

Building and Plumbing Newsflash 628

Energy assessments for new residential dwellings and use of accredited software

Purpose

To provide updated advice for building certifiers, other building practitioners and homeowners about energy assessments in Queensland for new residential dwellings when accredited software is used to demonstrate compliance with the energy efficiency standards.

Summary

Building certifiers can confirm that the house energy assessor is a competent person to perform software assessments for the energy efficiency of residential dwellings where they have:

- i. suitable training and skills
- ii. used appropriate assessment practices, and
- iii. used an approved NatHERS software tool.

This information updates and supersedes details in Building and Plumbing Newsflash 548.

Background

Energy efficiency standards for new residential dwellings

From 1 May 2024, the [National Construction Code 2022](#) (NCC) Modern Homes standards for residential energy efficiency apply to the design and construction of new houses (class 1 buildings) and units in apartment buildings (class 2) under [Queensland Development Code 4.1–Sustainable buildings](#) (QDC 4.1).

The residential energy efficiency standards cover:

- **7-star rating** for the energy efficiency (thermal performance) of the dwelling's building shell (its roof windows, walls and floors). This promotes passive design features such as optimal house orientation and room layout, better insulation, ventilation and shading, window design, inclusion of ceiling fans and a lighter-coloured roof. For apartment buildings, all units must achieve an average of 7-stars, with no individual unit to be rated less than 6 stars, and
- **Whole of Home energy budget** for the dwelling's major fixtures and appliances, which includes air-conditioners, hot water systems, artificial lighting and pool/spa pumps, as well as any on-site renewable energy system, such as solar photovoltaic (PV). New houses and townhouses need to achieve a minimum score of 60 (out of 100) and new units a score of 50 (out of 100).

The residential energy efficiency standards can improve occupant comfort, reduce the need for air-conditioning and minimise energy bills over the life of the home.

Approved software

Software is the most common method used for residential energy efficiency compliance. An energy rating using software allows for flexible design options and different building features can be emphasised. For example, a higher level of insulation can be used to off-set a darker coloured roof (that attracts heat) in hotter areas while potentially still achieving compliance.

House energy assessors must use [Nationwide House Energy Rating Scheme](#) (NatHERS) accredited software under its Software Accreditation Protocol. All NatHERS software tools have been accredited to assess for both thermal performance (star rating) and the Whole of Home energy budget.

The software predicts the total annual energy load (heating and cooling) based on the dwelling's proposed design and construction materials, and its location (climate zone). It will generate a star rating (out of 10)

for the building shell and a separate Whole of Home score (out of 100) for the major fixtures and appliances on a NatHERS Certificate (see Figure 1 below).

Four accredited software tools are available:

- AccuRate Home
- BERS Pro
- FirstRate5
- Hero.

Each tool has a different user interface and house energy assessors are trained in their preferred tool. All new assessments must be undertaken using the latest version of the software (except where a proposed dwelling is subject to transitional arrangements).

The NatHERS software assessment for the dwelling's plans must be submitted with the building development application to demonstrate its compliance with the energy efficiency standard under QDC 4.1.

Use of optional credits for a star rating

Compliance with the relevant energy efficiency standards can be achieved by using accredited software, or by combining the software's star rating with optional credits available under QDC 4.1.

The optional credits for a covered outdoor living area (based on minimum design specifications) are:

- ½ star without a ceiling fan, or
- 1 star with a ceiling fan.

When using the optional credits for a 7-star house, the design must achieve a minimum 'baseline' star rating of 6 stars in all four [Queensland climate zones](#) under the NCC.

If outdoor living areas are included with units in a multi-unit residential building, the optional credits can only be used when calculating the average star rating of all units in the whole building. The optional credits for units apply in all four Queensland climate zones.

Inclusion of solar photovoltaic (PV) energy system is considered as part of the calculation for the Whole of Home energy budget. To avoid potential for double-counting of this major fixture, the optional credit of 1-star under QDC 4.1 for a solar PV energy system has been removed since 30 April 2024.

Design inclusions

The type of energy efficient features proposed to be included with the new dwelling should be discussed early in the design process between homeowners and the project team (i.e. building designer/architect, house energy assessor, builder, building certifier). This way all parties will be clear about what will be incorporated into its final design and construction given the choice of features and budget. These design inclusions should be shown on the house's plans for ease of reference for practitioners and homeowners.

House energy assessor competence

In Queensland, the building certifier has discretion under the [Building Regulation 2021](#) (section 34) to decide whether a house energy assessor is a 'competent person' to perform the software assessment.

A house energy assessor may be accredited with an [Assessor Accrediting Organisation](#) (AAO) and there are three currently operating in Australia:

- Australian Building Sustainability Association (ABSA)
- Design Matters National (formerly Building Designers Association of Victoria (BDAV))
- House Energy Raters Association (HERA).

House energy assessors may have completed a Certificate IV in one of the following qualifications:

- Certificate IV in Home Energy Efficiency and Sustainability (course number CPP41119), or
- Certificate IV in NatHERS Assessment (course number CPP41212) – while this course is no longer available, qualifications achieved are valid to undertake software assessments.

Accredited assessors operate under a Code of Practice and are subject to quality assurance reviews by their respective AAO. They are also required to undertake continuing professional development and have professional indemnity insurance.

If an accredited assessor has performed the assessment, the building certifier can accept that it has been completed by a competent person.

The NatHERS Certificate identifies if the house energy assessor is 'accredited' with an AAO or 'non-accredited' (see Figure 1 below).

If a non-accredited assessor has performed the software assessment, before the building certifier can accept that they are competent, they will need to confirm that the assessor:

- i. has suitable training and skills
- ii. used appropriate assessment practices, and
- iii. used an approved NatHERS software tool.

i. Training and skills

If a house energy assessor does not hold a Certificate IV qualification as above, the building certifier will need to determine their successful completion of previous software training courses, and relevant assessment skills and experience.

ii. Assessment practices (NatHERS Technical Note)

The NatHERS Administrator has issued a [NatHERS Technical Note](#) (current version is May 2024) that sets out acceptable industry practice for undertaking software assessments for regulatory purposes.

In determining whether a non-accredited assessor is a competent person to perform a house energy assessment, the building certifier should ensure their assessment has complied with the NatHERS Technical Note.

iii. Approved NatHERS software tools

For a non-accredited assessor, the building certifier must be satisfied that the software assessment was undertaken using an accredited NatHERS software tool. The four software tools and their current version numbers are listed on the [NatHERS website](#).

NatHERS Certificate

The NatHERS Certificate presents a comprehensive summary of the software assessment in a uniform format for the four different software tools. It aims to improve understanding about house energy star ratings and Whole of Home score, particularly for building practitioners and homeowners. It also allows the energy efficient design aspects of the dwelling to be more easily checked.

All software tools produce the NatHERS Certificate and it is generated in a fixed file format for record keeping as a .pdf document.

The NatHERS Certificate includes the following information:

- if the software assessment was prepared by an:
 - accredited assessor—colour print-out with their accreditation number and AAO, and NatHERS logo displayed
 - non-accredited assessor—black and white print-out, no NatHERS logo displayed
- building design features and the specifications for windows, walls, floors, ceiling and roof
- a unique certificate number to enable confirmation that it is a valid assessment and a QR code.

The NatHERS Certificate must be generated for each of the approved software tools.

Examples of the two types of NatHERS Certificate are shown in Figure 1 below. More information about the NatHERS Certificate, including sample certificates, is available on the [NatHERS website](#).

Figure 1: Examples of the NatHERS Certificate

Note: Examples shown are of the front page only.

Accredited assessor

Certificate in colour, assessor's accreditation number and with NatHERS logo

Nationwide House Energy Rating Scheme®
NatHERS® Certificate No. #000000000-00
 Generated on [date] using [software and version]
 [other boilerplate text other boilerplate text other boilerplate text other boilerplate text other boilerplate text other boilerplate text]

Property
 Address [00 Street, Suburb, State/Territory, Postcode]
 Lot/DP [number]
 NCC class* [number]
 Floor/all Floors [dwelling entrance floor] of [total no. of floors] floors
 Type [new/renovation/existing]

Plans
 Main plan [plan number, version & date]
 Prepared by [name of preparer of plans]

Construction and environment
 Assessed floor area (m²)*
 Conditioned* 0000.0
 Unconditioned* 0.0
 Total 0.0
 Garage 0.0
 Exposure type [exposure]
 NatHERS climate zone [number, town/suburb]

Accredited assessor
 Name [assessor name]
 Business name [business name]
 Email [email address]
 Phone [00 0000 0000]
 Accreditation No. [0000 000 000]
 Assessor Accrediting Organisation [name of Assessor Accrediting Organisation]
 Declaration of Interest [declaration]

NCC Requirements
 BCA provisions [Volume 1/Volume 2]
 State/Territory variation [Yes/No]
 National Construction Code (NCC) requirements

Thermal performance star rating
7.0
 The more stars, the more energy efficient
107.9 MJ/m²
 Predicted annual energy load for heating and cooling based on standard occupancy assumptions
 For more information on your dwelling's rating see: www.nathers.gov.au

Thermal performance (MJ/m²)
 Limits taken from ABCB Standard 2022.1
 Heating 0000.0
 Cooling 0000.0
 Load limits 0000.0 0000.0

Whole of Home performance rating
60 out of 100
 Net zero house
 Improving energy performance

Verification
 To verify this certificate, scan the QR code or visit [http://star-dev.azurewebsites.net/QR/Generate?m=Map?r={q}]
 When using either link, ensure you are visiting star-dev.azurewebsites.net

* Refer to glossary. ** Refer explanatory notes.
 Generated on [date] using [software] for [address] Page 1 of 10

(this sample certificate is for a house, noting 60 out of 100 score for Whole of Home)

Non-accredited assessor

Certificate in black and white, no NatHERS logo

Residential energy rating report Non-accredited No. #000000000-00
 Generated on [date] using [software and version]
 This report was created using NatHERS accredited software but the non-accredited assessor (rater) is not accredited under NatHERS and this report is not accredited as being compliant with NatHERS. Reliance on this report is accordingly at your own risk.

Property
 Address [00 Street, Suburb, State/Territory, Postcode]
 Lot/DP [number]
 NCC class* [number]
 Floor/all Floors [dwelling entrance floor] of [total no. of floors] floors
 Type [new/renovation/existing]

Plans
 Main plan [plan number, version & date]
 Prepared by [name of preparer of plans]

Construction and environment
 Assessed floor area (m²)*
 Conditioned* 0000.0
 Unconditioned* 0.0
 Total 0.0
 Garage 0.0
 Exposure type [exposure]
 NatHERS climate zone [number, town/suburb]

Rater**
 Name [assessor name]
 Business name [business name]
 Email [email address]
 Phone [00 0000 0000]
 Declaration of Interest [declaration]

NCC Requirements
 BCA provisions [Volume 1/Volume 2]
 State/Territory variation [Yes/No]
 National Construction Code (NCC) requirements

Thermal performance Star rating
X.X
[XX.X] MJ/m²
 Predicted annual energy load for heating and cooling, based on standard occupancy assumptions.

Thermal performance (MJ/m²)
 Limits taken from ABCB Standard 2022.1
 Heating 0000.0
 Cooling 0000.0
 Load limits 0000.0 0000.0

Whole of Home performance rating
50 out of 100

Verification
 To verify this report, scan the QR code or visit [http://star-dev.azurewebsites.net/QR/Generate?m=Map?r={q}]
 When using either link, ensure you are visiting star-dev.azurewebsites.net

* Refer to glossary. ** Refer explanatory notes.
 Generated on [date] using [software] for [address] Page 1 of 10

(this sample certificate is for a unit, noting 50 out of 100 score for Whole of Home)

Other considerations

If using software for compliance with QDC 4.1, the following matters also need to be considered:

Building Form 15

If the building certifier determines the assessor is a competent person, they can accept and rely on a [Form 15—Compliance certificate for building design or specification](#) from the assessor. It is common practice for a building certifier to request a 'Form 15' from the house energy assessor to confirm that the dwelling's design complies with the energy equivalence standard.

Optional credits

If an outdoor living area is included with the dwelling's design, then the optional credits need to be separately noted on the house plans.

Thermal breaks for metal frames and trusses

NatHERS software has been modified to include a thermal bridging function to align with NCC 2022 requirements. Thermal bridging modelling is only undertaken for dwellings with steel framed construction.

Stamped plans

The building certifier needs to confirm that dwelling plans used for the software assessment (to generate its star rating and Whole of Home score) are consistent with the building development approval. All relevant design specifications should be noted on the approved and dated plans.

Dwelling plans that were assessed by the house energy assessor must have the NatHERS QR Code stamp added electronically to all design documentation that is relevant to the NatHERS assessment, including the date. This will include site and floor plans; elevations and sections; materials documentation; window, skylight and door schedules; electrical plans including lighting and mechanical ventilation; insulation information (type and level); appliance schedule; and design amendments; and supporting reports.

Any variation to the originally approved plans could compromise the dwelling's compliance with the energy efficiency standards, as well as its ongoing energy performance.

If there is a design variation to the building shell or change to any assessed fixtures or appliances, the dwelling's design and inclusions will need to be re-assessed and the revised house plans stamped and dated with the revised NatHERS QR Code for compliance with the energy efficiency standards. If the variation is minor and the assessor confirms in writing that the NatHERS assessment is unaffected, this can be accepted by the building certifier at their discretion.

Dwelling-specific software assessment

Each dwelling must have its own individual software assessment for its energy star rating and Whole of Home score even if using a standard house plan, such as a project home. This accounts for the property's particular location and the dwelling's orientation, and other specific design aspects (e.g. choice of roof colour) and inclusions, which all influence the home's energy performance and occupant comfort.

An individual star rating and Whole of Home assessment is also required for each unit in a multi-unit residential building to account for its particular aspect (orientation), elevation (height) and fixtures and appliances.

More information

To find out more about:

- Queensland's energy efficiency standards, visit the 'Energy equivalence rating' web page on the Business Queensland [website](#)
- NatHERS, visit www.nathers.gov.au
- Energy Efficiency Handbook for housing, view the [Housing energy efficiency handbook](#)
- energy efficiency design features of dwellings, visit 'Your Home' at www.yourhome.gov.au.

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