NCC 2022 Volume 2 ADOPTION

Changes to NCC Volume 2 Energy Efficiency Provisions

V-STAR ENERGY

Background into rule change

- As part of our obligations under the Paris Agreement, Australia has committed to reduce greenhouse gas emissions by 43% below 2005 levels by 2030 and reach net zero emissions by 2050.
- Buildings account for around 12% of Australia's greenhouse gas emissions and consumers are paying higher energy bills.
- NCC 2022 proposes energy efficiency changes that support Australia's trajectory to net-zero emissions; reducing consumer dependency on grid-generated energy.

NCC 2022 Volume 2

- Publish date: 1 Oct 2022
- Adoption date: 1 May 2023
- Transition period to 1 Oct 2023
- What changing for Energy Ratings:
  - Increase the building shell energy efficiency requirement to a minimum of 7-star NatHERS energy rating
  - Whole Of Home (WHO) energy requirement
    - Assess the annual energy use of key fixed appliances
    - Identify the requirement to offset the overall annual carbon emissions

Requirements for Whole-Of-Home (WHO) Assessent

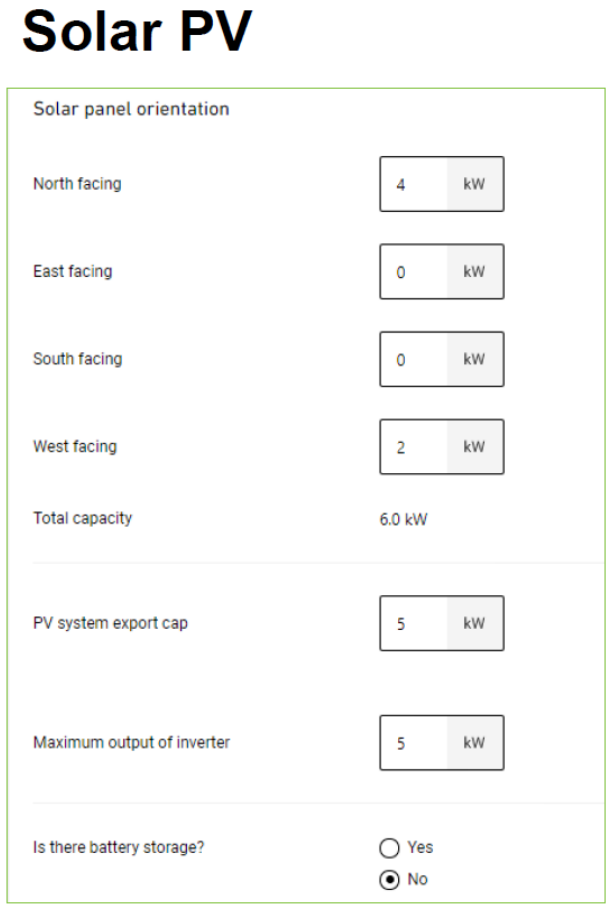
1. NatHERS energy rating provides the following information for the WOH calculations
   - NatHERS rating: minimum of 7-stars
   - Heating and cooling load
   - Climate zone
   - Floor area of conditioned zones

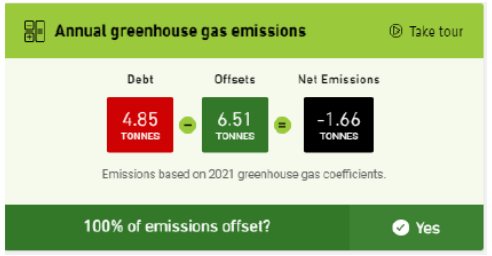
2. Select appliances

- Heating and Cooling system
  - Type, Size (kW) & efficiency star rating
- Water Heating
  - Type and efficiency star rating
- Fixed Appliances
  - Cooktop & Oven type
- Plug in appliances
- Lighting ($4W/m^2$)
- Pool (heating system & efficiency)

3. Emissions offset

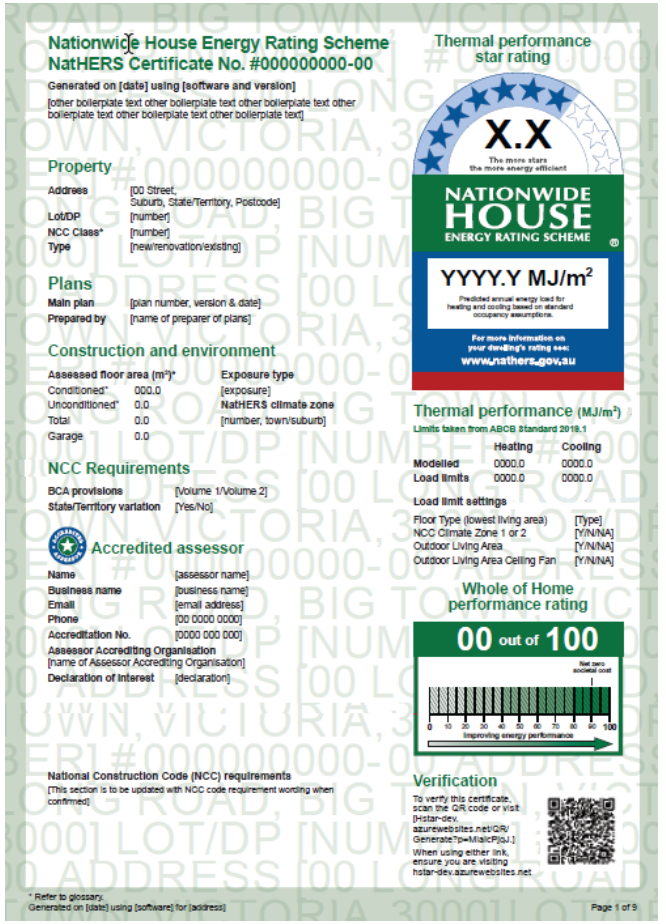
- Select Solar PV system
  - kW system size and orientation of panels
- Select Battery storage system
  - kWh capacity
- Model the Solar PV system to achieve emissions offset
- Also calculates:
  - Societal cost
  - Energy cost (based on default rates)
  - Energy use





What to expect with new provisions

- What new certificates look like
- What we need from designer & client
  - Details of heating & cooling appliances
  - Hot water systems
  - Appliances
  - Provisions for solar PV installation
- How we can help
  - Compliance options
  - Design recommendations (openable windows, reduced glazing, shading)



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 other boilerplate text]

Property

Address	[00 Street, Suburb, State/Territory, Postcode]
Lot/DP	[number]
NCC Class*	[number]
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)*		Exposure type	
Conditioned*	000.0		[exposure]
Unconditioned*	0.0	NatHERS climate zone	
Total	0.0		[number, town/suburb]
Garage	0.0		

NCC Requirements

BCA provisions	[Volume 1/Volume 2]
State/Territory variation	[Yes/No]

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]

National Construction Code (NCC) requirements

[This section is to be updated with NCC code requirement wording when confirmed]

* Refer to glossary.
Generated on [date] using [software] for [address]

Page 1 of 9

Thermal performance star rating

X.X

The more stars the more energy efficient

NATIONWIDE HOUSE ENERGY RATING SCHEME

YYYY.Y 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 2019.1

	Heating	Cooling
Modelled	0000.0	0000.0
Load limits	0000.0	0000.0

Load limit settings

Floor Type (lowest living area)	[Type]
NCC Climate Zone 1 or 2	[Y/N/NA]
Outdoor Living Area	[Y/N/NA]
Outdoor Living Area Ceiling Fan	[Y/N/NA]

Whole of Home performance rating

00 out of 100

Net zero societal cost

0 10 20 30 40 50 60 70 80 90 100

Improving energy performance

Verification

To verify this certificate, scan the QR code or visit [Hstar-dev.azurewebsites.net/QR/Generate?p=MaIcPjoJ.]

When using either link, ensure you are visiting hstar-dev.azurewebsites.net

Source: Nationwide House Energy Rating Scheme

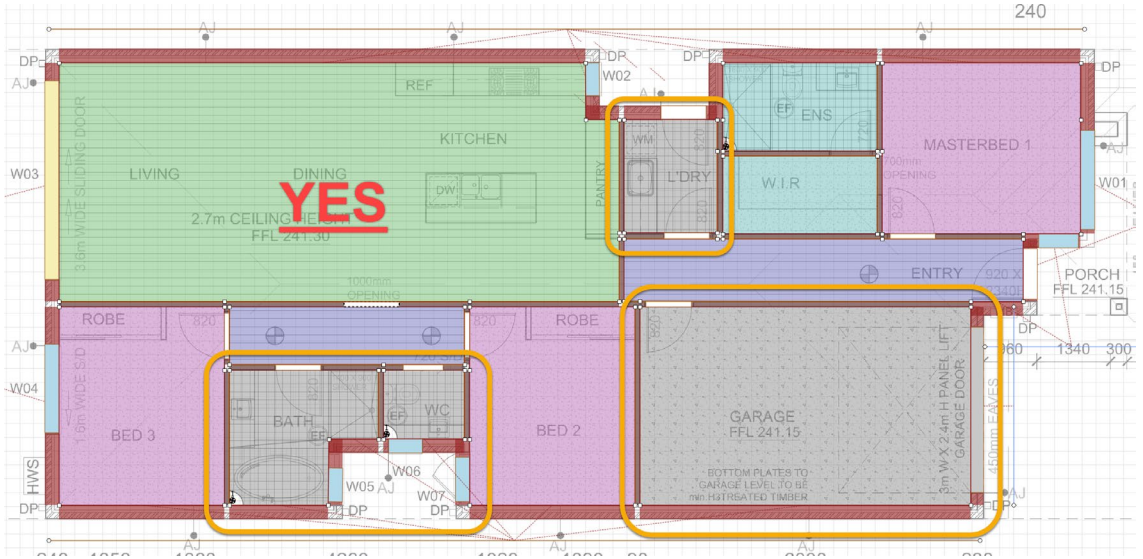
Energy Efficient Design

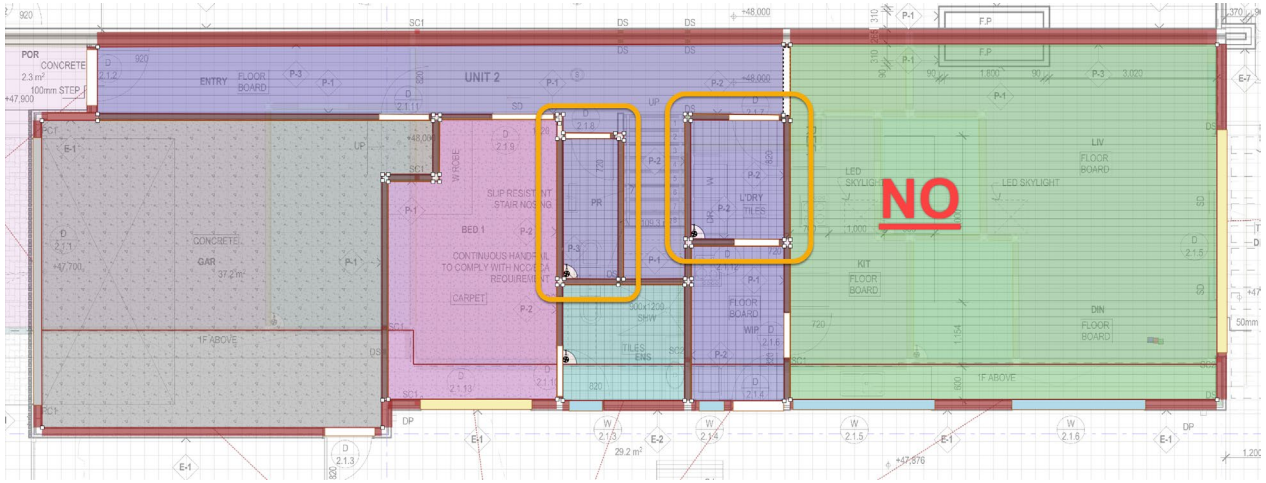
- North facing living spaces
- Openable windows
- Appropriate Shading
- Single storey
- Neighbour walls (where possible)
- Reduced glazing
- Less external surface area to internal area

Image Source: Australian Government, Your Home
https://www.yourhome.gov.au/house-designs

Locating Unconditioned zones

- Unconditioned zones do not require heating & cooling
- Must have openings to an external wall
- Unconditioned spaces
  - Laundry, Bathroom & WC
- Insulation of unconditioned spaces





Typical requirements for 7-star NatHERS rating (Double Storey)

- Waffle slab or under slab insulation
- First floor insulation (R3)
- Maximum ceiling insulation (R6)
- Maximum wall insulation (R2.5)
- Insulate internal walls of unconditioned spaces (eg. Garage)
- High-performance Low-E Double Glazing

Image Source: Australian Government, Your Home
https://www.yourhome.gov.au/house-designs

Example 7-star Average:
8 Double-Storey Unit development

Design Features:

- North-facing living areas
- Horizontal shading for north facing glazing
- Partiwalls where possible
- Reduced glazing to West side

Insulation Requirements

- Waffle slab
- R5 ceiling insulation
- R2.5 external & garage internal walls
- R5 external elevated first floor
- Aluminium Clear double glazing

NatHERS Energy Assessment Rating:

Climate zone: 62, MOORABBIN AIRPORT

NatHERS Heating and Cooling Limits (CSOG)		
Energy Usage (MJ/m^3)		
Heating	Cooling	Total
115	24	125

Unit	Star Rating	Energy Usage (MJ/m^3)		
		Heating	Cooling	Total
1	7.3	64.6	16.9	81.5
2	7.5	60.3	13.3	73.6
3	7.5	61.1	12.8	73.9
4	6.7	85.0	15.9	100.9
5	6.9	81.6	12.9	94.5
6	6.8	83.0	16.2	99.2
7	6.7	85.0	16.4	101.4
8	7.1	71.5	17.9	89.4
Average	7.1	74.0	15.3	89.3

Example 7-star: Double-Storey Dwelling

Design Features:

- North-facing living areas
- Covered North-West alfresco shading for glazing
- Hebel & foamboard cladding for improved insulation
- Balanced glazing throughout

Insulation Requirement:

- Waffle slab
- R6 ceiling insulation + R1.3 blanket
- R2.5 external & garage internal walls
- R2.5 internal first floor
- R5 external elevated first floor
- Aluminium Low-E double glazing

NatHERS Energy Assessment Rating:

Climate zone: 62, Moorabbin Airport

NatHERS Heating and Cooling Limits (CSOG)		
Energy Usage (MJ/m^3)		
Heating	Cooling	Total
115	24	125

Star Rating	Energy Usage (MJ/m^3)		
	Heating	Cooling	Total
7.0	68.3	21.6	89.9

V-Star Additional Energy Services

- **Environmental Sustainable Design (ESD)**, incorporating Sustainable Design Assessments **(SDA)** for small projects or a Site Management Plan **(SMP)** for larger projects. These commonly include:
  - **Built Environment Sustainability Scorecard** (BESS) minimum 50% rating.
  - **Water Sensitive Urban Design** (WSUD) 100% STORM score.
  - **Preliminary NatHERS** assessment, with some Councils already recommending averaging 7-star rating.
  - **ESD Implementation Schedule**, new requirement detailing responsibilities and implementation timing of ESD commitments.
  - **Site Environmental Management Plan (EMP)** approach to minimise environmental impact through construction.
  - **Green Travel Plan** for projects requiring an SMP.
  - **Waste Management Plan,** identifying waste bin requirements and collection.
- **Section J** for a commercial building energy assessment.
- **Deem-to-satisfy (DTS)** and **Performance Solutions,** for projects requiring an alternative to modelling software to verify compliance with NCC requirements.