



Australian Government

Department of Education, Employment and Workplace Relations

CPPACC5007A Apply mechanics of human body functions 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 apply knowledge of human anatomy, body function and the functional limitations that result from impairment of the various body systems to the design of an accessible environment.

The application of this unit requires knowledge of human anatomy including the brain and nervous system, the musculoskeletal system, the eye and the ear. Knowledge of the consequences of dysfunction of the various body systems will be necessary for the access consultant to provide advice on appropriate design solutions for achieving an accessible environment.

The access consultant may work alone or contribute to a team.

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 level of impairment in human anatomy and body function within a defined population.	1.1 Key <i>functional systems of the human body</i> are identified accurately. 1.2 Appropriate <i>terminology for describing impairment of key body functions</i> is selected and applied. 1.3 The relationship between <i>impairment, disability</i> and <i>handicap</i> is recognised. 1.4 Extent of impairment in a defined population is recorded in a recognised format for retrieval and statistical analysis in accordance with organisational requirements.
2 Analyse the impact of anatomical and functional impairment of the musculoskeletal system on the mobility needs of a defined population, and the consequences for accessible design.	2.1 Published <i>accessibility design data for mobility</i> is assessed against anatomical and functional impairment data for its ability to meet the mobility needs of the defined population. 2.2 Data on <i>anatomical and functional impairment of the musculoskeletal system</i> for a defined population is compared with published accessibility design data to identify any differences in mobility needs and the extent of those differences. 2.3 Possible causes for the difference between the defined population and the published accessibility design data are identified, and the likely consequences of altering published accessibility design data are assessed.
3 Analyse the impact of anatomical and functional impairment of the eye and vision system on the wayfinding needs of a defined population and the consequences for accessible design.	3.1 Published <i>accessibility design data for wayfinding</i> is assessed against <i>anatomical and functional impairment of the eye and vision system</i> data for its ability to meet the wayfinding needs of the defined population. 3.2 Data on anatomical and functional impairment of the eye and vision system for a defined population is compared with published accessibility design data to identify any differences in mobility needs and the extent of those differences. 3.3 Possible causes for the difference between the defined population and the published accessibility design data are identified, and the likely consequences of altering published accessibility design data are assessed.
4 Analyse the impact of anatomical and functional impairment	4.1 Published <i>accessibility design data for communication</i> is assessed against <i>anatomical and functional impairment of the ear and auditory</i>

ELEMENT	PERFORMANCE CRITERIA
of the ear and auditory system on the communication needs of a defined population and the consequences for accessible design.	system data for its ability to meet the communication needs of the defined population. 4.2 Data on anatomical and functional impairment of the ear and auditory system for a defined population is compared with published accessibility design data to identify any differences in mobility needs and the extent of those differences. 4.3 Possible causes for the difference between the defined population and the published accessibility design data are identified, and the likely consequences of altering published accessibility design data are assessed.

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, body systems and functions
- 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 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
- 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

- interpret and analyse routine and non-routine situations to establish suitable methods of reporting
- 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 from data analysis on human body functions 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 colleagues and other experts
 - 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 anatomical and functional impairment 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
 - human body dysfunction and ability
 - design solutions to overcome environmental barriers for the full range of disabilities and increase the ability of people to work and function in the community

- 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
 - identifying functional systems of the human body and their behaviour, and recording data accurately in preparation for analysis
 - analysing human body systems data using appropriate statistical methodologies
 - conducting comparative analysis on anatomical and impairment data of human body systems derived from defined population and published accessibility design data
 - identifying design solutions to architectural barriers that impact on people with impairment of body systems
 - 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.

Functional systems of the human body include:

- musculoskeletal
- nervous
- circulatory
- respiratory
- digestive
- urinary

- endocrine
- eyes and vision
- ears and auditory
- nose and olfactory.

Terminology for describing impairment of key body functions may include:

- musculoskeletal system
 - arthritis
 - rheumatism
 - osteoporosis
 - brittle bones (Osteogenesis imperfecta)
 - muscular dystrophy

Duchenne disease

Landouzy-Dejerine disease

Myotonic dystrophy

- repetitive strain injury
- fractures
- amputation
- arthrogryposis multiplex congenita
- contracture
- achondroplasia (Dwarfism)
- myasthenia gravis
- osteomyelitis
- Paget's disease
- spondylitis (ankylosis)
- nervous system
 - cerebral palsy
 - epilepsy
 - poliomyelitis
 - multiple sclerosis
 - motor neurone disease
 - Parkinson's disease
 - Friedreich's ataxia
 - Alzheimer's disease
 - spina bifida
 - spinal injury (paraplegia and quadriplegia)
 - head injuries
 - amyotrophic lateral sclerosis
 - aphasia
 - ataxia
 - athetosis
 - benign congenital hypotonia
 - encephalitis
 - hemiplegia and monoplegia
 - Huntington's chorea

- hydrocephalus
- syringomyelia

- intellectual and mental disorders
 - Down syndrome
 - autism
 - low intellectual development
 - schizophrenia and delusional disorders
 - anxiety disorders

obsessive-compulsive disorder

phobias

post-traumatic stress disorder

- bipolar disorder
- depression and mania
- dissociative disorders (e.g. amnesia)
- hypochondriasis
- psychosomatic disorders
- suicidal behaviour
- circulatory system
 - haemophilia
 - arterial sclerosis
 - chronic cardiac congestion
 - venous disorders
 - cerebral haemorrhage
 - cardiac failure
 - sickle cell anaemia
- respiratory system
 - cystic fibrosis
 - asthma
- digestive system
 - bowel movement disorders
 - tumours
- urinary system
 - chronic infection
 - urinary incontinence
- endocrine system
 - diabetes
 - hypothyroidism
 - gout
- eyes and vision
 - loss of central vision (e.g. macular degeneration)
 - loss of parts of visual field (e.g. diabetic)

retinopathy)

- loss of peripheral vision (e.g. glaucoma)
- loss of contrast vision (e.g. cataract)
- blindness
- colour deficiency
- ears and auditory system
 - hearing loss

otosclerosis

noise-related

age-related

- deafness

perforation of the eardrum

cochlear damage

auditory nerve damage

- middle and inner ear disorders

Meniere's disease

tinnitus

vertigo.

Impairment refers to:

- medical condition and diagnosis.

Disability refers to:

- loss of function due to medical condition.

Handicap refers to:

- environmental impact due to loss of function.

Accessibility design data for mobility may include:

- Building Code of Australia (BCA)
- Disability Discrimination Act (DDA)
- DDA Premises Standard
- AS1428 Part 1
- architectural data publications
- international codes, standards, regulations and practices.

Anatomical and functional impairment of the musculoskeletal system may include:

- amputation
- arthritis
- brittle bones
- fractures
- muscular dystrophy
- osteoporosis
- repetitive strain injury
- rheumatism.

Accessibility design data for wayfinding may include:

- BCA
- DDA
- DDA Premises Standard
- AS1428 Part 4
- architectural data publications
- international codes, standards, regulations and practices.

Anatomical and functional impairment of the eye and vision system may include:

- blindness
- colour deficiency
- low vision.

Accessibility design data for communication may include:

- BCA
- DDA
- DDA Premises Standard
- AS1428 Part 5
- architectural data publications
- international codes, standards, regulations and practices.

Anatomical and functional impairment of the ear and auditory system may include:

- deafness
- low hearing
- Meniere's disease.

Unit Sector(s)

Unit sector

Access consulting