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Stage 2 Building Standards Part 1 - Principles



We are recording this session



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Outline

1. Overview
2. Siting the house
3. Building Standards categories
4. NEV Rating Tool (Scoresheet)
 1. Management
 2. Water
 3. Energy
 4. Materials
 5. Indoor Environmental Quality (IEQ)
 6. Waste
 7. Other
 8. Bonus points



1. Overview

- Community Management Statement (CMS)
 - Clauses 36, 37, 38, 39 & 40
- Building Review Panel (BRP)
- Sustainable Design Appraisers (SDAs)
- Appeals Process
- Stage 2 – Lot title in 2nd half 2023

- Wiki - <https://wiki.nararaecovillage.com/display/NBLS>

CMS – Community Management Statement

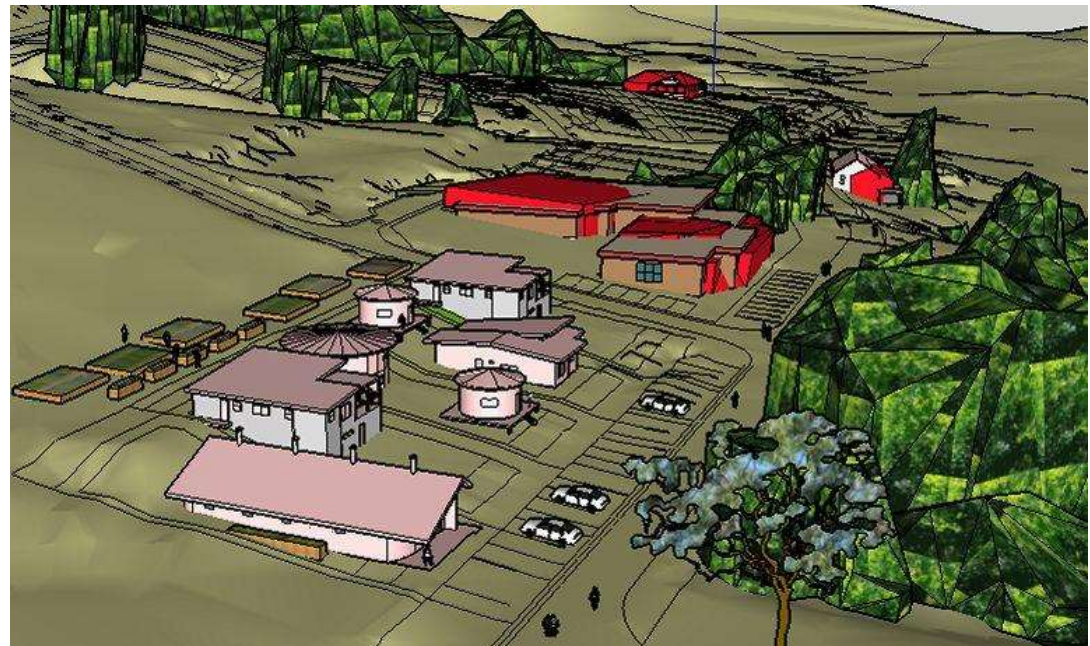
The By-Laws of **Community Association** – made up of all Lot Owners



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2. Siting the House

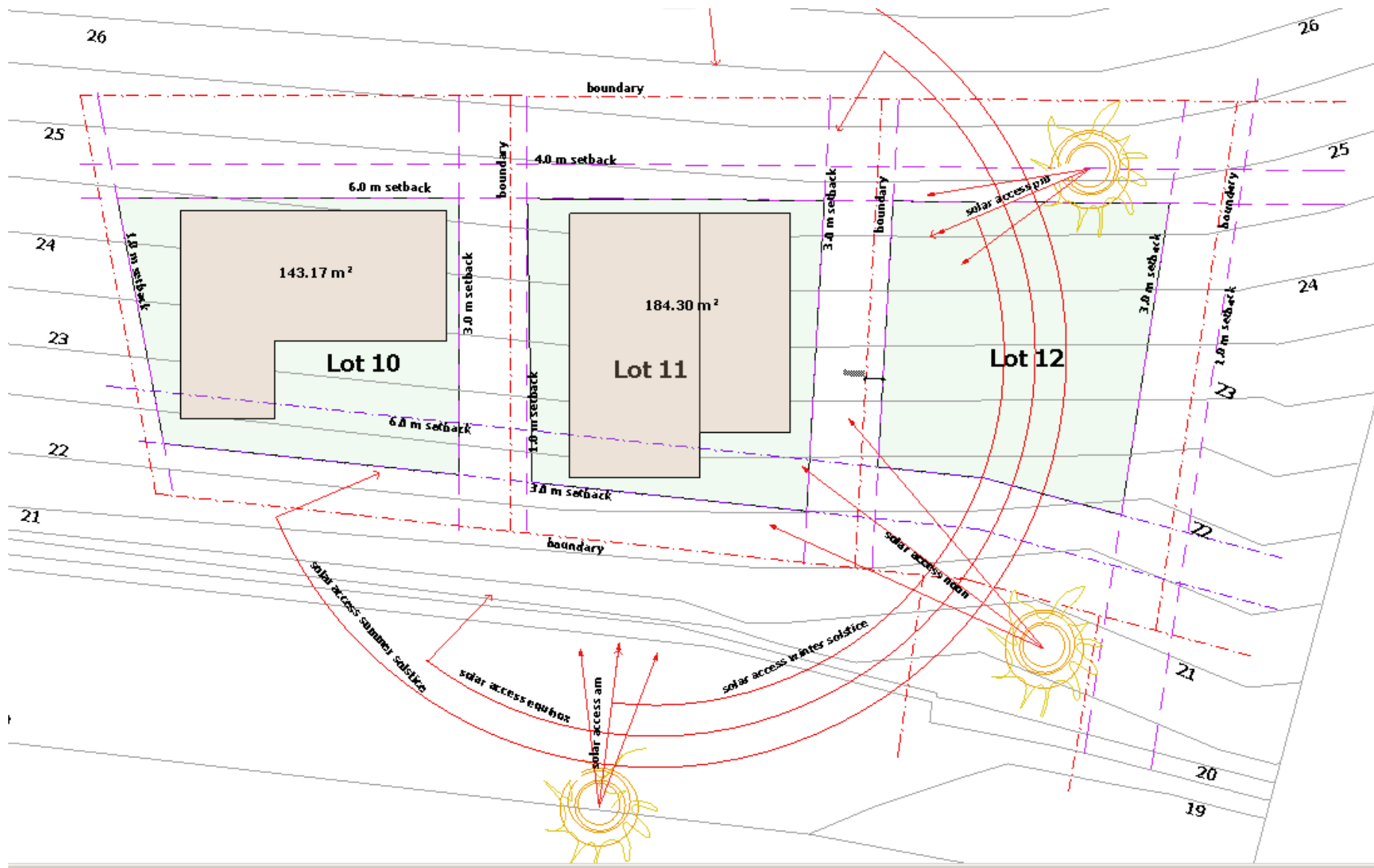
- Solar Access
- Hill Thalys and Council setbacks and controls
- Common Gardens
- Building Height and Volume





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Site & Neighbourhood Analysis





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3. Building Standards Categories

- Management
- BASIX <https://www.planningportal.nsw.gov.au/development-and-assessment/basix>
- Water
- Energy
- Materials
- Waste
- Indoor environment
- Other
- Bonus - Innovation





4. NEV Rating Tool (Scoresheet)

- 70% min. above BASIX score
- Mandatory Items
 - Achieve thermal performance
 - For NatHERS pathway: Achieve minimum of 7.5 stars, and a reduction in cooling load
 - For Passive House pathway: Use an accredited Passive House design consultant AND pass the Blower Door test, or else achieve NatHERS pathway
 - Renewable Energy – to meet annual energy demand
 - Reach a Scoresheet score of 70
 - **Conduct neighbour consultation**
 - **Meet minimum Lot On-site Stormwater Detention (OSD) requirement**
- Hill Thalys form
- Weightings and Points
- Help
- No of Bedrooms





4.1 Management

- Mandatory - Engage neighbours and ensure neighbour consultation form is signed
- Management of Design process
 - SDA, designer, builder and assessor communicate on design
 - Intent to use a contract with builder and get legal advice
 - Willingness to communicate results
- Commitment to As-Built Scorecard
 - Planning critical inspections during build



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4.2 Water

- Mandatory - On-Site Detention
- BASIX assessment
 - Landscaping – irrigation demand
 - Fixtures and fittings – WELS ratings
 - Rainwater tanks
 - Stormwater /Water Sensitive Urban Design (WSUD)



BASIX Water

- Landscape area – native endemic or low water use plants
- Fixtures and fittings – WELS ratings
<https://www.waterrating.gov.au/choose/water-rating-label>





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BASIX Water

- Rainwater tanks

- First flush diverters
- Nominate uses - garden, laundry etc.
- leaf exclusion guttering recommended
- Preferable to have low maintenance, quiet pump system ideally with a controller (not requiring pumping of pressure vessel) with a solenoid diverter (Rainbank or sim)





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Q n A - 5 mins



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4.3 Energy

- Reducing greenhouse gas emissions through :-
 - Building thermal performance
 - Use of energy efficient devices and management
- Renewable Energy generated
- Peak power load management





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Energy – thermal comfort building factors

- Orientation/site factors
- Zoning/volume
- Insulation
- Thermal mass
- Windows
- Shading
- Ventilation/Infiltration



Energy – thermal comfort

- Mandatory requirement
 - NatHERS rating – or Passive House
- Accredited NatHERS or Passive house assessor required





Energy – NatHERS

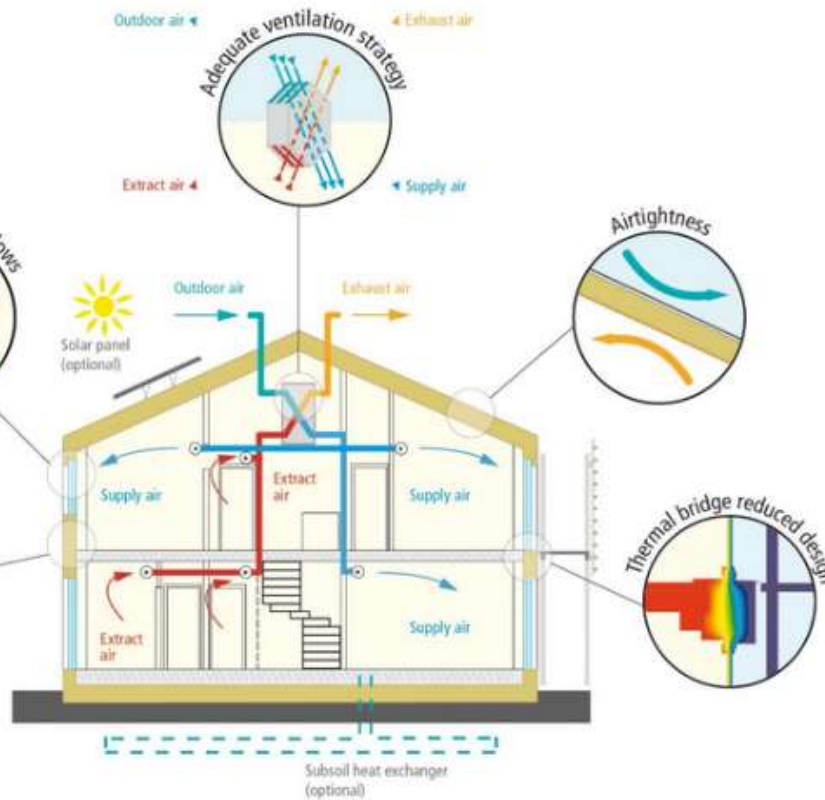
- **NatHERS**– Federal government – www.nathers.gov.au
- **Accredited assessor** - ABSA
<https://www.absa.net.au/find-an-assessor/>
or Design Matters –
<https://www.designmatters.org.au/Web/Members-Directory/Member-Directory.aspx>
- **Brief assessor properly** - not just compliance but min. 7.5 star rating, plus 50% of max. BASIX cooling load (or 25% if difficult conditions)
- **Checklist** – all materials, colours, windows, floor finishes, fans, lights
- **Designer** – involve early in the process
- **Final Certification**
- **Later revisions**

Passive House

New BASIX Pathway

A Certified Passive House has:

- Appropriate levels of thermal insulation
- A design that reduces thermal bridges
- High-performance windows and doors
- **Airtightness**
- **Mechanical ventilation with heat recovery (MVHR)**



Passive House principles

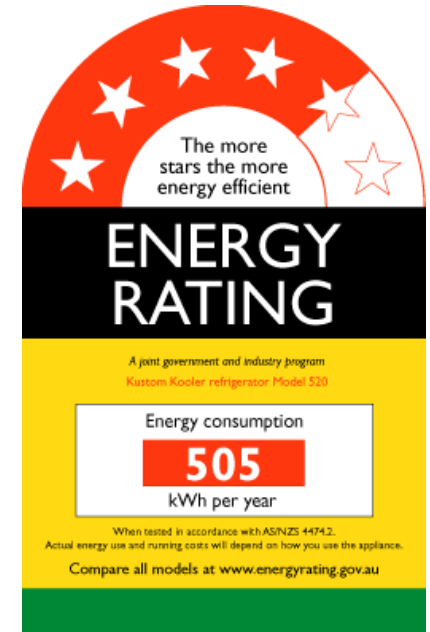
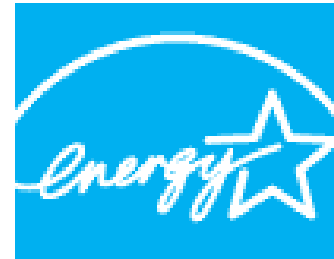
Source: Passive House Institute

There will be 2 dedicated SDAs to handle PH enquiries



Energy Efficient Devices

- Hot Water system
 - solar or heat pump
- Heating and cooling devices
- Energy rating of appliances



<https://www.energyrating.gov.au/>



Renewable Energy

- Mandatory - 'To at least meet annual demand'
- 2 kW for the first bedroom and 1kW for each additional bedroom
- Optimise orientation and pitch
 - Focus on West orientation if not overshadowed
- Check for overshadowing
- NEV Smart Grid compatible





Energy Storage

- Rewards for:
 - Hybrid Inverters to suit a PV system &
 - A home battery system
 - A future home battery system or
 - A battery electric vehicle
 - Using your electric vehicle as a battery that can also power appliances
 - <https://www.solarquotes.com.au/electric-vehicles/v2l-v2g-v2h/>
 - A financial contribution to the community battery
- Note - Smartgrid Standards for inverters, air conditioners etc.

Peak Load Management

- Fixed standby switches or timers
- Smart metering with occupant control or energy monitoring system
- Remote control system
- Smart Grid switch-off on high demand
- Hot Water on timer
- Battery storage system





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Q n A - 5 mins



4.4 Materials

- Embodied energy of materials
- Renewable or natural materials
- Recycled material
- Durability
- Low toxic impact
- Transport energy
- End of life/adaptability





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Renewable & Natural Materials

- Hempcrete
- Straw bale
- Timber
- Rammed Earth
- Mud brick
- Stone
- Weathertex





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Recycled Materials

- Timber – framing, flooring, cladding
- Roof tiles
- Steel reinforcement
- Recycled content
- Composite materials
- Doors and windows
- Fixtures and fittings
- Paving, bricks
- Crushed aggregate



Composite wood and plastic decking material

Source :

<http://www.modwood.com.au>

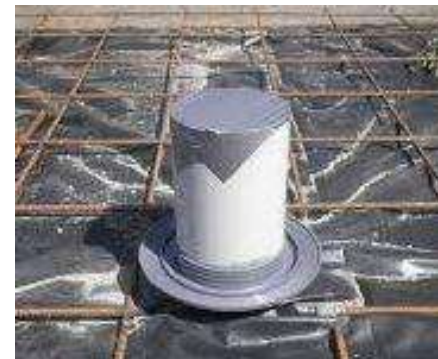




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Durability

- Warranty on materials
- Hard wearing options
- Detail design
- Exposure conditions
- Non-chemical termite barrier
- Access for maintenance
- Ease of replacement





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Low Toxic Impact

- Using low toxic materials
- Avoiding the use of PVC
- Alternative piping materials
- Naturally durable timber rather than treated
- Paints and sealants from natural products
- Coverstrips rather than sealants
- Using natural renewable products



Pipe alternatives – HDPE & ABS
Source : <http://www.philmac.com.au>





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Transport Energy

- Using local products and suppliers
- Using local contractors
- Number and length of site deliveries
- Avoiding imported materials
- Using products fabricated or assembled locally





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End of Life/Adaptability

- Design allows for future changes
- Materials can be easily disassembled and recycled
- Mechanical fixing rather than adhesives
- Ease of replacement of equipment





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4.5 Waste

- Domestic resource recovery
 - Worm farm
 - Compost bin
 - Internal bins or other storage for waste sorting
- Construction resource recovery
 - Construction waste reuse and recycling
 - Amount of waste and destination
 - Keeping records
 - Design to suit product size
 - Packaging minimisation





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4.6 Indoor Environment Quality (IEQ)

- General
 - Day lighting
 - Cross ventilation
 - Noise (int & ext insulation)
- Manage Pollutants
 - Low VOC paints
 - Low formaldehyde joinery and panel materials - E0
 - Avoid dust-trapping materials such as carpets, fabrics, high shelves
- Manage condensation
 - Breathable construction, drainage cavities to walls and roofs, exhaust fans
- Reliable ventilation
 - Mechanical assistance



4.7 Other

- Universal access for occupants
- Can house be adapted for future uses
- Livable Housing Guidelines

<https://livablehousingaustralia.org.au/#>

- Resilience to severe external forces
 - Bushfire
 - Storms
 - Flood





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4.8 Bonus Points

- Innovation
 - earth ships / prefabricated
 - phase change materials
 - new materials or equipment
- Food production
- Extra points awarded case by case
To be negotiated with BRP in advance





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Q n A