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Address:
71 Allnutt Street, Mandurah WA 6210
Postal:
PO Box 4160 Mandurah North WA 6210

Energy Efficiency Report – HERS Software

Date:	1st September 2020
Our Reference:	20-4936
Client Job Number:	N/A
Project Address:	Witchcliffe Ecovillage WA 6286 (The Buttercup)
BCA Climate Zone:	5
HERS Climate Zone:	54
Report Commissioned By:	Big Ben Builders
On Behalf of:	Big Ben Builders
Technical Contact:	Nathan Peart

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Rating: 7.0 Stars

Construction Element	Insulation and glazing values		
Roof/Ceiling	R1.9 Foil backed Roof insulation R3.0 Ceiling Insulation		
External Walls – Reverse Brick Veneer	Sisalation on battens + R2.7 bulk wall insulation.		
External Walls – Framed	Sisalation on battens + R2.7 bulk wall insulation.		
Internal Walls – Single Brick	None		
Internal Walls – Framed	R2.7 bulk wall insulation.		
Floor – Slab on ground	Floor insulation is not required.		
Glazing	Façade/Area	Total System	
		U Value	SHGC
	Clear	6.70	0.70
	Low E	5.40	0.58
	Double Glazing	4.80	0.51
Ceiling Sweep fans	Two to Kitchen/Living area. One each to bedrooms.		

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BCA Part 3.12 Compliance Report

3.12.5.5 Artificial lighting

Artificial lighting has been calculated using Lamp power density.

Maximum Lighting Calculations			
Space	Area (m²)	Max. Wattage/m ²	Max. Wattage Allowed
Class 1 building	96.2	5	481.0
Verandah/Balcony	9.9	4	39.6
Class 10A building	41.4	3	124.2

Vented light fittings are not included in the Class 1 or 10A building part of the HERS calculation.

Multiple spaces with similar allowances have been combined as per AN020. Unenclosed areas less than 5m² are treated as Perimeter lighting. Perimeter lighting to have either a daylight sensor or lamps > 40Lumens/W. Above report is based on design drawings. It remains the builder's responsibility to ensure compliance on site.

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BCA Part 3.12 Performance Requirements

3.12.1.1 Building fabric thermal insulation

Where required, insulation must comply with AS/NZS 4859.1 and be installed so that it abuts or overlaps adjoining insulation other than at supporting members such as columns, studs, noggings, joists, furring channels and the like where the insulation must butt against the member; and forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and does not affect the safe or effective operation of a domestic service or fitting.

Where required, reflective insulation must be installed with the necessary airspace, to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and the reflective insulation closely fitted against any penetration, door or window opening; and the reflective insulation adequately supported by framing members; and each adjoining sheet of roll membrane being overlapped not less than 150mm; or taped together.

Where required, bulk insulation must be installed so that it maintains its position and thickness, other than where it crosses roof battens, water pipes, electrical cabling or the like; and in a ceiling, where there is no bulk insulation or reflective insulation in the external wall beneath, it overlaps the external wall by not less than 50 mm.

3.12.1.2(c) and 3.12.1.4(b) Thermal breaks

A roof that has metal sheet roofing directly fixed to metal purlins, metal rafters or metal battens; and does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens, must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters, or metal battens.

A wall that has lightweight external cladding such as weatherboards, fibre-cement or metal sheeting fixed to the metal frame; and does not have a wall lining or has a wall lining that is fixed directly to the metal frame, must have a thermal break, consisting of a material with an R-Value of not less than 0.2, installed between the external cladding and the metal frame.

3.12.1.2(e) Compensation for a loss of ceiling insulation

The house energy rating software used automatically compensates for a loss of ceiling insulation. Ceiling insulation penetrations are included in the final energy assessment on page 1 of the NatHERS Certificate.

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3.12.1.5(c) and 3.12.1.5(d) Floor edge insulation

A concrete slab-on-ground with an in-slab or in-screed heating or cooling system, must have insulation with an R-Value of not less than 1.0, installed around the vertical edge of its perimeter; and when in climate zone 8, must be insulated around the vertical edge of its perimeter with insulation having an R-Value of not less than 1.0; and underneath the slab with insulation having an R-Value of not less than 2.0.

Insulation required must be water resistant; and be continuous from the adjacent finished ground level to a depth of not less than 300mm; or for at least the full depth of the vertical edge of the concrete slab-on-ground.

These requirements do not apply to an in-screed heating or cooling system used solely in a bathroom, amenity area or the like.

3.12.3 Building Sealing

This Part applies to a Class 1 building and a Class 10a building with a conditioned space.

The Part does not apply to a building in climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler; or a permanent building ventilation opening that is necessary for the safe operation of a gas appliance; or A Class 10a building used for the accommodation of vehicles.

Chimneys and flues will be designed and installed in accordance with 3.12.3.1.

Roof lights will be designed and installed in accordance with 3.12.3.2.

External windows and doors will be designed and installed in accordance with 3.12.3.3.

Exhaust fans will be designed and installed in accordance with 3.12.3.4.

Construction of roofs, walls and floor will comply with 3.12.3.5.

Evaporative coolers will be designed and installed in accordance with 3.12.3.6.

3.12.5 Services

This Part applies to a Class 1 building, a Class 10a building and a Class 10b swimming pool associated with a Class 1 or 10a building.

A heated water supply system must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.

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Insulation of services will be designed and installed in accordance with 3.12.5.1.

Central heating water piping will be designed and installed in accordance with 3.12.5.2.

Heating and cooling ductwork will be designed and installed in accordance with 3.12.5.3.

Electric resistance space heating will be designed and installed in accordance with 3.12.5.4.

Artificial lighting will be designed and installed in accordance with 3.12.5.5.

A water heater in a heated water supply system will be designed and installed in accordance with 3.12.5.6.

Swimming pool heating and pumping will be designed and installed in accordance with 3.12.5.7.

Spa pool heating and pumping will be designed and installed in accordance with 3.12.5.8.

WA 2.3.1 Water use efficiency

All tap fittings other than bath outlets and garden taps must be a minimum of 4 stars WELS rated.

All showerheads must be a minimum of 3 stars WELS rated.

All sanitary flushing systems must be a minimum of 4 stars WELS rated dual flush.

WA 2.3.2 Swimming pool covers and blankets

An outdoor private swimming pool or spa associated with a Class 1 building must be supplied with a cover, blanket or the like that is designed to reduce water evaporation; and is accredited under the Smart Approved Watermark Scheme governed by the Australian Water Association, the Irrigation Association of Australia, the Nursery and Garden Industry Australia and the Water Services Association of Australia.

WA 2.3.3 Heated water use efficiency

All internal heated water outlets (such as taps, showers and washing machine water supply fittings) must be connected to a heated water system or a re-circulating heated water system with pipes installed and insulated in accordance with AS/NZS 3500: Plumbing and Drainage, Part 4 Heated Water Services. The pipe from the heated water system or re-circulating heated water system to the furthest heated water outlet must not be more than 20m in length or 2 litres of internal volume.