



Australian Government

MEM23145 Apply codes and regulations to air conditioning designs

Release: 1

MEM23145 Apply codes and regulations to air conditioning designs

Modification History

Release 1. Supersedes and is equivalent to MEM23145A Apply codes and regulations to air conditioning designs.

Application

This unit of competency defines the skills and knowledge required to apply standards, codes of practice and regulatory requirements to produce air conditioning designs for typical large-scale plant and multi-zone applications.

It applies to heating, ventilation, air conditioning and refrigeration (HVACR) technicians in organisational that design air conditioning systems and it can be applied to working within a design team or to individual design tasks.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Pre-requisite Unit

MEM23004 Apply technical mathematics

MEM23006 Apply fluid and thermodynamics principles in engineering

MEM23140 Determine operational parameters for building HVAC hydronic systems

MEM23142 Determine psychrometric processes and system performance

Competency Field

Engineering science

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Prepare for design compliance analysis	1.1 Obtain and implement work health and safety (WHS) and environmental requirements for the work area 1.2 Identify air conditioning codes and regulations relevant to zoning and usage, together with environmental requirements, from the client design brief 1.3 Consult with appropriate personnel to ensure that work is

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	coordinated effectively with others 1.4 Obtain equipment and resources needed for the task in accordance with organisational procedures
2. Analyse design for compliance	2.1 Check and validate proposed air conditioning system compliance against relevant codes and regulations 2.2 Prepare recommendations on any identified compliance issues relating to codes and regulations 2.3 Discuss recommendations on any proposed design modifications with appropriate personnel, as required 2.4 Consider and propose alternative design and other solutions required to meet codes and regulation requirements in accordance with organisational procedures
3. Record findings	3.1 Document outcomes of the analysis in accordance with organisational procedures 3.2 Document recommendations for any design rectifications, including details of all findings, calculations and assumptions

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

WHS requirements include:	• legislation • protective equipment • material safety management systems • hazardous substances and dangerous goods code • local safe operation procedures
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	• awards provisions.
Air conditioning codes and requirements include:	• National Construction Code (NCC) • state/territory regulations • local government by-laws • emergency service requirements • codes of practice.
Environmental requirements include:	• relevant legislation, regulations and codes • correct handling and disposal of liquid and solid waste • elimination or minimisation of gas, fume, vapour and smoke emissions, including fugitive emissions • dust elimination, minimisation and control • minimisation of energy and water use • elimination or control of excessive noise • use and recycling of refrigerants.
Appropriate personnel include:	• supervisor, leading hand, foreman or manager • engineer • technician • trainer or mentor • team member • customer.
Zoning and usage include:	• air conditioning system • building construction features • occupancies • energy conservation techniques.
Resources include:	• scientific calculator • technical charts and tables • building plans • suitable software.
Organisational procedures include:	• the use of tools and equipment • instructions, including job sheets, plans, drawings and designs • reporting and communication • manufacturer specifications • operational procedures • industry standards.
Equipment includes:	• computer workstation and software, either stand alone or networked • appropriate tools of trade, equipment and materials.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM23145A Apply codes and regulations to air conditioning designs.

Links

Companion Volume Implementation Guides are available on VETNet -

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

Assessment Requirements for MEM23145 Apply codes and regulations to air conditioning designs

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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:

- identifying and interpreting information relevant to the design task including air conditioning and environmental standards, codes and regulations, specifications and client requirements
- implementing work health and safety (WHS) procedures and practices including the use of risk control measures
- applying air conditioning design using relevant software tools
- applying codes and regulations to air conditioning system designs on at least two occasions through a compliance analysis that considers all applicable regulatory requirements
- making appropriate recommendations on how non-compliant systems can be rectified on at least two occasions
- communicating technical and procedural requirements to others
- dealing with unexpected situations
- documenting technical information and designs in accordance with procedures.

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:

- WHS requirements
- appropriate personnel to consult
- relevant design criteria for typical large-scale air conditioning plant and multi-zone applications
- air conditioning codes and requirements
- air conditioning system selection criteria
- zoning and building usage and relevance to regulatory compliance of large-scale air-conditioning systems
- regulatory and environmental requirements which can impact on final design
- organisational procedures

- resource and equipment requirements
- environmental requirements.
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Assessment Conditions

- Assessors must:
- have vocational competency in applying codes and regulations to air conditioning designs 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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