

## Energy Efficiency EE 04 | Alterations to existing Class 1 buildings

### Audience

The audience/s for this Practice Note include/s:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Architects/ Designers             | <input checked="" type="checkbox"/> Owner Builders                  |
| <input checked="" type="checkbox"/> Builders                          | <input type="checkbox"/> Plumbers                                   |
| <input checked="" type="checkbox"/> Building Surveyors/ Inspectors    | <input type="checkbox"/> Real estate management agents              |
| <input type="checkbox"/> Engineers                                    | <input type="checkbox"/> Trades and Maintenance (inc. Electricians) |
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### Purpose

This Practice Note provides guidance on the energy efficiency requirements for alterations to an existing Class 1 building and compliance with the Building Act 1993, the Building Regulations 2018 and the National Construction Code 2022.



Note: This Practice Note applies only to the NCC 2022 performance requirements. For Practitioners following the performance requirements of NCC 2019, please refer to Practice Note EE-04-2019.

The content below provides guidance on:

- Compliance requirements for alterations
- extensions to existing buildings,
- Using NatHERS software to assess a proposed alteration to an existing dwelling,
- Applying Elemental Provisions to a proposed alteration to an existing building, and
- Relocated and prefabricated homes.



For guidance on the energy efficiency requirements for new residential buildings, refer to Building Practice Note EE-03-2022: Energy Efficiency requirements for new residential buildings.



## Abbreviations & Definitions

The abbreviations and definitions set out below are for guidance only. They are not intended to vary those set out in the Building Act 1993, Building Regulations 2018, Plumbing Regulations 2018 or the National Construction Code.

- **ABCB** – Australian Building Codes Board
- **Act** – Building Act 1993
- **BAB** – Building Appeals Board
- **DtS** – Deemed-to-Satisfy
- **NatHERS** – Nationwide House Energy Rating Scheme
- **NCC** – National Construction Code 2019, Amendment 1
- **PV** - solar photovoltaic system
- **RBS** – Relevant Building Surveyor
- **Regulations** – Building Regulations 2018
- **WoH** – Whole of home energy usage

## Changes from NCC 2019 to NCC 2022

NCC 2022 introduces quantified performance requirements for energy efficiency under Part H6 and specify a value for what buildings must achieve under the performance requirement. This quantification differs to NCC 2019, because the former performance requirements P2.6.1 and P2.6.2 used the qualitative phrase ‘to the degree necessary’. Practitioners are strongly encouraged to take note of this when determining how to comply with requirements, particularly in relation to performance solutions.

NCC 2022 also introduces a new ‘whole of home’ energy usage requirement through performance requirement H6P2, that replaces the previous services performance requirement P2.6.2. This practice note provides guidance on applying these new requirements to renovations.

## Compliance requirements for alterations and extensions to existing buildings

Alterations and extensions to Class 1 and Class 10a buildings must comply with the Regulations, which incorporate the NCC. The Regulations modify the NCC in some situations, and regulation 233 has specific provisions relative to alterations and extensions.

Regulation 233(2) requires that, where the volume of proposed alterations combined with any alterations completed within the previous 3 years represents more than 50% of the volume of the original building, the entire building must be brought into compliance with the Regulations.

In terms of energy efficiency, compliance with the Regulations means satisfying performance requirements H6P1 and H6P2 for the alteration or extension, as well as for the existing building where Regulation 233(2) is triggered.

Performance requirements H6P1 and H6P2 must be addressed independently without combining the separate requirements. For example, services such as solar photovoltaic (PV) or high-efficiency hot water systems may contribute to compliance with performance requirement H6P2 but cannot be used to offset against performance requirement H6P1.



Regulation 233 gives the RBS discretionary powers to consider partial compliance. This allows for alteration work, which may not reasonably be able to satisfy performance requirements H6P1 and H6P2, to achieve an acceptable compliance outcome.

### Application of partial compliance

Regulation 233 has specific provisions regarding NCC compliance including situations where consent to partial compliance may be available. The provisions that apply will depend on the volume for alterations and floor area for additions. The application of partial compliance is summarised in Table 1 below:

Alteration % of volume	Extension % of floor area	Consent to partial compliance
Nil (i.e. existing unchanged)	<25%	Available
	>25%	Not available
<50%	Nil	Available
	<25%	Available
	>25%	Only available for the alteration
>50%	Nil	Available
	<25%	Available
	>25%	Only available for the alteration

**Table 1:** Application of partial compliance for alterations and extensions to Class 1 dwellings

An extension to an existing building must comply with the Regulations. The RBS can consider partial compliance to an extension under regulation 233(6), if the floor area of the extension is not greater than the lesser of:

- 25% of the floor area of the existing building, and
- 1000m<sup>2</sup>.

The requirement for full compliance, when the extension exceeds the thresholds in regulation 233(6), only applies to the extension. Partial compliance determinations may still be used for the existing building, where appropriate.



For further information on exemptions from compliance with the Regulations, refer to Building Practice Note BP-12: Exemptions from compliance with Regulations.

### Consent to partial compliance of building work

Regulation 233(3) provides the RBS with discretionary power to consent to partial compliance with sub-regulations (1) or (2). When determining whether to consent to partial compliance under regulation 233(3), the RBS must take the following into account:

- the structural adequacy of the building, and
- the requirements necessary to make reasonable provision for:
  - the amenity of the building and the safety and health of people using the building, and
  - avoiding the spread of fire to or from any adjoining building.



The discretion to allow partial compliance applies to both the building work associated with the alteration (except any extensions for which partial compliance is excluded under regulation 233(6)), and the requirement to bring the remainder of the building into compliance.

**In granting partial compliance, the RBS should require the highest level of compliance that can be reasonably achieved.**

The RBS must ensure that any consent to partial compliance under 233(3) is in the form of Form 18 and is recorded on the building permit.

### What is reasonable?

When deciding whether to consent to partial compliance under regulation 233, the RBS should consider whether full compliance would be reasonable in a particular instance. Consideration should be given to:

- the objectives under section 4 of the Act, in particular -
  - safety and health
  - amenity
  - cost effective construction and maintenance
  - facilitating environmentally sustainable and energy efficient buildings,
- the energy efficiency objectives and functional statements of the NCC,
- the overall energy efficiency performance, including whether improved outcomes are achieved for the existing building (i.e. the existing building will not have a reduced energy efficiency performance based on the consent to partial compliance).

The RBS should apply professional judgement to the specific matter being assessed. In some instances, the RBS will need to seek the advice of other suitably qualified practitioners or industry experts in determining the acceptability or otherwise of partial compliance.

Structured assessments such as the Residential Efficiency Scorecard, which provide a rating of energy performance for existing homes and can help to identify cost-effective upgrades, may assist with determining a reasonable level of compliance.

The energy efficiency provisions have been developed on the basis of efficient use of energy and long-term cost effectiveness for the building owner. Provisions in the NCC are intended to be the minimum level necessary and do not preclude voluntary measures that achieve higher levels of energy performance. Therefore, it would be reasonable to consider those factors when determining whether to consent to partial compliance with the energy efficiency provisions.

#### **Example 3: Consideration for partial compliance**

Alteration of an existing dwelling triggers full compliance with the NCC as it exceeds 50% volume limitation. Full compliance cannot be achieved despite additional measures being implemented, such as insulating the ceiling space, installing dampeners for building sealing, shading western facing glazing, etc. A proposal for partial compliance is put forward based on the cost associated with dismantling and rebuilding the external wall to add insulation.

Practitioners should note, as non-exhaustive examples, the following reasonable improvements to existing building fabric for renovated homes identified through technical analysis undertaken for the Department of Energy, Environment and Climate Action in 2023:

- Installing or upgrading roof / ceiling insulation to flat or skillion roofs if the existing insulation level is less than R2.5.
- Insulating external walls if external cladding or internal linings are removed as part of the renovation.



- Floor insulation in living areas, particularly rooms with heaters/ducted outlets, subject to ease of access to the subfloor and clearance to the ground.
- Double glazing with argon fill and high solar gain low emissivity coatings in living areas, particularly rooms with heaters/ducted outlets.

## Building Appeals Board

An application may be made to the BAB to modify a particular clause of the Regulations or Volume One or Two of the NCC, or determine that the design of a building complies with the Act, the Regulations or Volume One or Two of the NCC.

Applicants must supply sufficient information on the proposed alternative for BAB to determine whether to approve a modification to the energy efficiency requirements of the BCA. Advice should be sought from the RBS before considering an application to the BAB.

More information can be found at [www.buildingappeals.vic.gov.au](http://www.buildingappeals.vic.gov.au)

## Using NatHERS software to assess proposed alterations and extensions

The use of NatHERS software to assess alterations and extensions to existing dwellings is considered a DtS solution under the NCC 2022 if the whole building (i.e. existing and alteration/extension) is brought into compliance with the 7 star rating (under DtS clause H6D2(1)(a)) and whole-of-home rating (under DtS clause H6D2(2)(a)). For information about this solution refer to Practice Note EE-03-2022 Energy efficiency requirements for new residential buildings.

Where NatHERS software is used when only part of the building needs to achieve NCC compliance, it must be in the form of a performance solution demonstrating compliance as required under clause A2G2. It may also be considered under a consent to partial compliance.

NatHERS software can only assess a building as a whole, meaning it is not possible to use NatHERS to satisfy requirements for the extension or alteration of a building in isolation from the remainder of the building.

In some cases, such as minor alterations, it may be more practical to use the elemental DTS provisions in the ABCB Housing Provisions rather than NatHERS software.

## Using NatHERS for a performance solution

When considering the use of NatHERS software for developing a performance solution for alterations, careful consideration must be given to how the part of the building will comply with the NCC.

Any performance solution must clearly document and demonstrate how it complies with the quantified value of the performance requirements or is at least equivalent to the DtS provisions. The new quantified nature of performance solutions present challenges when applying to the whole building, but compliance can still be achieved through this pathway. For example, a performance solution for an extension greater than 25% of the floor area of the existing building could demonstrate that the extended area has an equivalent performance to a form of construction under the DtS elemental provisions.



For further information on performance solutions, refer to Building Practice Note PS-01: Documentation and Assessment – Performance Solution.

Considering their role in determining the star rating of a home, it would be appropriate to consider NatHERS Accredited Assessors' expertise when developing performance solutions for alterations and extensions in order to comply with residential energy efficiency requirements in the NCC.

### Using NatHERS to inform consent to partial compliance

If the application for partial compliance relates to a reduction in the required overall star rating or the WoH rating, further justification would be needed to demonstrate to the RBS that the reduction is reasonable in the proposed circumstances.

Where partial compliance under regulation 233 is approved, it is important that the plans and NatHERS certificate reflect the approved conditions. This is to ensure that the construction requirements, which need to be implemented to achieve the required star rating of the new work and existing building, are clearly defined.



Obtaining consent to partial compliance is not the same as approval for a performance solution, and each must be appropriately documented.

Considering their role in determining the star rating of a home, it would be appropriate to consider NatHERS Accredited Assessors' expertise when considering partial compliance for alterations and extensions in order to comply with residential energy efficiency requirements in the NCC

Table 2 provides a checklist of documentation required to conduct NatHERS ratings. Further details and information may be requested by the assessor conducting the rating.

Type of Documentation	Supplied (Yes / No)
• Energy Efficiency specifications (if separate to drawings)	
• Floorplans	
• Elevations	
• Section drawings	
• Site plan / context plan(s)	
• Electrical (incl. fans and downlights)	
• List of hot water, lighting, heating and cooling, spa and pool pump appliances including energy efficiency star ratings	
• Details of on-site renewable	
• Drawing details	
• Window system descriptions	
• Window schedule – existing including sizes and new	
• Insulation details	

**Table 2:** Standard documentation required for rating an existing dwelling

### Methods for determining partial compliance using NatHERS thermal software

The following sections present two methods that may be used to assess thermal performance of alterations and extensions where partial compliance is being considered:

- the star rating formula; and
- rating only the renovated home.





Neither method forms a DtS or performance solution under the NCC 2022. However, they may be incorporated into part of a performance solution if justified and documented correctly to address the performance requirement H6P1 or be shown to be at least equivalent to DtS requirement.



The NatHERS Certificate submitted with the building permit documentation must match the building design being approved. Requesting or providing a final certificate that shows a rating of 7 Stars when the approved design would not achieve that rating risks contravening the NatHERS Technical Note and codes of conduct.

### The star rating formula

The formula in Table 4 can be used to determine the overall star rating for thermal performance of a dwelling where there is consent to partial compliance.

The formula may be used where a new extension of less than 25% floor area is required meet a 7-star thermal performance rating and the existing building is not proposed to be altered. The formula allows for a reduced star rating for the whole building but demonstrates a net improvement in the dwelling's thermal performance. Table 4 shows examples of the application of the formula.

The formula requires two separate ratings to demonstrate net improvement to thermal performance of the building:

- A rating for thermal performance of the existing building as constructed (i.e. unaltered) to determine what star rating it currently achieves. The existing house rating must assume:
  - A minimum of R1.5 ceiling insulation is installed in all ceilings beneath attic spaces and ceilings of flat, skillion and cathedral roofs, or use the existing insulation R-Value where known.
  - Where the existing house includes open fireplaces, chimneys are fitted with closable dampers to restrict air leakage when not in use.
- Once the required overall star rating has been calculated using the formula in Table 3, a thermal performance rating of the new dwelling incorporating proposed building work.
  - This rating is necessary to show that the proposed design meets the required overall star rating calculated using the formula in Table 3.

Ratings for both the existing and new dwelling should be conducted using the same version of the software and by the same assessor to ensure consistency in assessment. If a previous assessment of thermal performance for the existing dwelling was done using NatHERS software that is now superseded, then it would be necessary to re-rate the existing dwelling using current software.

The formula has been revised to calculate a rating based on area rather than volume. This is consistent with the area-based approach used by NatHERS tools and avoids confusion between volume calculations for the purposes of regulation 233 and the formula.

For the purposes of the formula:

- Existing unaltered area ( $A_e$ ) only includes the area of the existing dwelling that has not been altered and is part of the overall renovated dwelling included in the energy rating. Existing parts of the dwelling that have been demolished are not to be included as they do not affect the performance of the renovated home.
- $A_e$  also includes spaces that will be altered but are entirely within the existing building fabric. This is because the formula assumes spaces classified as new work for internal alteration ( $A_{ni}$ ) can perform at the energy efficiency level of a new home (i.e. a minimum of 7 stars).



- The area of new work (An) is the area of the spaces where the proposed works are to be undertaken. For example, if installing an ensuite to a master bedroom, including re-lining internal walls and new windows throughout, the area of the work would include the ensuite and master bedroom spaces.
- New work for internal alteration (Ani) includes spaces within the existing building that will have all walls, floors, ceilings, windows and air leakage features upgraded to a level equivalent to those specified by DtS provisions in Part 13.2 of the ABCB Housing Provisions.

Example 1- Extension to an existing dwelling (existing dwelling has lesser rating)	Example 2 – Extension to an existing dwelling including compliant internal alteration work
$SRr = \frac{(Ae \times Sre) + (An \times SRn)}{(Ae + An)}$	$SRr = \frac{[(Ae - Ani) \times Sre] + [(An + Ani) \times SRn]}{(Ae + An)}$
<p>Where</p> <p>SRr = Overall star rating required  Sre = Existing dwelling star rating  SRn = New work dwelling star rating  Ae = Existing unaltered area  An = New work area for extension</p>	<p>Where</p> <p>SRr = Overall star rating required  Sre = Existing unaltered dwelling star rating  SRn = New work dwelling star rating  Ae = Existing unaltered area  An = New work area for extension  Ani = New work area for internal alteration</p>
<p>An example of application of the formula is as follows:</p> <p>Ae = 203.7 m<sup>2</sup>  An = 20.8 m<sup>2</sup>  Sre = 3.2 stars  SRn = 7.0 stars</p>	<p>An example of application of formula is as follows:</p> <p>Ae = 203.7 m<sup>2</sup>  An = 20.8 m<sup>2</sup>  Sre = 2.0 stars  SRn = 7.0 stars  Ani = 35.6m<sup>2</sup></p>
<p>The required overall star rating,</p> $SRr = \frac{(203.7 \times 3.2) + (20.8 \times 7.0)}{(203.7 + 20.8)}$ <p>SRr = 3.6 Star requirement</p>	<p>The required overall star rating,</p> $SRr = \frac{((203.7 - 35.6) \times 2.0) + ((20.8 + 35.6) \times 7.0)}{(203.7 + 20.8)}$ <p>SRr = 3.3 Star requirement</p>





**Table 4** - Using the formula to calculate the required overall star rating for consent to partial compliance

### Rating only the renovated home

This method is particularly suited to circumstances where the extent of the renovation is significant and partial compliance is available solely for alterations to the existing building.

The steps for this method are as follows:

- Rate the renovated house with sufficient improvements to the existing building fabric to achieve a rating of 7 stars. If a 7 star rating cannot be achieved, then the highest rating possible is to be demonstrated by the rating.
- Generate a preview of the rating certificate and provide to the RBS for the purpose of determining whether to consent to partial compliance to H6P1 subject to Regulation 233.
  - A certificate can be generated if the NatHERS software being used does not produce a preview.
- Re-rate the dwelling once the RBS has determined what energy efficiency features will be omitted as part of partial compliance subject to Regulation 233 and generate a final NatHERS certificate for the building permit documentation.
  - If a certificate was generated for the step above, that certificate is revised for this step.

A rating of the existing unaltered house does not need to be prepared if using this method.

## Applying Elemental DtS Provisions for thermal performance

### Building fabric

Where a building is extended, the building fabric of the new extension should fully comply with the NCC 2022. Partial compliance for the extension may be considered under regulation 233, subject to the restriction under regulation 233(6) (refer to Table 1), however there would need to be strong justification for partial compliance as the construction process of the extension allows ample opportunity to ensure compliance.

Where the new work includes replacement of existing elements, such as roof cladding, wall cladding or wall lining, compliance with the NCC 2022 fabric provisions should be achieved. However, if these items only require minor repair work, then it may be unreasonable to require their removal, solely to install new insulation. For example, where access to the roof space is available, fully compliant ceiling insulation should be installed.

Part 13.2.5 of the ABCB Housing Provisions set Elemental DtS requirements for external walls according to wall solar absorptance (colour), eave overhang and height. Existing parts of the renovated dwelling may have properties that preclude the application of Elemental DtS provisions (e.g. wall heights above 2.7 or 3 metres, or verandahs with overhang depth greater than 600mm). It may be more suitable to demonstrate compliance for dwellings with these properties using DtS NatHERS or a Performance Solution.

The following are provided as examples of settings that the RBS might consider where consent to partial compliance is available and Elemental DtS is the most practical method of demonstrating compliance:

- Allowing 15% of the net external wall area to be shaded by more than a 600mm eave,
- Walls with heights over 3 metres insulated with the highest R-value shown in the wall insulation table for the appropriate climate zone.
- Where light-coloured walls are required to match the existing dwelling (e.g. to comply with heritage provisions), these walls are insulated with the highest R-value shown in the NCC 2022 wall insulation table for the appropriate climate zone.



## External glazing

Where an existing building is extended, the glazing in the extension needs to comply with the NCC, subject to consent to partial compliance. Glazing compliance can be determined using the ABCB's Glazing Calculator (refer to the ABCB website, [www.abcb.gov.au](http://www.abcb.gov.au)).

If all the existing glazing or other elements are being replaced, then those elements must comply with the current NCC 2022 provisions, subject to acceptance of partial compliance.

NCC 2022 glazing provisions now allow buildings with multiple stories to be assessed, rather than the separate evaluation of each storey required by NCC 2019.

Glazing provisions must be applied on a whole-of-house basis, not to the renovation alone.

Use of the Glazing Calculator to calculate the target for partial compliance involves two steps:

1. Specify the properties of all windows so that summer and winter targets are met.
2. For those existing windows that are not being replaced, enter their original U and SHGC values.

Note that the NCC 2022 Glazing Calculator (and related provisions) requires several new inputs:

- The type of room: bedroom, utility or other (other refers to day-time occupied areas).
- The floor covering (if it is a concrete slab on ground).
- The openability or opening style of the window.
- The frame colour (light, medium or dark).
- Whether the floor is the ground or an upper floor.

Unless all these new inputs have been entered correctly, the results will not be valid. Incorrect entry can lead to the specification of higher-performance windows than are needed.

Glazing provisions now assess the impact of air movement provided by openable windows. The percentage of windows that can be opened allows calculation of cross ventilation in the dwelling. Reduced cooling loads from cross-ventilation allow a higher target for summer performance.

## Shading

Shading is integral to glazing performance. There may be site constraints or planning requirements that prevent external shading from being added to an existing building. In these circumstances, higher performance glazing elements may need to be used. However, this may be more costly.

It may therefore be reasonable to allow a reduced level of glazing performance, where such constraints on shading exist. This should only apply to the existing parts of the building and not a proposed extension, where the extension exceeds the floor area limit set out in regulation 233(6).

Exceedances of summer glazing calculations in ABCB Housing Provisions Part 13.3.3 may be resolved by moderating window sizes in western and eastern-facing orientations. This should be considered if partial compliance with shading provisions is sought.

## Building sealing

An extension to an existing building should be sealed in accordance with the ABCB Housing Provisions Part 13.4. If an existing room is extended, then the need for sealing may depend upon its condition. If the existing part is not sealed, for example having large areas of unsealed louvred glazing, it may not be reasonable to expect full compliance with Part 13.4

All other major sources of air leakage in the existing dwelling should be addressed, including (but not limited to) the following considerations:



- Chimneys should be fitted with dampers or blocked off if they are no longer used.
- Vents should be sealed, where they are no longer required by the NCC.
- Existing external doors should be fitted with weatherstripping to at least the bottom of the door.
- Existing exhaust fans should be equipped with self-closing dampers, or if they are to be replaced, the new exhaust fan should seal when not in use.
- Installing weatherstrips to windows and doors on all four sides, provided that this does not affect their ability to operate.

## Artificial Lighting

The ABCB Housing Provisions set out the compliance requirements for artificial lighting. The alterations or extension should comply with the ABCB Housing Provisions artificial lighting requirements as set out in 13.7.6. It may be unreasonable to change existing light fittings unless the alterations include the complete re wiring of the building or it is needed to address a safety hazard.

However, if the existing light fittings are to be replaced then compliance with the provisions is required. It is important that the designer provides the RBS sufficient details of electrical layout and fittings so that the RBS can ensure that H6P2 is complied with.

## Energy Usage (WoH)

WoH is an assessment of the entire home, meaning it is not possible to demonstrate compliance for the extension or alteration of a building in isolation from the remainder of the building.

Some types of renovation work may not involve the installation of new or replacement fixed appliances. In such cases, it may be reasonable to not apply the WoH requirements.

The following are provided as examples of matters that the RBS might consider where consent to partial compliance is available under Regulation 233:

- Whether the renovation will involve installing new fixed appliances or replacing existing fixed appliances, particularly for heating, cooling and hot water.
- Whether appliances are in need of replacement (e.g. nearing the end of their operating life).
- The extent of building fabric upgrades and expected thermal performance for the renovated home, noting that lower thermal performance means more energy is needed for cooling and heating.
- Constraints for installation of PV including overshadowing, complex roof shapes, numerous roof penetrations or structural issues.
- Where the upgrade to appliances and / or installation of PV would be a disproportionate increase to the cost of the renovation.

### Example 4: Partial compliance for whole-of-home requirements

Alteration of an existing dwelling triggers the requirement to bring the entire dwelling into conformity with the Regulations (including the NCC) as the volume of the work exceeds the threshold of 50% of the existing volume. There are no planned changes to the existing dwelling's appliances, which includes an in-slab electric main space heating system.

Full compliance cannot reasonably be achieved due to the cost of replacing the existing heating system. A proposal for partial compliance is put forward based on the provision of PV to achieve performance as close to H6P2 (i.e. 70% of the energy usage of regulated appliances) as is reasonable.



NCC permits independent choice of compliance pathways for individual performance requirements. This means NatHERS thermal software could be used to demonstrate compliance with performance requirement H6P1 while opting to use either NatHERS WoH tools or the calculation method in Part 13.6 of the Housing Provisions to demonstrate compliance with H6P2.

### Using NatHERS WoH software

For Class 1 dwellings, compliance with performance requirement H6P2 can be demonstrated by a NatHERS WoH score of at least 60.

In many cases the installation of PV will mean this score can be achieved for a renovation. An existing PV system that is in working order can be included in the calculation of the WoH score.

Achieving a NatHERS WoH score of 60 may not be reasonable for alterations or extensions in some circumstances. In granting partial compliance, the RBS should require the highest WoH score that can be reasonably achieved.

When using NatHERS WoH for a consent to partial compliance there may be assumptions that need to be made through the calculation in order to show enough consistency to reasonably show a net improvement. Any assumptions would be subject to the functionality of the NatHERS software and should be appropriately documented.

### Using Elemental DtS Provisions

The WoH calculation method is set out in Part 13.6 of the Housing Provisions and the accompanying ABCB Standard for Whole-of-Home Efficiency Factors. The ABCB has released a WoH Calculator that automates this calculation method.

The Elemental DtS provisions assume that the building fabric achieves thermal performance equivalent to a 7 star NatHERS rating, and will underestimate the energy demand for heating and cooling for buildings with a thermal performance less than 7 stars.

The WoH calculation method set out in Part 13.6 of the Housing Provisions should only be used where the works are below the thresholds of 25% area added and 50% of volume altered, and where the building fabric thermal performance has been rated as no less than 4.5 stars or equivalent.

Unless there are constraints on installing PV, a minimum PV system size of 3kW should be installed if the Elemental DtS provisions are used to demonstrate compliance with H6P2.

### Services

New building work must also comply with H6P2 for Services.

The ABCB Housing Provisions Part 13.7 set out the requirements for insulation of services, central heating water piping and heating and cooling ductwork. In all cases, insulation for service piping and ductwork must be provided.

It is important that the designer provides the RBS with sufficient details of piping and ductwork insulation to ensure that H6P2 compliance has been met.

## Relocated and prefabricated homes

### Relocated homes

An alteration is building work that relates to an existing building. An existing dwelling that is re-erected, moved from one allotment to another or relocated on the same allotment is considered an alteration to the dwelling exceeding the 50% volume trigger. This means that the RBS has discretion to allow partial compliance under regulation 233.



It is recognised that there are sometimes limited opportunities to improve the thermal performance of an existing building where it is being relocated in its original condition. However, wherever possible, compliance with the DtS provisions should be achieved.

This does not prevent the owner of the property using best practice principles. As a minimum, required levels of insulation should be installed to ceilings, walls and floor if there is access to do so. Sealing of windows and doors should be undertaken and where windows are replaced, thermally efficient windows should be installed.

### Prefabricated kit homes

Homes that are prefabricated in a factory, whether they are fully assembled or delivered to site as “flat pack” kits, are required to comply with the Regulations as they are a new dwelling. This also applies to transportable/demountable buildings (e.g. dongas, on-site cabins etc.).

The design for this type of home must be assessed using either NatHERS software to achieve a 7 star rating or above and a whole-of home assessment as set out in 13.6 of the ABCB Housing Provisions, or the elemental DtS provisions, or sufficient evidence provided that the design will meet the performance requirements of the NCC. It is important to note that a separate house energy rating must be completed for every new orientation and other site conditions. This avoids incorrect use of a design in other orientations, which may reduce the star rating of the dwelling.

#### Related Documentation

- Building Act 1993
- Building Regulations 2018
- Plumbing Regulations 2018
- National Construction Code 2022
- ABCB handbook: Energy Efficiency Volume Two
- Building Practice Note BP-12: Exemptions from compliance with regulations
- Building Practice Note EE-03: New Residential Buildings

#### List of Amendments

- Editorial changes
- Revision and update of technical requirements for consent to partial compliance, integrating technical analysis commissioned by the Department of Energy, Environment and Climate Action

#### Document history

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