

# **NEV Stage 2 Building Standards Draft Recommendations v1.8 CA Presentation – Latest Changes**

**John Shiel, Michael Berney,  
Joanne Hunt, Andrew Dobson**

**Apologies: Malay Dave, Art Wooding**

**Retired: Tania Ferfolja; Pip Atkins; Mike Crawley; Grant Rickey**

**Please write questions into the chat**

**Slides will be available after**

**We will be recording this session – pls turn off video, and use chat if you wish**



# Purpose of this Workshop

John Shiel

- To present the final recommended Building Standards for Stage 2 to the CA
  - The text form is also in pdf document
  - <https://wiki.nararaecovillage.com/pages/viewpage.action?pageId=58460651>
- Next Steps
  - Obtain CA acceptance (and possible NEV Co-op member consent)
  - Once accepted
    - Update the scoresheet formulae, forms - wiki
    - Graham Hunt to train SDAs and BRP in new standards

# Stage 2 Proposed Building Standards

## Agenda

1. Definitions
2. Changes and Reasoning
3. Scope
4. Hill Thalys - Home size, setbacks for sunlight
5. Materials
6. Wood Fires
7. Thermal Performance - Star rating, Passive House
8. Scoresheet – design & as-built
9. Neighbour consultation
10. Reviews

# 1. Definitions

- **Building Sustainability Index – (BASIX)** - A compulsory NSW environmental scheme to reduce home greenhouse emissions and water consumption, used by Central Coast Council
- **Building Review Panel (BRP)** – if design meets standard, stamp drawing for council
- **Member Building Group** – members & experts helping member designs at regular **member building meetings**
- **Nationwide House Energy Rating Scheme (NatHERS)** – star rating system that measures a home's thermal comfort and energy efficiency
- **Passive House Standard** - measures a home's thermal comfort, energy efficiency, indoor humidity, air tightness and annual primary energy
- **Principal Certifying Authority (Certifier)** - Carries out mandatory inspections to ensure work is undertaken in accordance with the Council Development Consent conditions
- **Scoresheet/ Scorecard – Design** - A spreadsheet gives points for home design sustainability categories. As-built – gives points for sustainability categories after a home is built
- **Sustainable Design Appraisers (SDAs)** – help with design and scorecard

## 2. Reasons for Draft 2 Bldg Standards (1)

Topic	Stage 1	Stage 2	Reason
Scope	New Home Design	New homes, Existing Buildings, Tiny Homes - Education, Design, Build, share details; Advise on Infrastructure materials	Assist Stage 2 members; improve build process in line with industry progress; improve infrastructure sustainability
Thermal Performance	NatHERS 7 stars (BASIX was 6 stars) – 1 star extra	NatHERS 7.5 stars with reduced cooling energy (plus concession if difficult site); A NatHERS certificate after the build gets more scorecard points; ½ star extra Certified Passive House Standard (& Blower Door test); Tiny & Existing Homes & Buildings - minimise fossil gas as per existing CMS	<b>Dec 2022 BASIX will be more stringent than 7 stars in Stage 1;</b>  Homes require more heatwave resistance due to climate change; More North-South lots; New BASIX will include Passive House
Scoresheet	Design; Water assumed NEV treatment works	Design & As-Built Extra water conditions; Add management category; Different weightings	No NEV water treatment works; As-Built to look at house features during and after build; Points too easily awarded previously; Minor changes – air con star range etc.

# Reasons for Draft 2 Bldg Standards (2)

Topic	Stage 1	Stage 2	Reason
Lot layouts, setbacks, frontages (building controls) etc.	<a href="#">Hill Thalys Design Report (Ecovillage masterplan)</a>	<a href="#">Envirotecture Design Report</a>	Draft council new requirements including dual occupancy; Merge Hill Thalys ideas with lot size & orientations, and easement requirements; encourage outdoor living; larger water tanks; clarify frontages
		with recommended changes (e.g. impervious landscaping); Tiny Homes - hard surfaces included in home design	
Neighbourhood Consultation	Neighbourhood Agreement	Neighbourhood Consultation with additional assistance	BRP not equipped to deal with issues
OTHER - Contracts	N/A	Fair Trading construction contract NEV Special Conditions	To assist members with their builders, costs & build time;
Wood Fires	CMS limits wood fire operation during weather inversions	Minimise the impact of wood fires if members have health issues (CMS)	PM2.5 & toxic particulates and smoke compounds after many requests

# 3. Scope

- When do new standards apply – Stage 1 (tweak) & Stage 2
  - When accepted by members
- Expand scope to
  - **Full home lifecycle** – education (bonds, costs), NEV optional standard contract (extra documents, maybe SDA help), design, build, presentations (education days, Open Days) – As-Built scoresheet
    - Help with member designs at **meetings, member examples, Member Building Group**
  - **Infrastructure**
    - Green materials e.g. **concrete** – eg. ENVIROCRETE® 30%/40% etc **at similar price**
    - Low maintenance, climate resilient and **non-plastic paving (save our topsoil)**; locally sourced
  - **Tiny houses & existing homes**
  - Collaborative housing
    - Houses on larger lots, **Dual Occupancy** (may be allowed by council in new LEP)

# Five Step Building Process (MB)

1. Consult neighbours with preliminary design
2. Complete home design - drawings, BASIX & NatHERS or Passive House Accreditation, Hill Thalys/Envirostructure, design Scoresheet
3. Get NEV BRP approval, lodge a Development Application
4. Appoint builder to build home, collect as-built documentation
5. Submit as-built Scoresheet, updated NatHERS or Passive House Certificate including Blower Door test.

## Step 1 Site & Neighbourhood Analysis

### Lot owner

- Engage an architect/designer
- Use your SDA for advice on NEV building standards
- Consult with your neighbourhood on your design

### BRP

#### Provides you with

- Your assigned SDA who will assist you all the way through the building process.
- Your own Nextcloud Lot folder which contains your Lot survey
- Access to WAE drawings showing location of reticulation services,
- Geotechnical report, Bushfire assessment

## Step 2 Design Development

### Lot owner

#### Finish your DA documentation

- Design drawings
- NatHERS certificate
- Basix certificate
- Hill Thalys/Envirostructure design checklist
- NEV Scoresheet
- NEV Scoresheet supporting information
- Notify BRP you are ready for review

### BRP

#### When finalised

- Get SDA to review
- File documents into your Next Cloud Lot folder

## Step 3 Design Approval

### Lot owner

#### Design endorsement

Once the BRP confirms endorsement, your design plans will be stamped as conforming to the NEV building standards. You are now ready to submit your plans to Central Coast Council for DA approval.

### BRP

#### Provides you with

- A design review against the NEV Building standards
- The BRP will also contact all the lot owners in your neighbourhood, share your plans and check they have been consulted
- When ready the BRP will notify you that your plans are endorsed and will arrange to apply the NEV Building Standard's electronic stamp.

## Step 4 Building Works

### Lot owner

Once you have Development Consent from Council:

- File your DA approved plans into your Lot folder
- Appoint your builder
- Obtain a construction certificate from CCC or a private certifier
- Lodge a building bond with NEV CA
- Complete applications for NEV Power and NEV Water
- Build your house
- Collect as-built documentation during construction

## Step 5 On Completion of Building Works

### Lot owner

- Complete as-built scoresheet—gain NatHERS, or Passive House Certificates
- Apply to PCA for Occupancy Certificate
- File construction and occupancy certificates in lot folder
- Rectify any damage to CA property
- Buy efficient appliances as appropriate
- Apply to BRP to release bond
- Move in and enjoy being part of the village
- Monitor your energy usage and other commitments

### BRP

- Bond returned



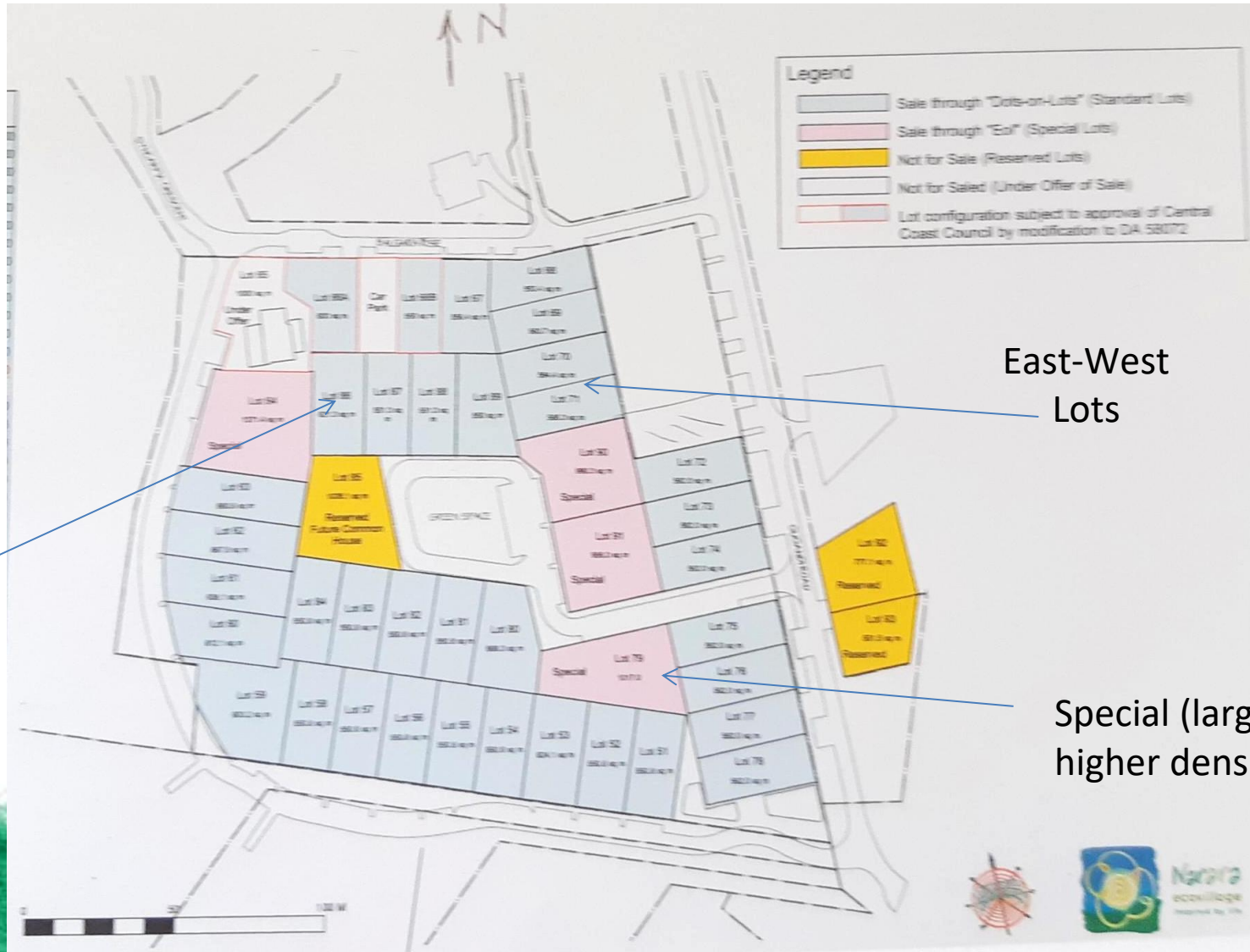
# 4. Hill Thalys/Envirostructure

## Definitions & Stage 2 Proposals

- Dual Occupancy - when a Lot has 2 Principal dwellings (attached or detached)
- Setbacks
  - The distance from boundary to the building
- Site coverage - all above and below ground structures, and impervious landscaping, with exclusions around:
  - Uncovered pervious outdoor living areas, e.g. decks and paving
  - Eaves and awnings
  - Water tanks
- Principal Dwelling
  - Main dwelling on a Single Occupancy lot
- Secondary Dwelling
  - Smaller dwelling (e.g. granny flat) on a Single Occupancy lot
- Street frontage
  - If over 10 m needs articulation (a bend in wall)

# Lot definitions

## North-South, East-West, Special



# Single Occupancy

with Principal Dwelling or Principal & Secondary Dwelling

Control (to boundary)		Min/Max/Av.	North-South Lots	East-West Lots	Special Lots (>900m <sup>2</sup> )
<b>Setbacks**</b>	Front	Min.	3 - 4.5m*		
	Rear	Min.	3m		
	Side	Min.	1m***	-	1m***
	Side (North)	Av.	-	3m	3m
		Min.	-	0.9m***	0.9m***
	Side (South)	Min.	-	0.9m***	0.9m***
<b>Site Coverage</b>		Max.	45%		50%
<b>Internal House Area</b>	Principal Dwelling	Max.	150m <sup>2</sup> preferred, 180m <sup>2</sup> maximum		45% (to max 480m <sup>2</sup> )
	Secondary Dwelling	Max.	60m <sup>2</sup>		
<b>Height</b>		Max.	8m (minor encroachments up to 10m) No requirement for extra height to be concentrated towards the street		

\* As per draft council rules

\*\* Note that easements (e.g. common gardens) cannot be built over

\*\*\* If the height is less than 4.5m. For any part of the building with a height of more than 4.5m, setback is 0.9m plus one-quarter of the height of the building above 4.5m (draft council rules)

# Dual Occupancy with two Principal dwellings

Control (to boundary)		Min/ Max/Av.	North- South Lots	East-West Lots	Special Lots (>900m <sup>2</sup> )
<b>Setbacks**</b>	Front	Min.	3 - 4.5m*		
	Rear	Min.	4.5m*		
	Side	Min.	1m***	-	1m***
	Side (North)	Av.	-	3m	3m
		Min.	-	0.9m***	0.9m***
	Side (South)	Min.	-	0.9m***	0.9m***
<b>Site Coverage</b>		Max.	45%		50%
<b>Internal House Area</b>	Both**** Dwellings	Max.	45% (to max 300m <sup>2</sup> , but a maximum of 180m <sup>2</sup> for either)	45% (to max 480m <sup>2</sup> , but a maximum of 240m <sup>2</sup> for either)	
<b>Height</b>		Max.	8m (minor encroachments up to 10m) No requirement for extra height to be concentrated towards the street		

\* As per draft council rules

\*\* Note that easements (e.g. common gardens) cannot be built over

\*\*\* If the height is less than 4.5m. For any part of the building with a height of more than 4.5m, setback is 0.9m plus one-quarter of the height of the building above 4.5m (draft council rules)

\*\*\*\* Secondary Dwellings not permitted by Council.

# 5. Material Guidelines

Sustainable, non-toxic, low-carbon\*

- Minimise the amount of embodied carbon per person
- Concrete – **low carbon** (see supplier list), reduce use, or use sustainable timber
- Steel – **reduce** use, or use sustainable timber
- Timber (sustainable)
  - E.g. certified by the **Forest Stewardship Council (FSC)**
  - **recycled** timber (supplier receipts, or photos of nail holes)
  - **minimise timber with copper-chrome-arsenate (CCA)**
  - manufactured wood products shall have **low formaldehyde emissions**

\*Mullum Creek Pty Ltd. (2016). *Mullum Creek | Mullum Creek Design Guidelines*. Mullum Creek Residential Community. <https://mullumcreek.com.au/design-guidelines/mullum-creek-design-guidelines/>



# 6. Wood Fires

- Discourage Wood Fires (urban area – council rules)
- If installed
  - Ensure in As-built Scorecard they are installed and operating correctly
  - Consider filter fabrics on chimneys to lower the small cancerous particulate emissions
- CA to limit operation of Wood Fires
  - Already in CMS during weather inversions notified by BoM
  - **But also recommend on complaints of member health issues**

# 7. Thermal Performance – New Homes (JS)

BASIX - NatHERS, but now has a Passive House pathway

- CMS (clause 57.1) has the value to use energy efficiently – including minimising greenhouse gas. So we should prefer good house design over air conditioning.
- Our houses should remain safe and healthy during any extended heatwave and possible blackouts, with high overnight temperatures.
- Minimum Pathways – **New Homes**
  - **NatHERS** - Keep aspirational target of 8 stars as per Stage 1
    - 7.5 stars
      - With **50% reduction** in BASIX maximum cooling cap – for heatwave protection
    - 7.5 stars
      - With **25% reduction** in cooling load – if justified by difficulties e.g. block orientation, shape
  - **Certified Passive House** – new pathway now in BASIX – Certified designer
    - If fails blower door test, conduct NatHERS certificate

# Thermal Performance – other Homes

- For **existing** homes and buildings (for National Construction Code Class 1 and 2)
  - > \$50,000 renovations **pass BASIX & 6 stars** (NSW reqmt – soon to be 7 stars)
- For **Tiny** homes
  - There is no NatHERS or Passive House performance requirement
  - Subject to **NSW regulations** where for continuous occupation, the Tiny House:
    - Needs to be on land occupied by that in connection with the owner's house
    - Should be registered
    - Occupier should be related to the household
  - The **BRP** has provided these current Tiny Houses **guidelines** which include:
    - Having neighbourhood consultations
    - Installing at least 2 kWh of Solar panels
    - Managing services such as water, electricity and any sewer
  - In addition to this, the **Stage 2 recommendations** are that the Tiny House should:
    - Meet some of the Scoresheet provisions (TBD eg. materials etc. embodied carbon/person, recycling)
    - The Tiny House area and associated hard surfaces shall be included in Hill Thalys/Envirostructure site coverage area of the Lot
    - Minimise the use of **all forms of gas** as per existing CMS clauses:
      - 43. Poisonous Substances, in particular 43.1,
      - 57. Energy and Emissions Goals and Principles, in particular clauses 57.1 b), c) and d).



# Energy

## Renewable - Solar Panels; Gas

- Stay with Houses to be net carbon neutral
  - 2 kW for first bedroom
  - 1 kW for each other bedroom
- All Homes - Gas
- Minimise the use of gas as per existing CMS clauses:
  - 43. Poisonous Substances, in particular 43.1,
  - 57. Energy and Emissions Goals and Principles, in particular clauses 57.1 b), c) and d).
- For homes, this means that for:
  - Natural Gas - that we propose this reference to be removed from the CMS
  - LPG - some houses have this already - that we propose to minimise its use
  - Biogas - reduce the impact of this - that we propose to minimise its use

# 8. Scoresheet

- Design Scoresheet – to pass the NEV standards
- BASIX – Water Minimum
  - Can't use Narara postcode water treatment concession anymore
  - Include all BASIX water section in Scoresheet
- Different weights for each category, not as easy to score points
  - Add a Management category
  - Improve IEQ & lower energy weights
- Air Conditioners – Star rating - range has now changed

# As-built Scoresheet

Recommended to check the build quality in Stage 2

- Main result for house
- Get points for sharing house results (at meetings, Open Days)
- Features include:
  - Receipts/ photos of waste disposal, & critical elements e.g. insulation type and location, windows, air-tightness
  - Blower Door test
    - Required for Passive House
  - Updated NatHERS rating
    - Small effort if few changes; requires updated drawings and specifications

# Scoresheet - Stage 1 cf. Stage 2

Category	Existing Stage 1 Design	Proposed Stage 2 Design & As-Built	
	Max Weightings	Recommended weighting	Difference – Recommended vs Stage 1 Scoresheet
<b>Management &amp; Process</b>		10%	10%
<b>Water</b>	19%	20%	1%
<b>Energy</b>	44%	28%	-16%
<b>Materials</b>	21%	18%	-3%
<b>Waste</b>	10%	5%	-5%
<b>Indoor Environmental Quality (IEQ)</b>	5%	15%	10%
<b>Other*</b>	1%	4%	3%
<b>Total</b>	100%	100%	0%
<b>Bonus Points – Innovation*</b>	16%	10%	-6%

# Scoresheet – New Design Proposed

V18		Version	Lot No.	Membership Surname(s):				Extra Dwelling Surname(s):				
<b>NEV building standards scoresheet</b>							Your progressive score without bonuses is = <b>15</b>					
No.	Category	Sub-category	Goal	Criteria	Initial Target %*	WEIGHTING POINTS (%age)	Expectation Based on a 120 SqM design	Enter your Design value here	As-Built values	Units	YOUR SCORE	Instruction
		Please enter the gross floor area of your house		Sq M				<b>180</b>		Sq M		Please enter the floor area as defined by the co definition of the floor can be found on the "GF/
		Enter the building material type here from the dropdown		<a href="#">See Table_1 for details of construction materials</a>				<b>Hempcrete</b>				Enter the type of construction proposed selecti The area, type and bedrooms is transferred to line 9. For Mac computer users, the drop down and enter it manually at Item 8
							Number of bedrooms =	<b>2</b>				
	<b>MANAGEMENT &amp; PROCESS</b>	SDAs, As-Built Scoresheet	Assist owners meet building standards, and get a home that meets their expectations	Having SDA, designer, builder and assessor communicating on design; evidence of critical inspections during build; Updated drawings & NatHERS results before and after; blower door test after; communicating results								
1	<b>WATER</b>	Basix Potable water use <b>Alternative water items</b> Stormwater & greywater management	Reduce drinking water use Blackwater/Greywater storage and usage. Water effective landscaping. Stormwater and sensitive urban design.	Water efficient devices Water effective landscaping		<b>19</b>	45			BASIX points	7	The Narara Ecovillage postcode alternative wa a modified licence without a waste water tertam the "water"score in the NEV Scoresheet. <b>40 points or more are strongly recomme is deducted for each BASIX score unde</b>
2		Water efficient appliances	Washing machines & dishwashers are not included in Basix			<b>1</b>	2				0	Enter:- * 1 point if using a <b>washing machine with</b> * 1 point if using a dishwasher with WELS rat
		<b>Sub-Total</b> All water items	Sub-total weighting points for lines 1 to 3 =			<b>20</b>				Your subtotal for water items	<b>7</b>	
3	<b>ENERGY</b>	Building Thermal Performance*	Decrease Energy consumption	<b>Mandatory</b>	70%	<b>16</b>	7			NatHERS Stars		<b>Enter the NatHERS star rating from ra A minimum of 7-stars is a mandator</b> ige
		Energy Efficient devices		Hot Water systems		2	2			NEV points	0.0	<b>Enter points for each of:-</b> * 2 points if installing a solar or heat pump hc Reduct

# 9. Neighbour Consultation

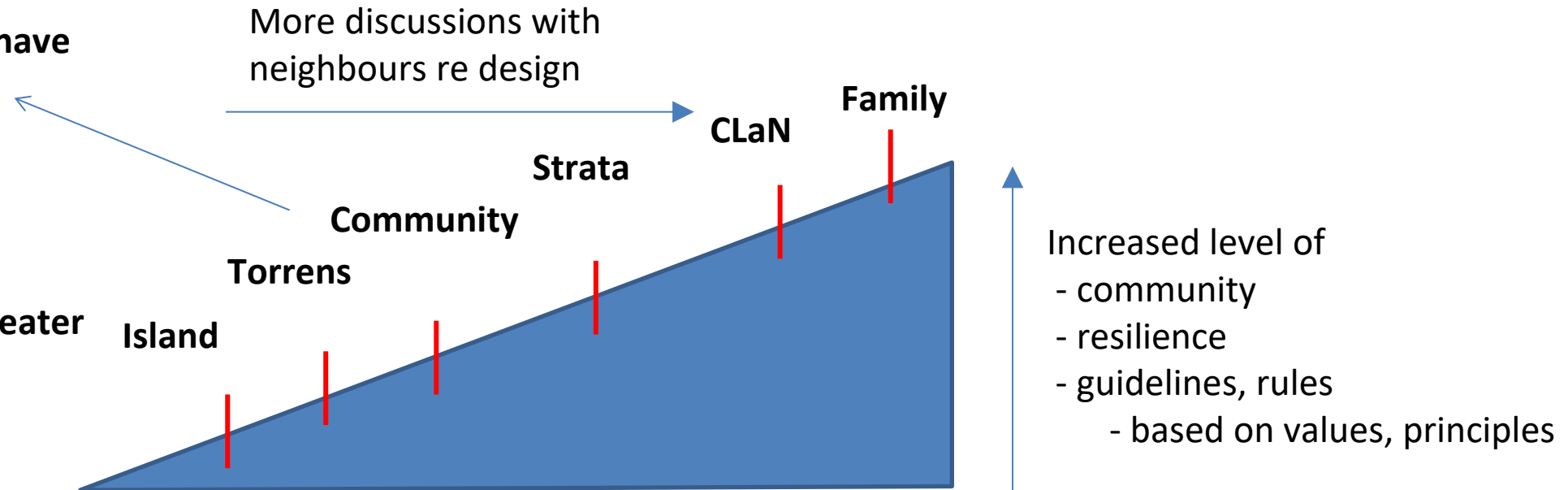
- The purpose is to **promote** our **capacity** to be the **best neighbours possible**.
  - to strengthen good neighbour **relationships**
- Should not begin development before this is complete
- The consultation process is compulsory
  - The process fails if there are still Concerns when BRP gets application
    - Then application fails but appeal can be made to Building Appeals Committee (BAC)

# Value of Creating “Community” – for resilience

Co-housing type	Name	Community Bonding
Spiritual Eco-village, small lots, large land	<b>Findhorn</b> , Scotland	Alternative lifestyles, fun and meditative working bees, communal eating
Sustainable Ecovillage, small lots, large land	<b>Cloughjordan</b> , Ireland	Working bees, employ farmer, Hostel, Baker, Building for activities, GFC hit hard, part of an established village
Sustainable Eco-village, small lots, large land	<b>Narara Ecovillage</b>	Many working bees, dinners, monthly mtgs, many sociocratic mtgs
Urban apartments	<b>The Commons</b> Melbourne	Little up front

**CMS – value – all members have agreed to this**

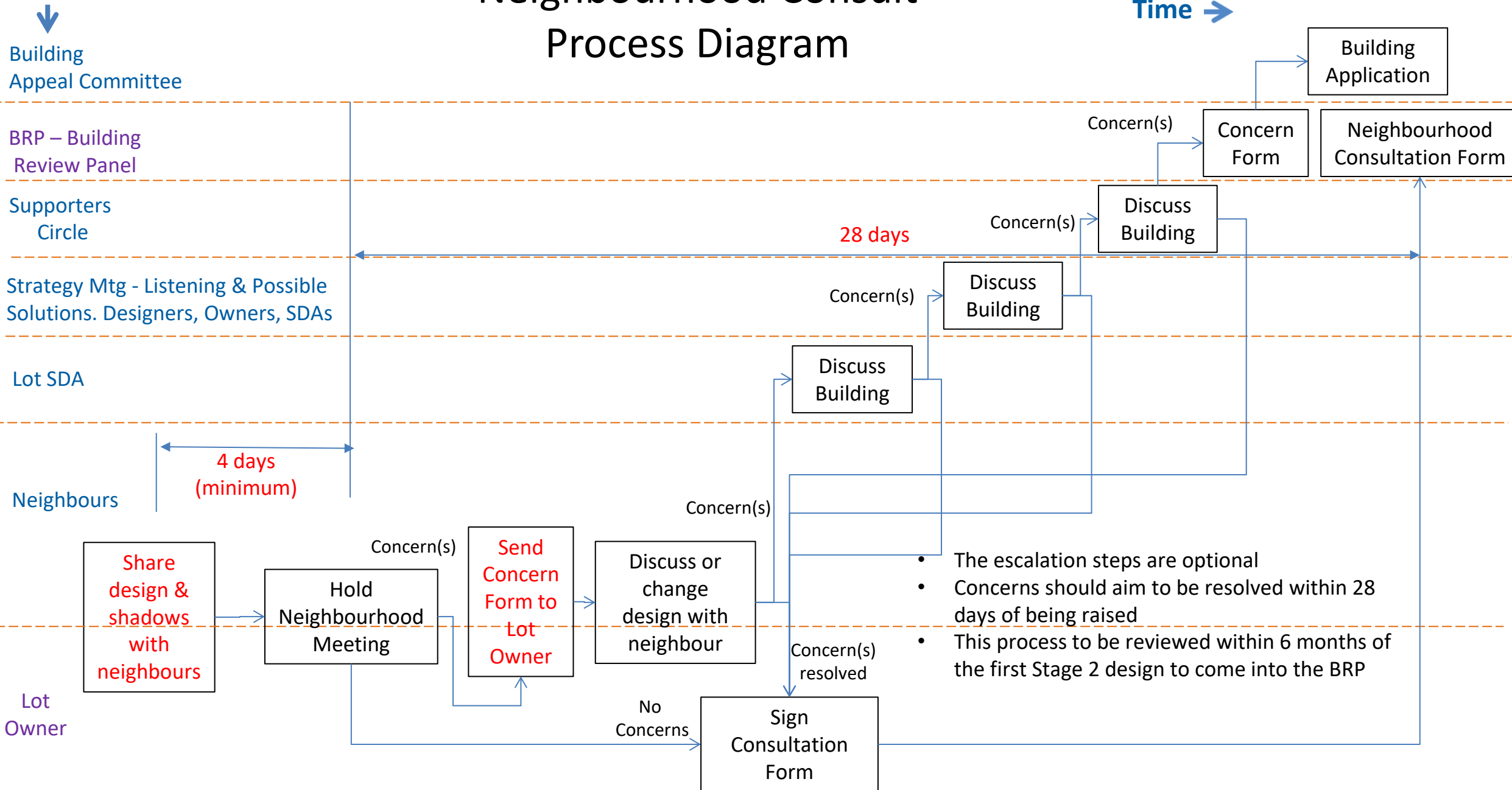
“1.2 The Narara Ecovillage Community aspires:  
 ...b) to promote and foster  
 ...a willingness to balance individual needs with the greater good of the community”



## Roles (possible steps)

# Neighbourhood Consult Process Diagram

Time →





# Neighbourhood Consultation Form (Draft)

- We acknowledge that our meeting considered the following matters relating to and affecting each lot:
  - Site coverage, size, shape and height of built structures
  - Overshadowing
  - Visual privacy
  - Sharing views
  - Materials used on facades, decks and roofs
  - Management and design of common boundaries
  - Street frontage and lot access
  - Car parking
  - Access to Common Gardens
  - Noise and light spillage across properties
  - Storm water management, particularly “inter-site drainage” for retaining walls or other drainage near neighbours
  - Lot Access – construction
  - Other:

Name1: \_\_\_\_\_ Lot No: \_\_\_\_\_ Signed: \_\_\_\_\_ Dated: \_\_\_\_\_

Name2: \_\_\_\_\_ Lot No: \_\_\_\_\_ Signed: \_\_\_\_\_ Dated: \_\_\_\_\_

Name3: \_\_\_\_\_ Lot No: \_\_\_\_\_ Signed: \_\_\_\_\_ Dated: \_\_\_\_\_

Name4: \_\_\_\_\_ Lot No: \_\_\_\_\_ Signed: \_\_\_\_\_ Dated: \_\_\_\_\_



# Neighbour Concern Form (Draft)

- **Neighbour Concern Form – to Lot Owner**

- I <Name>, of <Lot No>, am the neighbour of <Name> of <Lot No.>, and have discussed my neighbour's design with them. I have the following concern(s):
  - Concern 1: <concern summary name>
    - Details: <details>
  - What is the issue you think your neighbour is trying to solve with their design features:
    - <neighbour issue e.g. privacy, pet enclosure>
  - Alternative suggestions:
    - <what could assist to solve this concern e.g. smaller trees, wire fence with hedge>
  - Concern 2: <concern summary name> etc.
  - Signed: \_\_\_\_\_ Dated: \_\_\_\_\_

# 10. Reviews

- Neighbourhood Process
  - Review after 3 months after 1<sup>st</sup> Concern submitted to BRP
- CA Exec Committee checks
  - CA to conduct random checks to ensure:
    - the standards are appropriate,
    - adequate processes are in place for prompt approvals, and
    - the approvals satisfy our standards

# Q&A

Please put your questions in the chat

- Bldg Stds Review WG
  - John Shiel, Michael Berney, Andrew Dobson, Joanne Hunt, Art Wooding