



Australian Government

Assessment Requirements for MEM23139

Design a basic single zone duct distribution system

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM23139A Design a basic single zone duct distribution system.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- implementing work health and safety (WHS) workplace procedures and practices including risk control measures
- designing basic single zone duct distribution systems to customer performance and cost requirements on at least two occasions
- selecting and sizing appropriate components, including air-diffusion, fans and duct work on at least two occasions
- communicating technical requirements to others, including preparation of required drawings, computer-aided design (CAD) files and reports
- dealing effectively with unexpected situations.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- single zone systems
- WHS and environmental requirements
- differentiation between static, velocity and total pressure in air distribution ducts
- organisational procedures
- contingency planning
- laminar and turbulent flow
- use of Moody diagram for flow rate and pressure drop
- friction and dynamic pressure loss
- Colebrook-White formula
- sources of heat and pressure leakage and loss calculation
- environmental considerations
- noise minimisation
- fan laws
- control cost parameters

- duct design parameters including:
 - standard duct sizes and gauges
 - available access and space
 - system performance requirements
- system sizing and balancing methods
- dual and single duct constant volume air systems
- variable volume air system
- multi-zone systems.
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Assessment Conditions

- Assessors must:
 - have vocational competency in designing a basic single zone duct distribution system at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the Standards for Registered Training Organisations 2015 or its replacement and comply with the National Vocational Education and Training Regulator Act 2011, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.
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Links

Companion Volume Implementation Guides are available on VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>