Assessment Requirements for CPCPPS5001 Design industrial gas systems

Release: 1

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Modification History

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

Supersedes and is equivalent to CPCPPS5001B Design industrial gas systems. Updated to meet the Standards for Training Packages 2012.

Performance Evidence

To demonstrate competency, a candidate must meet the performance criteria for this unit by:

- planning, detailing, designing and sizing three of the following industrial gas systems:
- drying and treatment of solvents
- specialist atmospheres
- heat exchanger transfers
- air heating

and include the following components in each system design:

- burners
- controls
- regulators
- gas piping systems operating at greater than 200 KPa
- gas tightness testing for piping volumes greater than 30 litres
- appliances that include solvent or dust atmospheres
- dual fuel appliances
- flue and exhaust requirements for forced draught burners
- ensuring the systems:
 - meet all regulatory, manufacturer and Australian and New Zealand Standard requirements
 - are completed to client specifications
 - are presented in a professional manner using computer aided design and word-processing programs.

Knowledge Evidence

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

- Australian Standards, codes, statutory and regulatory requirements:
 - AS/NZS 5601.1 Gas installations - General installations

- AS/NZS1596 The storage and handling of LP gas
- AS 3814 Industrial gas-fired appliances
- AS 1375 Industrial fuel fired appliances
- AS 61508 Functional safety
- AS 31000 – Risk management
- National Gas Law (NGL)
- National Construction Code (NCC)
- Acts, regulations and local and state government policies, including group and strata titling
- manufacturer specifications, including hazards identified in relation to devices and systems used
- other codes or standard operating procedures
- common terminology, symbols and definitions used in the design of industrial gas systems
- principles of technology in the design of industrial gas systems
- workplace safety requirements, including relevant statutory regulations, codes and standards
- cost-benefit analysis
- inclusions for establishing scope of work:
 - interpreting plans and specifications
 - sizing and documenting layout of industrial gas systems:
 - characteristics
 - compatibility
 - dimensions
 - location
 - patterns
 - quantities
 - sizes
 - surfaces
 - types of product and service
- design requirements:
 - architectural specifications
 - builder specifications
 - owner requirements
 - specialist use applications
- manufacturer requirements:
 - material specifications
 - pump tables
 - sizing tables
 - technical and trade manuals
- types information collected during desktop study for design purposes:
 - council plans

- developer plans
- applications
- architectural and building plans
- other reports as available
- performance requirements including pipe grades, cover, flow conditions and discharge requirements, established using Australian and New Zealand Standards and local authority plans
- layout of pipework systems:
 - principles of economy, serviceability and durability
 - not unduly affecting building integrity and aesthetic appeal
- fittings and valves:
 - meters
 - regulators
 - relief valves
- valve trains:
 - analysing the operation of valve components
 - sizing and selecting components using manufacturer data
- system calculations to determine:
 - explosion relief
 - purge times
 - flow and consumption
 - information in design charts and tables
 - pipe sizing
 - operating pressures greater than 200 KPa
 - expansion and anchorage provisions for pipework
 - overpressure protection systems
- materials:
 - copper (Cu)
 - fittings and appliances including measures to prevent the spread of fire
 - high density polyethylene (HDPE)
- jointing methods:
 - brazing
 - gluing
 - mechanical joints
 - solvent cement welding
 - threading
- pipe fixings:
 - anchors
 - bracket spacing
 - corrosion protection

- hanging brackets
- material requirements
- saddles
- wall and ceiling brackets
- installation requirements:
 - clipping
 - installation details
 - jointing requirements
 - level of workmanship.

Assessment Conditions

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

This unit must be assessed in the workplace or a close simulation using realistic workplace conditions, materials, activities, responsibilities, procedures, safety requirements and environmental considerations.

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>