Unit of Competency CPPHSA4XXX **(code)** Conduct thermal performance assessment of residential buildings **(title – describes unit)**

# Application **(describes practical application in the industry and how, where and who might use it)**

This unit specifies the skills and knowledge required to analyse information to assess the thermal potential of the building envelope of planned residential buildings, and the thermal performance of existing residential buildings, including alterations and additions. Assessments involve a variety of building designs and materials across all jurisdictions using the regulatory mode of software accredited under the Nationwide House Energy Rating Scheme (NatHERS).

This unit is for individuals who work independently using specialised knowledge and skills to complete thermal performance assessments. This work involves known or changing contexts and is conducted within established parameters.

Licensing, legislative or certification requirements apply to this unit but vary according to state or territory jurisdiction. **(unit’s relationship to licensing)**

# Prerequisite Units **(competencies required prior to determination of competency in this unit)**

CPPCMN4008 Read plans, drawings and specifications for residential buildings

CPPHSAXXXX Operate and maintain computer system to support thermal performance assessments

# Competency Field **(industry sector)**

Home Sustainability.

# Elements and Performance Criteria

**(Elements describe actions or outcomes that are demonstrable and assessable)**

**(Performance criteria describe performance needed to demonstrate achievement of the element)**

|  |  |
| --- | --- |
| Elements  1. Prepare for thermal performance assessment. | Performance criteria  1.1 Consult with client to confirm scope and purpose of assessment and respond to questions to clarify issues and concerns.  1.2 Research and apply jurisdictional regulatory and NatHERS requirements to planned thermal performance assessment.  1.3 Obtain documentation and drawings for the assessment and review to verify consistency and sufficiency to meet software, NatHERS technical notes and regulatory requirements and refer inconsistencies ………………………………………………………………………………………………………. |
| 2. Collate and input information into NatHERS software tool. | 2.1 Extract information required for input into software tool from building documentation and NatHERS technical notes.  2.2 Enter extracted information into software tool according to regulatory and AAO requirements for building zones. ………………… |
|  |  |
| 3. Model thermal performance of building. | 3.1 Apply software tool functions to model thermal performance of building.  3.2 Run simulation to determine if the building’s potential thermal performance complies with regulatory requirements  …………………………………………………………………………………………………………………….. |
| 4. Identify options to improve thermal performance of building. | 4.1 Analyse strengths and weaknesses in thermal performance of building.  4.2 Access technical advice and identify cost effective options for improving thermal performance considering outputs of thermal performance assessment, practicality and type of building. …………….  ………………………………………………………………………………………………………………………. |
| 5. Report and certify thermal performance assessment outcomes. | 5.1 Finalise thermal performance assessment and collate design and assessment documentation in line with jurisdictional requirements and for auditing and quality assurance.  5.2 Write up options and recommendations for achieving required energy efficiency rating according to regulatory requirements.  5.3 Discuss assessment outcomes with relevant persons and obtain approval to proceed with certification according to organisational requirements. ………………………………………………………………………………. |

# Foundation Skills **(language, literacy, numeracy and employability skills)**

As well as the foundation skills explicit in the performance criteria of this unit, candidates require:

* numeracy skills to interpret thermal performance outputs including U-values and R-values
* reading skills to interpret a variety of texts including regulations, codes and technical notes
* problem-solving skills to identify errors and regulatory non-compliances when using NatHERS software tools.

# Unit Mapping Information **(unit history)**

Supersedes and equivalent to CPPHSA4012A Conduct NatHERS assessment of planned residential buildings.

# Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>

Assessment Requirements for CPPHSA4XXX

Conduct thermal performance assessment of residential buildings

# Performance Evidence **(specifies required product and process evidence and links to Performance Criteria. Describes what individual must do to perform the work task)**

To demonstrate competency, a candidate must meet the performance criteria of this unit by using an accredited Nationwide House Energy Rating Scheme (NatHERS) software tool to conduct thermal performance assessments of **six** residential buildings.

The assessments must be conducted in accordance with the requirements of the software, Technical Notes and jurisdictional regulatory requirements.

The buildings assessed must include:

* different designs appropriate to a tropical, a temperate and a cold climate zone
* use a variety of building materials and designs appropriate to the climate zone

And incorporate the following:

* one single story dwelling (3 Bedrooms)
* one double storey dwelling (3 Bedrooms)
* an apartment unit (2 Bedrooms) in a Class 2 complex modelled as:
* a ground floor unit over a basement/carpark
* a middle level unit with neighbouring units above and below
* and a top floor unit with a roof over
* one alteration works including an addition to one of the above dwellings.

# Knowledge Evidence **(specifies what the individual must know to perform the work task)**

To be competent in this unit, a candidate must demonstrate knowledge of:

* Australian climate zones and characteristics
* climate terminology used in thermal performance assessments:
  + heating and cooling loads and diurnal temperature range
  + humidity
  + irradiance
  + solar geometry
  + wind speed and direction
* energy units of measurement and terminology associated with thermal performance assessments:
  + energy efficiency
  + energy loads
  + heating and cooling loads
  + latent heat

………………………………………………………………………………………………………………………………………………..

# Assessment Conditions **(stipulates any mandatory conditions for assessment)**

Assessors must meet the requirements for assessors contained in the Standards for Registered Training Organisations.

Assessment of performance must include access to:

* current accredited NatHERS software tool and associated equipment and manuals
* the NCC and jurisdictional guidelines associated with conducting NatHERS assessments
* residential building design documentation and technical information to allow achievement of the performance evidence
* NatHERS technical notes, Protocol for AAOs and Software Accreditation Protocol.

# Links

Companion Volume Implementation Guide:

<https://vetnet.education.gov.au/Pages/TrainingDocs.aspx?q=6f3f9672-30e8-4835-b348-205dfcf13d9b>