



Australian Government

MEM23145A Apply codes and regulations to air conditioning designs

Release: 1

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Modification History

Release 1 (MEM05v9).

Unit Descriptor

This unit of competency covers 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.

Application of the Unit

The unit applies to heating, ventilation, air conditioning and refrigeration (HVAC/R) technicians in enterprises that design air conditioning systems for typical large scale plant and multi-zone applications. The unit may be applied to working within a design team or to individual design tasks.

Licensing/Regulatory Information

No licensing, legislative, regulatory or certification requirements apply to this unit.

Pre-Requisites

MEM23004A	Apply technical mathematics
MEM23006A	Apply fluid and thermodynamics principles in engineering
MEM23140A	Determine operational parameters for building HVAC/R hydronic systems
MEM23142A	Determine psychrometric processes and system performance

Employability Skills Information

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.

Elements and Performance Criteria

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| 1 | Prepare for design compliance analysis | 1.1 | Obtain and implement work health and safety (WHS) and environmental requirements for a given work area |
| | | 1.2 | Identify air conditioning codes and regulations relevant to zoning and usage together with environmental requirements from the client design requirement brief |
| | | 1.3 | Consult with appropriate personnel to ensure that work is coordinated effectively with others |
| | | 1.4 | Obtain equipment and resources needed for the task in accordance with enterprise 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 alternative design and other solutions to meet codes and regulations requirements are proposed according to enterprise procedures if appropriate |
| 3 | Record findings | 3.1 | Document outcomes of the analysis according to enterprise procedures |
| | | 3.2 | Document recommendations for any design rectifications, including details of all findings, |

calculations and assumptions

Required Skills and Knowledge

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

Required skills

Required skills include:

- interpreting air conditioning standards, codes and regulations, including relevant WHS and environmental standards, regulations and codes
- applying relevant standards and regulatory requirements to the design task
- interpreting client requirements and specifications against codes and regulations
- documenting technical information and designs for compliance
- using relevant software tools effectively
- communicating effectively with others
- communicating technical and procedural requirements to others
- dealing effectively with unexpected situations

Required knowledge

Required knowledge includes:

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

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.

Critical aspects for assessment and evidence required to demonstrate competency in this unit	Assessors must be satisfied that the candidate can competently and consistently: • implement WHS workplace procedures and practices, including the use of risk control measures • demonstrate essential knowledge and skills to apply
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	codes and regulations to air conditioning design • demonstrate competence within a timeframe typically expected of the discipline, work function and industrial environment • demonstrate the ability to apply codes and regulations to air conditioning system designs through a compliance analysis taking into account all applicable regulatory requirements and make appropriate recommendations on how non-compliant systems can be rectified. This must be demonstrated consistently on different systems.
Context of and specific resources for assessment	• This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. • The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.
Method of assessment	• Assessment must satisfy the endorsed Assessment Guidelines of the MEM05 Metal and Engineering Training Package. • Assessment methods must confirm consistency and accuracy of performance (over time and in a range of workplace relevant contexts) together with application of underpinning knowledge. • Assessment methods must be by direct observation of tasks and include questioning on underpinning knowledge to ensure correct interpretation and application. • Assessment may be applied under project-related conditions (real or simulated) and require evidence of process. • Assessment must confirm a reasonable inference that competency is not only able to be satisfied under the particular circumstance, but is able to be transferred to other circumstances. • Assessment may be in conjunction with assessment of other units of competency where required.
Guidance information for assessment	Assessment processes and techniques must be culturally appropriate and appropriate to the language and literacy capacity of the candidate and the work being performed.

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.

WHS requirements	WHS requirements include: • legislation • protective equipment • material safety management systems • hazardous substances and dangerous goods code • local safe operation procedures • awards provisions
Air conditioning codes and requirements	Air conditioning codes and requirements may include: • Building Code of Australia (BCA) • regulations under State/Territory Government Acts • local government by-laws • emergency service requirements • codes of practice
Environmental requirements	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	Appropriate personnel may include: • supervisor • leading hand • foreman • manager • engineer • technician • trainer • mentor • team member

	• customer • client
Zoning and usage	Zoning and usage may include: • air conditioning system • building construction features • occupancies • energy conservation techniques
Resources	Resources may include: • scientific calculator • technical charts and tables • building plans • suitable software
Enterprise procedures	Enterprise procedures may 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	Equipment may include: • computer workstation and software, either stand alone or networked • appropriate tools of trade, equipment and materials

Unit Sector(s)

Competency field

Unit sector Engineering science

Custom Content Section

Not applicable.