



Australian Government

Department of Education, Employment and Workplace Relations

CPPHSA4004A Assess thermal performance of existing residences using non-rating tools and techniques

Release: 1

CPPHSA4004A Assess thermal performance of existing residences using non-rating tools and techniques

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit of competency specifies the outcomes required to assess the thermal performance of existing residences using non-rating tools and techniques. No licensing, legislative, regulatory or certification requirements apply to this unit at the time of publication.
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Application of the Unit

Application of the unit	This unit of competency supports the work of home sustainability assessors and building thermal performance assessors engaged in assessing the thermal performance of existing residences.
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Licensing/Regulatory Information

Refer to Unit Descriptor

Pre-Requisites

Not Applicable

Employability Skills Information

Employability skills	This unit contains employability skills.
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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. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Plan and organise the assessment.	1.1 <i>Need for assessing thermal performance of an existing residential building</i> is clarified with <i>client</i>. 1.2 <i>Effective communication strategies</i> are employed to assist in establishing rapport with client and in responding to client questions and concerns. 1.3 Assessment is planned in line with <i>commonwealth, state or territory, and local government legislation and regulations, and industry ethical and conduct standards</i>. 1.4 <i>Issues</i> relating to state and territory legislation and regulations and industry ethical and conduct standards are identified and clarified with client. 1.5 Plan is established for the assessment in line with enterprise practice and client requirements. 1.6 Potential <i>hazards</i> are identified to ensure risks are suitably managed. 1.7 Assessment activities are planned to ensure they do not compromise the health and safety of self and others. 1.8 <i>Assessment documentation</i> is prepared in a manner consistent with enterprise practice. 1.9 <i>Tools, equipment and other requirements</i> for the assessment are identified and arrangements are made to ensure their availability on day of assessment. 1.10 Client is advised of <i>information that should be obtained prior to assessment</i> and <i>details of assessment</i> are confirmed. 1.11 Authority to proceed is obtained from client prior to commencement and reconfirmed as appropriate during the assessment.
Gather and analyse information on thermal performance of existing residence.	2.1 <i>Information</i> required for conducting the thermal performance assessment is determined. 2.2 Information is gathered from the resident and measurements and observations are also conducted during inspection of residence. 2.3 Information is verified for accuracy and recorded using relevant <i>data collection tool</i>. 2.4 Information is analysed to identify strengths and weaknesses of the thermal performance of the residence.
Assess options for improving thermal performance of existing residence.	3.1 <i>Sources of technical advice on building thermal performance</i> are identified. 3.3 Government rebates and other assistance programs for improving the thermal performance of existing residential buildings are identified.

ELEMENT	PERFORMANCE CRITERIA
	3.3 <i>Options for improving thermal performance and reducing emissions of the residence are evaluated.</i> 3.4 Cost of options for improving thermal performance of the residence is estimated in line with enterprise procedures.

ELEMENT	PERFORMANCE CRITERIA
Report outcomes of thermal performance assessment of existing residence.	4.1 Results and recommendations, along with supporting evidence, are collated and documented in line with enterprise and client requirements. 4.2 Estimated cost of proposed recommendations, associated reductions in costs and emissions, and improvements in thermal performance are documented in line with enterprise procedures. 4.3 Results and recommendations, including estimated costs, are explained to client in line with enterprise, legislative and client requirements.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

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

Required skills

- communication skills to interact with clients from diverse social, economic and cultural backgrounds
- decision-making and problem-solving skills to make recommendations based on information about the thermal performance of a planned or existing residence
- literacy skills to:
 - complete standard forms
 - generate business correspondence
 - prepare reports
 - read and interpret a variety of texts, including legislation, regulations, and codes of conduct and ethical standards
- numeracy skills to:
 - take measurements
 - interpret different units of measurement
 - perform basic calculations associated with conducting a thermal performance assessment
- planning, organising and scheduling skills to undertake work related tasks, such as:
 - scheduling site inspections
 - conducting site visits within agreed timeframes
- research skills to identify and locate documents and information on matters associated with building thermal performance, such as climatic zones and thermal properties of building materials

REQUIRED SKILLS AND KNOWLEDGE

- technology skills to use:
 - general purpose software packages
 - measuring instruments
- time-management skills to complete assessment tasks in a time and cost efficient manner

Required knowledge

- Australian climatic zones:
 - climatic zones and characteristics
 - climate data used in thermal performance assessment:
 - diurnal temperature range
 - humidity
 - irradiance
 - minimum and maximum temperature
 - solar geometry
 - wind speed and direction
- building materials:
 - constraints on choice of building materials:
 - cost
 - practicality
 - size
 - space
 - embodied energy and life cycle properties of building materials
 - thermal performance properties of common building materials
- building thermal performance:
 - thermal performance principles:
 - glazing, shading and insulation for controlling temperature
 - orientation for heating
 - thermal mass for storing
 - ventilation for cooling
 - impact of building design and building materials on building thermal performance
 - relationship between building thermal performance and thermal comfort
 - thermal performance ratings:
 - current rating requirements
 - documentation of ratings
 - legal requirements
 - uses

REQUIRED SKILLS AND KNOWLEDGE

- ways of improving thermal performance of existing residential buildings:
 - draught proofing
 - glazing
 - insulation
 - landscaping and planting
 - shade
 - structural changes
 - ventilation
- window and floor coverings
- commonwealth, state or territory, and local government legislation and regulations impacting on thermal performance assessment related to:
 - anti-discrimination and equal employment opportunity
 - building thermal performance
 - consumer protection, fair trading and trade practices
 - employment and industrial relations
 - environment protection
 - occupational health and safety (OHS)
 - privacy
- data collection tools and techniques:
 - advantages and disadvantages of non-rating data collection tools and techniques
 - types of non-rating tools and techniques
- energy and power:
 - terminology:
 - energy
 - energy efficiency
 - power
 - primary energy source
 - units of measurement
 - uses, cost and environmental impact of energy in residential buildings
- greenhouse gas emissions:
 - relationship between building design, energy consumption and greenhouse gas emissions
 - ways of reducing greenhouse gas emissions through building design
- thermal comfort:
 - definition of thermal comfort
 - physical factors that influence thermal comfort
 - requirement for thermal comfort
 - role of thermal comfort in building thermal performance assessments

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, range statement and the Assessment Guidelines for the Training Package.	
Overview of assessment	This unit of competency could be assessed by the thermal performance assessment of an existing residence using non-rating tools and techniques.
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 the required skills and knowledge specified in this unit. In particular, the person should demonstrate the ability to: - gather the building information required to conduct a thermal performance assessment of an existing residence - conduct a thermal performance assessment of an existing residence using non-rating tools and techniques - identify options for improving the thermal performance of an existing residence, taking into account the type of building, ownership of building, cost and practicality - apply knowledge of: - Australian climatic zones - building thermal performance principles - non-rating tools and techniques - passive energy design principles - relationship between building thermal performance and thermal comfort - thermal performance properties of common building materials.
Context of and specific resources for assessment	Assessment of essential underpinning knowledge may be conducted in an off-site context and is to comply with relevant regulatory and Australian standards' requirements. Resource implications for assessment include: - non-rating tools - relevant codes, standards and government regulations - access to residential buildings from which building information required for a building thermal performance assessment may be obtained

	• technology suitable for generating reports • technical reference library with current publications on: • building design and materials • house energy rating schemes (HERS) • building thermal performance for existing buildings • Australian climatic zones • manufacturers' product information on building products and materials.
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Method of assessment	Assessment methods must: • satisfy the endorsed Assessment Guidelines of the CPP07 Property Services Training Package • include direct observation of tasks in real or simulated work conditions, with questioning to confirm the ability to consistently identify and correctly interpret the essential underpinning knowledge required for practical application • reinforce the integration of employability skills with workplace tasks and job roles • confirm that competency is verified and able to be transferred to other circumstances and environments.
Guidance information for assessment	This unit could be assessed on its own or in combination with other units relevant to the job function, for example: • CPPHSA4001A Assess household energy use • CPPHSA4002A Assess household waste generation and management • CPPHSA4003A Assess household water use. Reasonable adjustments for people with disabilities must be made to assessment processes where required. This could include access to modified equipment and other physical resources, and the provision of appropriate assessment support. Assessment processes and techniques should, as far as is practical, take into account the language, literacy and numeracy capacity of the candidate in relation to the competency being assessed.

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, 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.	
<i>Need for assessing thermal performance of an existing residential</i>	• building design, renovation or retrofit advice purposes • determining thermal performance profile and identifying opportunities for improving thermal

building may include assessment for:	performance • legislative, regulatory and compliance purposes.
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Residential building refers to:	any building categorised as Class 1, 2, 4 and 10a of the Building Code of Australia or in accordance with jurisdictional requirements.
Client may include:	- builder - community organisation - construction manager - government agency - house owner - landlord - property developer - property manager - real estate agent - tenant.
Effective communication strategies may include:	- active listening - being non-judgemental - exploring problems - expressing an individual perspective - providing sufficient time for questions and responses - providing summarising and reflective responses in conflict situations - using appropriate words, behaviour and posture - using clarifying, summarising questions - using clear and concise language - using culturally appropriate communication - using plain English - using verbal and non-verbal communication.
Commonwealth, state or territory, and local government legislation and regulations, and industry ethical and conduct standards may include:	- building thermal performance - environment protection - ethical behaviour - fair trading and consumer protection: - confidentiality - conflict of interest - duty of care - non-discriminatory practices - privacy - residential tenancies - home sustainability program-specific code of conduct - OHS - thermal performance assessment: - accreditation - assessment procedures

	• certification • documentation.
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Issues may include:	• basis for need to conduct thermal performance assessment • information required by thermal performance assessor from client • information that thermal performance assessor is required to document • objectives of thermal performance assessment • privacy of non-participating household members.
Hazards may include:	• confined spaces • electricity • fire • harassment, bullying and/or violence involving co-workers or customers • hazardous substances: • asbestos • biological products • blood products • broken metal • chemicals • electrical wiring • fibres • fumes • gases • glass • insulation • leaking containers • oil and petrol • heat: • burns • scalds • manual handling: • carrying • lifting • pulling • pushing • machinery, including powered and non-powered equipment • skin penetrating injuries: • knives • sharps • syringes

	• waste • work environment: • access • animals • dust • floor surfaces • lighting • noise • smoking • temperature • trips and falls • working alone • working at heights • ventilation.
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Assessment documentation may include:	• building details • building plans and specifications • checklists • client details • company promotional materials • contact details • photographic evidence • risk assessment • site details.
Tools, equipment and other requirements may include:	• calculator • clipboard • collection containers • compass • digital camera • ladder • personal protective equipment (PPE): • dust masks • eye protection • headwear • gloves • overalls • safety shoes and work boots • reference manuals • simple thermal performance calculator • tape measure • thermometer • timers • torch.
Information that should be obtained prior to assessment may include:	• house construction details: • age • floor area • insulation • materials • number of storeys • household members: • age • number.
Details of assessment may include:	• address and postcode of residence • assessor name and contact details • cost of assessment

	• date and time of assessment • duration of assessment.
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Information may include:	• air leakage features: • fans • wall vents • attachments to other buildings externally • construction materials • glazing • insulation levels: • ceiling • floors • walls • orientation • overshadowing • shading • thermal mass • ventilation • window size and type • zoning and layout.
Data collection tool may include:	• checklists and forms • questionnaires • self-assessment forms • simple thermal performance calculator • tables.
Sources of technical advice on building thermal performance may include:	• architects • builders • building designers • building thermal performance assessors • colleagues • consultants • engineers • government agencies • professional associations • research bodies • supervisors • suppliers of products related to building thermal performance.
Options for improving thermal performance and reducing emissions of the residence may include:	• air leakage reduction • draught proofing • floor coverings • glazing • insulation levels • internal and external window coverings

	• landscaping and planting • shade • structural changes • ventilation.
Evaluation is based on:	• availability of rebates and other assistance programs • cost • ownership of building • practicality • type of building.

Unit Sector(s)

Unit sector	Home sustainability assessment
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Competency field

Competency field	
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