

New home energy efficiency standards explained

Updated National Construction Code energy efficiency standards will commence in Victoria from 1 May 2024. Here's some important information to help you over the transition period.

Under these modernised standards, new homes will be better prepared for the future.

Energy efficient homes need less energy to stay comfortable all year round. They cut household energy bills and emissions and provide better protection from extreme weather events like heatwaves. Homes are long-lived assets and retrofitting later to improve efficiency is much more difficult and costly than getting it right in the first place.

That's why raising the efficiency performance of new homes that will be standing for decades to come, is critical to ensuring all our new homes are capable of providing safe, affordable and climate resilient shelter into the future.

What's changing?

The updated efficiency requirements included in the 2022 edition of the National Construction Code (NCC 2022) cover:

Residential buildings (Class 1 and 2):

- an increase in the minimum thermal performance requirement for the building shell from 6 to 7 stars out of a possible 10 through the Nationwide House Energy Rating Scheme (NatHERS)
- introduction of a Whole-of-Home annual energy use budget for fixed appliances (hot water, heating and cooling, lighting and pool and spa pumps) with potential to offset with rooftop solar
- removal of the current Victorian variation that requires either a solar water heater or a rainwater tank to be installed, allowing Victorians to choose their preferred hot water system

Commercial buildings including apartments (Class 2-9)

- requirements to ensure commercial buildings including apartments are designed for easy and cost-effective retrofit of solar PV systems and electric vehicle charging

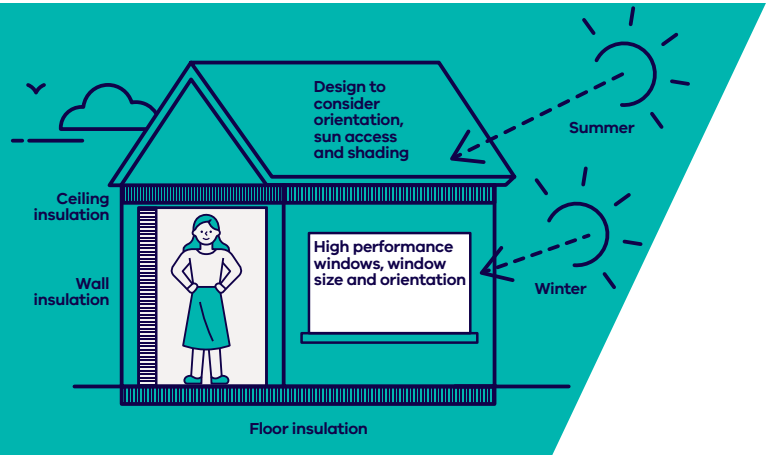
Fact sheet for Building Practitioners

Energy efficient new homes

Ways to meet new efficiency standards that will come into effect from 1 May 2024

1. Design and Build your home to a minimum thermal performance rating of 7 stars so it needs less energy to heat and cool

Use less energy



2. Choose fixed appliances that are more energy efficient so you need less energy to power your home

Use efficient appliances



3. Install rooftop solar to help offset your remaining energy usage and meet your Whole-of-Home budget

Use renewable energy



Consider other opportunities to future-proof your home and better manage your energy usage. You could:

- Build an all-electric home to maximise benefits of your solar
- Install batteries
- Optimise energy use through energy monitoring and timers
- Install electric vehicle charging
- Use more efficient plug-in appliances
- Select at least 4 star WELS hot water fixtures, eg showers and washing machines



What do these changes mean in practice?

Getting to 7 stars

In most cases, the new standards can be met through relatively simple and low-cost changes, particularly if design is considered early in the process of a new home build. Key differences between a 6 star and 7 star home may include:

- better design and orientation to the sun to take advantage of opportunities to passively heat the home in winter while shading it in summer
- improved ceiling, wall or under-floor insulation to suit the Victorian climate
- high performance glazing (windows) to better insulate the home from heat loss in winter and heat gain in summer.

During the early roll out of these new standards, some volume builders may need to adjust their standard designs to 7 star rating until they become commonplace. A design may need to be modified (by moving the garage or alfresco area from the northern to the southern side of the house for example) to help achieve the minimum 7 star rating.

Meeting the Whole-of-Home annual energy use budget

Hot water, heating and cooling, and lighting account for **70-80% of an average home's energy use**, so these services provide ample scope for energy savings. The new standards will now require new homes to meet a Whole-of-Home annual energy use budget to encourage the installation of efficient fixed appliances.

This Whole-of-Home approach sets a tailored budget for new homes to be met through a flexible combination of:

- type and efficiency rating of specific fixed appliances (hot water, heating, cooling, lighting and pool and spa pumps) and
- installation of rooftop solar to offset any energy use above the budget cap

Homebuilders have flexibility in the choice of fuel type (gas or electricity), technology and efficiency rating of the designated fixed appliances as long as they collectively meet the annual energy usage budget or sufficient rooftop solar is installed to offset above-budget energy usage.

NCC 2022 will set different levels of stringency for houses and apartments, given it can be more difficult to install on-site renewables or make efficiency improvements in apartments. The NatHERS will be expanded to include the new Whole-of-Home budget alongside the current thermal performance (star) rating.

New electric vehicle and Solar Photovoltaic (PV) readiness provisions

For electric vehicles, the new requirements include allowing space for switchboards and charging infrastructure for 100% of parking car spaces in apartment buildings, 10% of spaces in offices and retail, and 20% of spaces in other commercial buildings.

For solar PV, this includes ensuring roofs for apartments and commercial buildings are strong enough to support solar PV systems, and allocating at least 20% of roof space for solar PV with limited exceptions (e.g. heavily shaded, small roofs or used for roof gardens).

Key Information

Australian Building Codes Board NCC 2022 [Overview of changes – energy efficiency and condensation | ABCB](#)

Further information on Whole-of-Home and The Nationwide House Energy Rating Scheme: [NatHERS and Whole-of-Home overview | ABCB](#)

Benefits of a Whole-of-Home approach: [Positive impacts of a whole-of-home approach on energy performance | Sustainability Victoria](#)

Updated FirstRate5 practice tool: [Whole-of-Home Pilot Tool | Sustainability Victoria](#)

Fact sheet for Building Practitioners

There are many benefits to increasing the energy efficiency standards for new homes.

Key benefits



Lower energy bills

National energy efficiency standards for new homes have not been updated for more than a decade, during which time gas and electricity prices have risen dramatically. With prices expected to keep rising, improving efficiency to reduce the amount of energy needed to keep your home comfortable, is an obvious way to cut energy costs.

Research has shown cost savings from \$300 to over \$1,000 a year are achievable through energy efficient homes.*



More comfortable homes

Energy efficient homes are more comfortable to live in year-round, helping to protect people from the health risks of chronic cold and extreme weather events like heatwaves.



Lower greenhouse emissions

Victoria has set a target of net-zero emissions by 2050 with ambitious but achievable targets to reduce the state's greenhouse gas emissions from 2005 levels by 45–50 per cent by 2030.

Residential buildings are responsible for 11% of Australia's greenhouse gas emissions and offer many of the lowest cost opportunities for cutting emissions across the economy.



A greener energy grid

Making homes more energy efficient, helps to reduce demand on the electricity system at peak times, reducing the need for expensive network infrastructure upgrades that contribute to higher prices. Reducing demand will also reduce the costs as the energy system transitions to renewable energy.

Cost impacts for homebuyers

If smart design is considered early in the process of a new home build, achieving 7 stars can be done without significant additional costs or changes in materials or construction. Any additional upfront costs of construction required to meet the new 7 star standards when compared to a 6 star home are expected to be minimal, particularly in the context of energy cost savings for homebuyers, made over the multi-decade lifetime of the home and an average 30-year mortgage.

To help reduce the cost impacts for consumers, the Victorian Government is funding rebates under the [Solar Homes Program](#).

Information for homebuyers

A [Factsheet for Homebuyers](#) has been developed to explain the intent of the changes and benefits and is available for download to support conversations with your clients.

*Analysis undertaken for NCC 2022, showed the new efficiency standards would save an average Victorian household at least \$300 a year in energy bills. More recent analysis by [Renew](#) found even higher savings – \$1,056 for an all-electric home in Melbourne and slightly less for a dual fuel home.

Fact sheet for Building Practitioners

Impacts for the construction industry

Volume builders may need to make some adjustments to their standard plans for future volume projects to meet the new requirements. However, improved design and orientation applied effectively, can make a significant contribution to meeting 7 stars without significant additional upfront costs. A level of customisation of volume builders' standard plans may be required in some cases by exception, but not as standard.

Achieving a 7 star rating can be cost-effectively reached through a considered combination of design and orientation, rather than simply replacing existing designs with higher-performing or additional materials. The [Sustainability Victoria 7 Star Upgrade Analysis](#) provides 10 case study examples of existing designs and the cost impacts of best and worst orientations.

Working together to support industry

The Victorian Government, including Sustainability Victoria (SV) and The Victorian Building Authority (VBA), are helping to prepare the construction industry for the new requirements.

Sustainability Victoria's 7 Star Homes Program will continue to provide industry capability development and training for 7 star and Whole-of-Home through online webinars and resources. The program includes training in design, construction, and as built verification running until June 2023.

Further information can be found at: [7 Star Homes Program | Sustainability Victoria](#)

The VBA are leading the roll out of energy efficiency technical education resources, including [Practice Notes](#), to ensure industry understand the new requirements.

Revised and new Practice Notes include:

Practice Note	Description
NEW EE-05 Transitional Arrangements	An explanation of what the industry needs to know about expectations and options over the transition period including MG-13, Building Act Section 10
SH01 Solar Heated Water	Describes Victorian variation requirements, performance solution and options for heat pumps
EE01 Building Energy Analysis for Commercial Buildings	Minor changes to reflect new numbering system and EV charging requirements
EE02 Applying BCA Energy Efficiency Measures to Existing Class 2-9 Buildings	Describes changes to some provisions including new DtS method that includes SOUs and EV charging requirements.
EE03 New Residential Buildings	New requirements for NatHERS and DtS requirements, new thermal bridging requirements and Whole-of-Home budget for appliances (including AEUB)
EE04 Alterations to Existing Class 1 Buildings	Minor changes to reflect new section numbers and the new set of tools and requirements for assessments
NEW GE-13 Condensation Management	Describes the changes for management of condensation in buildings

The VBA will deliver a series of compliance roadshows and information sessions across the State for practitioners and businesses in early 2023.

Fact sheet for Building Practitioners

Looking ahead

The new energy efficiency provisions under NCC 2022 are available for use from 1 October 2022, with a 18-month transition period to allow the construction industry to make necessary adjustments and bring new projects in line with the uplifted standards. During the 18-month transition, homes will be permitted to be built to either the NCC 2019 or the new improved NCC 2022 standards.

The transition period provides industry with time to adapt and move to the new standards by 1 May 2024. Being prepared early will enable your business to be ready for the transition.

While the new standards will be mandatory from May 2024, they represent a 'floor' not a 'ceiling'. Many builders are already delivering homes above 7 stars and homeowners are finding the benefits of lower bills and improved comfort significantly outweighing any additional construction costs over time, particularly if they go all-electric.

Further information can be found on the [common questions](#) page including information on the NCC 2019 Victorian variation, high performance glazing, all-electric homes, condensation and mould, and display home impacts.

Practical information to support industry transition:

[Energy efficiency building standards | DEECA](#)

[7 Star Homes Program | Sustainability Victoria](#)

[VBA Practitioners Resources Hub | Victorian Building Authority](#)

[Energy Smart Housing Manual | Sustainability Victoria](#)

[YourHome – Australia's Guide to Environmentally Sustainable Homes](#)

Rationale for the changes in requirements:

[Australian Building Codes Board – Energy Efficiency](#)

[Trajectory for Low Energy Buildings | energy.gov.au](#)



Henley 2022 Good Friday Appeal Charity home. Double storey Vogue 34 design.

© The State of Victoria Department of Energy, Environment and Climate Action 2023



This work is licensed under a Creative Commons Attribution 4.0 International licence. You are free to re-use the work under that licence, on the condition that you credit the State of Victoria as author. The licence does not apply to any images, photographs or branding, including the Victorian Coat of Arms, the Victorian Government logo and the Department of Energy, Environment and Climate Action (DEECA) logo. To view a copy of this licence, visit creativecommons.org/licenses/by/4.0/

ISBN 978-1-76136-080-0 (pdf/online/MS word)

Disclaimer

This publication may be of assistance to you but the State of Victoria and its employees do not guarantee that the publication is without flaw of any kind or is wholly appropriate for your particular purposes and therefore disclaims all liability for any error, loss or other consequence which may arise from you relying on any information in this publication.

Accessibility

If you would like to receive this publication in an alternative format, please telephone the DEECA Customer Service Centre on 136 186, or email customer.service@delwp.vic.gov.au, or via the National Relay Service on 133 677, www.relayservice.com.au.

This document is also available on the internet at www.deeca.vic.gov.au