

**In accordance with the policy direction of Ministers, the Australian Building Codes Board (ABCB) is currently investigating possible changes to the residential energy efficiency provisions in the 2022 version of the National Construction Code (NCC 2022). This document provides answers to frequently asked questions about this work.**

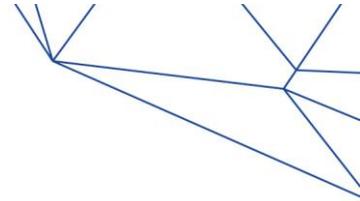
## **General**

### **1. *Why are changes to the residential energy efficiency provisions being considered?***

In mid-2018, Building Ministers' requested that the ABCB undertake an initial review of the residential energy efficiency provisions in the NCC, having deferred any consideration of residential for NCC 2019. Subsequently, in early 2019, the former Council of Australian Governments' Energy Council formally requested that Building Ministers direct the ABCB to update the provisions in accordance with the *Trajectory for Low Energy Buildings* (the Trajectory).

The Trajectory was developed by Energy Ministers as a strategy for improving energy productivity and reducing greenhouse gas emissions. Among other things, it recommends ongoing changes to the energy efficiency provisions in the NCC.

In consideration of the Energy Ministers' request, in mid-2019, Building Ministers' agreed to the development of enhanced energy efficiency provisions for residential buildings, informed by the Trajectory. Building Ministers' directed the ABCB to focus on residential buildings



given substantial changes to the provisions for commercial buildings had only recently been carried out in NCC 2019.

**2. *What changes to the residential energy efficiency provisions are being considered in NCC 2022?***

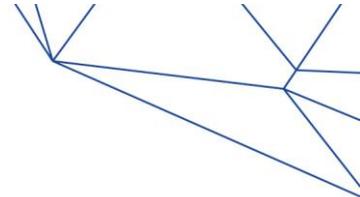
The ABCB is exploring two possible options. The first involves raising the minimum level of thermal comfort of residential buildings to the equivalent of 7 stars under the Nationwide House Energy Rating Scheme (NatHERS) and implementing an overall energy use budget. The energy use budget is based on the energy that would be used by a home with efficient heating, cooling, heated water and lighting. To be compliant, a home would be required to have equipment (heating, cooling, heated water, lighting and pool and spa pumps) that consume no more energy than this budget. On-site renewables (such as rooftop photovoltaics) may also be used to achieve the energy use budget, by off-setting the energy use of less efficient equipment.

The second option also involves raising the minimum level of thermal comfort to the equivalent of 7 stars NatHERS. However, unlike the first option, the second would allow the regulated equipment of the home to use moderately more energy (roughly 30 per cent) than under the first option.

Importantly, both options would apply on a whole-of-home basis, which would allow some trading between the energy efficiency of the different equipment and the energy generated by on-site renewables. This would provide practitioners with greater flexibility in how they achieve compliance.

The two options will be tested through a Regulation Impact Statement (RIS) process and transitional arrangements may also be considered as part of this process.

Further details on the changes being considered for NCC 2022 can be found in the *Energy efficiency: NCC 2022 and beyond* scoping study and outcomes report. These documents are available on the ABCB website. Please note that the first option described above does not specifically appear in these documents because it was only developed in late 2020 in response to concern about the stringency of the first option originally proposed and its reliance on on-site renewables.



**3. *The new Performance Requirements proposed in the Scoping Study are too complex. What is the reason for this?***

The new Performance Requirements reflect the fact that the physics of building energy efficiency is relatively complex. Nevertheless, the ABCB intends to make the Performance Requirements as simple as possible.

It should also be noted that only Performance Solutions based on first-principles will need to directly demonstrate compliance with the new Performance Requirements. In the majority of instances, it is expected that practitioners will use the compliance pathways prescribed in the NCC (i.e. the Deemed-to-Satisfy (DTS) Provisions and Verification Methods).

**4. *Energy efficiency is becoming too complex. How will designers and builders be able to comply with the new provisions?***

The ABCB intends to make the prescribed compliance pathways (i.e. DTS Provisions and Verification Methods) as straightforward as possible in NCC 2022. The ABCB also intends to develop calculators and guides to assist practitioners in achieving compliance.

**5. *Industry may not be ready for these changes. Will there be transitional arrangements?***

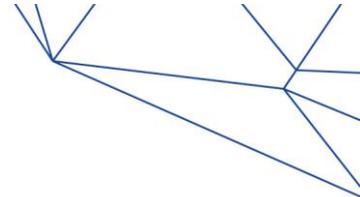
Residential energy efficiency enhancements have been talked about now through various government policy processes for several years and are on the back of no stringency increases for residential having occurred since 2010. In that time other governments policies around reducing greenhouse gas emissions have flagged that change in all sectors is necessary to achieve these policy objectives.

The objective of this project is to develop new residential energy efficiency provisions that may be implemented in NCC 2022. As part of this process, the ABCB will undertake a RIS to determine the impact of the new provisions. In consideration of this analysis, the ABCB Board will also determine the timing for implementing the new provisions, including any possible transitional arrangements.

The consultation on these measures has already been pushed out to the middle of 2021 and possible adoption into the third quarter of 2022, with a longer preview period.

**6. *What consultation has already taken place?***

Following the direction of Building Ministers to update the NCC's energy efficiency provisions, the ABCB released a scoping study in August 2019. The scoping study was



informed by the Trajectory and outlined a possible scope and approach to the task. The study attracted 135 written submissions, which were used to inform the next stage of the project. The submissions and the ABCB's responses were documented in an outcomes report (available on the ABCB website, linked below). Building Ministers' also agreed to the options to be considered by the ABCB arising from this work.

At the outset of the project, a project-specific technical working group was established. Membership of the technical working group was mainly drawn from the ABCB's national building technical committee, the Building Codes Committee (BCC). The BCC comprises representatives of each state and territory building administration, the Commonwealth and key national industry associations. Membership of the technical working group was complemented with representatives of other industry associations with direct interest and subject matter expertise in energy efficiency.

Meetings of the technical working group have been arranged on a monthly basis to seek advice on the development of the provisions. The BCC itself has also been engaged at key points during the development of the new provisions, particularly to refine the public comment draft of the new NCC provisions. When necessary, specific technical matters have also been canvassed with targeted industry groups that possess relevant expertise and information, such as in relation to glazing, thermal bridging and building services.

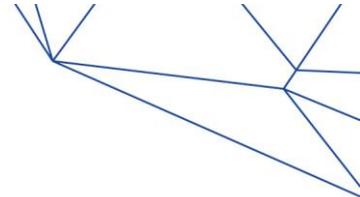
A list of organisations represented on the BCC and the technical working group are listed on the ABCB website.

#### **7. *What further consultation will be undertaken and how can I get involved?***

The technical working group and BCC will continue to be engaged up to the finalisation of the provisions for NCC 2022. Targeted consultation on the development of the RIS is to be undertaken and broader engagement with industry will occur in a number of ways.

The full suite of proposed changes to NCC 2022, together with a Consultation RIS are scheduled to be released for public consultation in July 2021, for an eight-week consultation period. This will give all interested parties an opportunity to comment directly to the ABCB on the proposed changes.

The ABCB is also planning on holding events during the public consultation period to explain the changes. This will include a webinar, with a question and answer session and



information on how to make formal comment. Presentations to targeted industry associations will also be undertaken during the public comment period.

Practitioners can get involved in these processes either through their membership of relevant industry associations or as individuals.

**8. *How will the new provisions apply to alterations and additions?***

Each state and territory government is responsible for the administration of the NCC within their jurisdiction. Consequently, each state and territory's building regulations stipulate the instances in which the NCC applies, including if and how the NCC applies to alterations and additions. Practitioners should seek advice on this matter from their relevant state or territory building control authority.

**9. *What will the new provisions cost?***

The cost of the new provisions will be estimated as part the economic analysis (or RIS) that the ABCB is required to undertake. This analysis will inform the ABCB's decision on whether the new provisions should be adopted in NCC 2022 and whether transitional arrangements may be required.

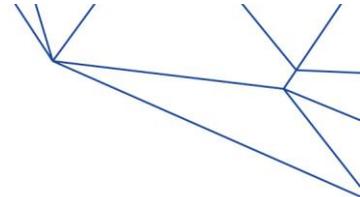
Importantly, the new provisions will include a number of different compliance pathways. This will allow practitioners to select the most cost-effective solution for a particular building project.

## **Building Fabric**

**10. *Will software accredited under NatHERS be able to be used to comply with the new provisions?***

The current NatHERS-based compliance pathways for thermal comfort (i.e. clauses J0.2 of Volume One and 3.12.0.1 of Volume Two) are likely to be retained, although possibly at a higher stringency.

The NatHERS Administrator is also proposing to expand its software accreditation framework to include whole-of-home software tools that assess both the building fabric and services. As per all compliance options referenced in the NCC, the expanded NatHERS accreditation framework will need to demonstrate its suitability for regulatory reference prior to it being referenced in the NCC.



The NatHERS Administrator is expecting to have a beta version of at least one whole-of-home software tool available for stakeholder testing in the second half of 2020.

**11. *It may not be possible to design 7-star NatHERS homes on small, narrow building lots. How can compliance be achieved in this instance?***

The ABCB will examine the extent to which the configuration of allotments and other factors inhibit the building fabric from achieving a high level of thermal comfort. With the new provisions applying on a whole-of-home basis, this may provide opportunity to address this issue if necessary. Alternate compliance pathways to NatHERS, such as the DTS Provisions and Verification Methods, are also likely to be available to demonstrate compliance with the thermal comfort Performance Requirement.

**12. *Will it be possible to trade between the performance of the building fabric and services, i.e. offset poorer performing fabric with higher performing services?***

The ABCB will examine if there is a need to allow some trading between the building fabric and services as a consequence of increasing the stringency of the thermal comfort provisions. If any such trading is allowed, it may need to be limited due to the importance of the building fabric to the thermal comfort of the home and in mitigating heat and cold stress. The building fabric also has a relatively long lifespan and can be difficult to improve once constructed.

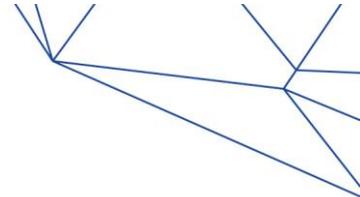
**13. *Will the new provisions require consideration of thermal bridging?***

The ABCB intends to address thermal bridging in the new provisions, ensuring that it is minimised to an acceptable level. This will affect forms of construction with a high level of heat transfer (or thermal conductivity) and may require the installation of thermal breaks or additional insulation.

**14. *Building sealing is vital to energy efficiency. Will blower door testing be made mandatory to ensure buildings are sealed correctly?***

The ABCB will consider whether the new provisions need to include a more stringent level of building sealing to achieve the required level of thermal comfort. Depending on this level of sealing, the appropriate means of demonstrating compliance will also be examined.

**15. *Increasing energy efficiency may increase condensation. What is the ABCB going to do about this?***



The ABCB has a separate project examining condensation. The condensation project involves the investigation of whether there is a need for more detailed condensation mitigation provisions to those already introduced into NCC 2019. This will include consideration of whether the new energy efficiency provisions increase the risk of condensation in homes.

## **Appliances and lighting**

**16. *There are already Minimum Energy Performance Standards (MEPS) for air-conditioning and lighting. Why are additional energy efficiency provisions for air-conditioning and lighting being considered in NCC 2022?***

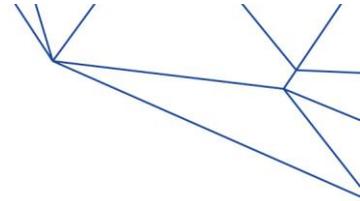
MEPS establishes the absolute minimum level of energy efficiency of equipment and appliances manufactured and sold in Australia. On the other hand, it is intended that the new NCC provisions will allow the installation of equipment and appliances with a range of efficiencies, provided the required overall level of efficiency of a home is achieved. This enables trading between the efficiency of equipment and appliances. For example, a less efficient air-conditioning system may be chosen on the basis that a more efficient heated water system is used.

**17. *Current lighting technology is very energy efficient. Is there any point in regulating lighting in the new provisions?***

It is acknowledged that current lighting technology is considerably more energy efficient than it was a few years ago. The ABCB regulates lighting on a whole-of-home basis via a watts per square-meter limit. This means the efficiency of an individual light is less important than how 'all of a home's' lights are used in combination. In developing the new provisions, analysis is being undertaken to determine the extent to which it is feasible to regulate lighting designs in homes. Opportunity to comment on the lighting provisions will be provided through the release of a public comment draft of the NCC 2022 and the associated Consultation RIS in mid-2021.

**18. *What affect will the new provisions have on the use of gas appliances?***

It is intended that the new residential energy efficiency provisions will be fuel neutral. This is to allow space and water heating appliances to be either gas or electric provided the required overall level of efficiency of the home is achieved.



To achieve fuel neutrality, the ABCB is investigating whether the Performance Requirement for the overall efficiency of homes can be based on the societal 'cost' (or value) of energy. The societal cost of energy would take into account the cost to society of the demand on electricity and gas networks and the greenhouse gas emissions of the energy source.

The ABCB will also investigate whether the compliance pathways specified in the NCC (i.e. DTS Provisions and Verification Methods) can also be developed on the basis of this principle. Regardless of the final set of provisions proposed, the impact on the building product manufacturing industry, including appliances, will be evaluated as part of the RIS process.

## **Other documents relevant to NCC 2022 residential energy efficiency:**

The following documents are available from the ABCB website to provide further background:

[Scoping study-Energy efficiency NCC 2022 and beyond](#)

[Trajectory for low energy buildings](#)

[NCC 2022 energy efficiency project: Rational and scope](#)

[NCC 2022 energy efficiency project: Development process](#)