



**Australian Government**

**Assessment Requirements for MEM234017  
Design exhaust, ventilation and dust  
collection systems**

**Release: 1**

# Assessment Requirements for MEM234017 Design exhaust, ventilation and dust collection systems

## Modification History

Release 1. Supersedes and is equivalent to MEM234017A Design exhaust, ventilation and dust collection systems.

## 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:

- establishing required features and functions of the exhaust, ventilation and dust extraction
- confirming parameters of the brief or contract and providing initial advice based on discipline knowledge, standards, work health and safety (WHS), regulatory and risk assessment requirements
- researching latest trends and techniques in design of exhaust, ventilation and dust collection plant and equipment systems
- investigating, measuring, modelling and calculating design options
- investigating faults in existing designs and proposing solutions
- modelling and calculating system performance
- innovating and creating solutions, incorporating systems thinking, continuous improvement and constraint and contingency management
- designing exhaust, ventilation and dust collection systems on at least two occasions
- applying safe working practices and procedures
- communicating, negotiating and reviewing with stakeholders and client throughout the process to obtain agreement on proposal and sign-off on design
- documenting design with required drawings, specifications and instructions.

*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:

- contemporary design methods and research and investigation approaches for exhaust, ventilation and dust collection plant and equipment
- design brief parameters
- techniques for:
  - continuous improvement
  - problem-solving and decision-making

- root cause analysis (RCA) or failure mode and effects analysis (FMEA) or design review based on failure mode (DRBFM), and Pareto analysis
- documentation, drawings, specifications and instructions required
- WHS, regulatory and environmental requirements for work areas
- standards, codes of practice, risk management and organisational procedures related to the design, installation, operation and maintenance of exhaust, ventilation and dust collection systems
- current options and trends in design, performance analysis, and modelling and simulation software, including software validation techniques
- concepts of exhaust, ventilation and dust collection
- use and validation of system analysis, 3D arrangement, manufacturing data and simulation software
- selection and application of fans
- ducting design including:
  - system sizing and balancing methods
  - air diffusers, outlet design and location
  - dust collection systems, selection and application
- system issues including:
  - air quality
  - noise attenuation and sound proofing
  - flame proofing.
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## Assessment Conditions

- Assessors must:
  - have vocational competency in designing exhaust, ventilation and dust collection systems 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.

## **Links**

Companion Volume Implementation Guides are available on VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>