



Australian Government

Department of Education, Employment and Workplace Relations

CPPACC5006A Apply ergonomic principles to accessible building design and fitout

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor

This unit specifies the competency required to use knowledge of human movement and the skills required to determine human posture and body strength and apply this information to the design of the environment in which people live and work.

The unit covers the application of basic ergonomic data derived from a defined human population to the design of accessible workplaces and living spaces. The design of accessible workplaces will maximise the sequencing of tasks to ensure body movements are efficient in terms of the conservation of work.

The measurement of the components of ergonomic competence of individuals and the application of this information to the design of an accessible environment required by the individual shall be demonstrated.

Application of the Unit

Application of the unit

This unit of competency supports a number of access consulting services associated with the design and fitout of accessible buildings and the accessibility of the built environment.

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills

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 required performance needed to demonstrate achievement of the element.

Where bold italicised text is used, further information is detailed in the required skills and knowledge and/or the range statement. Assessment of performance is to be consistent with the evidence guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Determine the range of human posture and body strength values within a defined population.	1.1 Key <i>working postures</i> of the human body are identified accurately. 1.2 Appropriate methodology for measuring key <i>ergonomic features</i> is selected. 1.3 <i>Ergonomic data</i> is recorded in a recognised format appropriate for retrieval and statistical analysis in accordance with <i>organisational requirements</i> .
2 Compare ergonomic data used in published architectural design documents with ergonomic data derived through measurement of a defined population.	2.1 <i>Published architectural design data</i> is compared and verified against ergonomic data derived through measurement of a defined population. 2.2 Ergonomic data that proves different to published architectural design data is analysed to assess the extent of difference, possible causes for the difference and likely consequences of altering published architectural design data.
3 Apply the principles of ergonomics to the design of workplaces.	3.1 The work processes undertaken in various locations are analysed to determine economical task sequencing. 3.2 Facilities are designed to locate the most essential elements in close proximity to support their functionality.
4 Identify the critical ergonomic features impacting on the ability of a person with a disability to work and function independently.	4.1 The level of functioning of a person with a disability is determined in consultation with the client. 4.2 Ergonomic features relevant to the ability of a person with a disability to work and function independently are identified in consultation with the client, using ergonomic methodology in accordance with organisational requirements. 4.3 Situations requiring specialist advice are identified and assistance is sought as required in accordance with organisational requirements. 4.4 Appropriate strategies for maximising the ability of a person with a disability to work and function independently are identified. 4.5 Identified strategies are communicated to the appropriate people for the design, construction and fitout of the client's premises.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the essential skills and knowledge and their level, required for this unit.

Required knowledge and understanding include:

- anatomical terminology
- commonwealth, state and territory anti-discrimination legislation and regulations
- disability awareness
- human anatomy
- ergonomic principles
- industry codes of practice and ethics
- international codes, standards, regulations and practices
- limitations of work role, responsibility and professional abilities
- normal population variance
- occupational health and safety (OHS) legislation and procedures
- processes for interpreting reports, working drawings and specifications
- preparation of research findings
- principles of design relating to accessible buildings and fitouts
- principles of safe and efficient workplace design
- principles of task sequencing for energy conservation
- relevant commonwealth, state and territory building legislation, local government regulations and Australian standards
- research methodologies and analytical processes
- statistical parameters of a normally distributed population
- relevant terminology and definitions in hazard identification.

Required skills and attributes include:

- analytical skills to:
 - analyse, evaluate and apply legislative requirements pertaining to disability access
 - analyse and evaluate the impacts of the full range of disabilities and the limitations that each disability places on the individual's ability to access the environment
 - analyse and evaluate how environmental barriers impact on people with disabilities
- application skills to:
 - apply relevant anti-discrimination and building legislation
 - apply relevant industry codes of practice and ethics, and other legislative requirements to work processes
 - apply disability awareness to work processes
 - apply current Australian and international building codes, standards, regulations and practices
- communication skills to:
 - explain clearly the findings of ergonomic data analysis and the relevance of the findings to ensuring appropriate access
 - explain clearly information on issues and legislation relating to the provision of access
 - consult effectively with clients and colleagues
 - impart knowledge and ideas through oral, written and visual means
 - use workplace equipment and communication methods

- literacy and numeracy skills to:
 - assess and use workplace information
 - measure ergonomic features of a defined population and record data
 - read and interpret statistical data
- organisational skills to:
 - coordinate data collection of defined populations
 - prepare and manage documentation
 - collect, store and retrieve data for analysis and reporting
 - develop and implement organisational policies and procedures
- interpersonal skills to:
 - relate to people from a range of social, cultural and ethnic backgrounds and with a range of physical and mental abilities
 - consult and provide advice in a sensitive and appropriate manner
 - facilitate change for greater awareness of disability access
 - analyse own work practices and process outcomes critically
 - engage colleagues and share disability access knowledge
 - adapt to new workplace situations
- research and evaluation skills to:
 - source, analyse and evaluate published architectural design data
 - source, analyse and evaluate legislative requirements for the provision of access
- technical skills to:
 - determine the normality of population variance
 - determine human movement, reach range and strength
 - determine the statistical parameters of a normal population distribution.

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, the range statement and the Assessment Guidelines for this Training Package.

Overview of assessment

- This unit of competency could be assessed on its own or as part of an integrated assessment activity involving other competencies relevant to the job function.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

- A person who demonstrates competency in this unit must be able to provide evidence of:
 - recognising the needs and desires of people with disabilities to engage fully in all aspects of society, and their right to do so

- interpreting accurately the impacts of the full range of disabilities and the limitations that each disability places on the individual's ability to access the environment
- interpreting accurately how the full range of environmental barriers impact on any of the impairments that people with disabilities might have
- measuring anatomical features and recording ergonomic data accurately in preparation for analysis
- analysing ergonomic data using appropriate statistical methodologies
- conducting comparative analysis between ergonomic data derived from defined populations and published architectural design data
- identifying accurately ergonomic features that impact on the ability of a person with disabilities to work and function independently
- applying organisational management policies and procedures, including quality assurance requirements.

Context of and specific resources for assessment

- Resource implications for assessment include:
 - a registered provider of assessment services
 - competency standards
 - assessment materials and tools
 - suitable assessment venue/equipment
 - workplace documentation
 - candidate special requirements
 - cost and time considerations.
- Validity and sufficiency of evidence requires that:
 - competency will need to be demonstrated over a period of time reflecting the scope of the role
 - where the assessment is part of a structured learning experience the evidence collected must relate to a number of performances assessed at different points in time and separated by further learning and practice with a decision of competence only taken at the point when the assessor has complete confidence in the person's competence
 - all assessment that is part of a structured learning experience must include a combination of direct, indirect and supplementary evidence
 - where assessment is for the purpose of recognition (RCC/RPL), the evidence provided will need to be current and show that it represents competency demonstrated over a period of time
 - assessment can be through simulated project-based activity and must include evidence relating to each of the elements in this unit.

Range Statement

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 in the performance criteria is detailed below. Add any 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.

Working posture is defined as:

- the posture a person adopts when performing a particular task, determined by the relationship

between the dimensions of the person's body and the dimensions of the various items in his/her workplace.

Ergonomic features may include:

- body clearances
- reach ranges
- zones of convenient reach
- joint ranges
- working posture
- vision - head and neck posture
- working height
- posture and strength.

Ergonomic data applies to:

- the data derived from the measurement of ergonomic features.

Organisational requirements may be outlined and reflected in:

- access and equity policy, principles and practices
- business and performance plans
- client service policies, procedures and standards
- codes of conduct and codes of practice
- communication channels and reporting procedures
- communication of services offered
- complaint and dispute resolution procedures
- compliance with legislation, codes and workplace standards
- continuous improvement processes and standards
- defined resource parameters
- duty of care
- employer and employee rights and responsibilities
- ethical standards
- legal policies and guidelines
- OHS policies, procedures and programs
- organisational mission statement, goals, objectives, plans, systems and processes
- policies and procedures relating to the setting of fees and the negotiation and management of contracts
- policies and procedures relating to own role, responsibilities and delegation
- privacy and confidentiality policies and procedures
- quality assurance and procedures manuals
- records and information management systems and processes

style guides and other guides used to prepare documents.

Published architectural design data may be included in:

- Australian standards
- international standards
- Building Code of Australia
- professional journals and manuscripts.

Unit Sector(s)

Unit sector

Access consulting