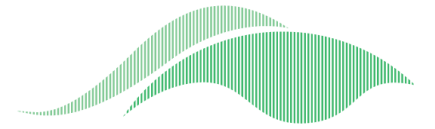


ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

SITE ADDRESS

147 Burswood Road, Burswood WA

OWNER

Elven Properties

BUILDER

TBC

JOB NUMBER

1706424

BUILDING CLASS

Class 5 / Class 9b

DESCRIPTION

Office, Child Care Centre

COMPLIANCE STATUS

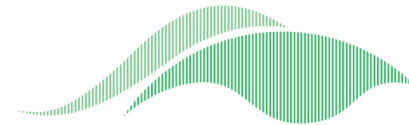
NCC 2022 Compliance Achieved

CERTIFICATION DATE

25/04/2024

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

Australia - Volume One

LIMITATIONS

This report does not include nor imply any detailed assessment for design, compliance or upgrading for the following

- i. Sections B, C, D, E, F, G and I of the 2022 NCC;
- ii. The structural adequacy or design of the building;
- iii. The inherent derived fire-resistance ratings of any proposed structural elements of the building (unless specifically referred to)
- iv. The design basis and/or operating capabilities of any proposed electrical, mechanical or hydraulic fire protection services.
- v. This report does not include, or imply compliance with:

The National Construction Code - Plumbing Code of Australia Volume 3

The Disability Discrimination Act;

The Premises Standard;

Demolition Standards not referred to by the NCC;

Occupational Health and Safety Act;

STATEMENT OF COMPLIANCE

I / We certify that we are specialists in the relevant discipline and the following design documents comply with the relevant requirements of the National Construction Code (NCC Volume One 2022 as applicable) in relation to thermal performance and the relevant Australian Standards specified in this report.

Assessor Name: Don Fleming

Signature: 

RELEVANT QUALIFICATIONS

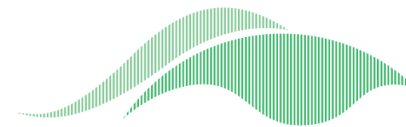
Certificate IV in NatHERS Assessment (Certificate Number: 15W390962)

Thermal Performance Assessment (91318 NSW)

Assessor Accrediting Organisation (AAO) Accreditation Number: **VIC/BDAV/13/1639**

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

J1F1 – Energy Efficiency

A building must

1. reduce the energy consumption and energy peak demand of key energy using equipment; and
2. reduce the greenhouse gas emissions that occur as a result of a building's energy consumption and energy source; and
3. for a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, improve occupant health and amenity by mitigating the impact of extreme hot and cold weather events and energy blackouts; and
4. for other than in a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, protect occupant health and amenity by ensuring the building envelope assists in the maintenance of acceptable internal conditions while the building is occupied; and
5. be able to accommodate the future installation of distributed energy resources.

J1P1 – Energy Use

A building, other than a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, including its services, must have features that facilitate the efficient use of energy appropriate to the function and use of the building; and the level of human comfort required for the building use; and solar radiation being utilised for heating; and controlled to minimise energy for cooling; and the energy source of the services; and the sealing of the building envelope against air leakage; and for a conditioned space, achieving an hourly regulated energy consumption, averaged over the annual hours of operation, of not more than for a Class 6 building, 80 kJ/m².hr; and for a Class 5, 7b, 8 or 9a building other than a ward area, or a Class 9b school, 43 kJ/m².hr; and for all other building classifications, 15 kJ/m².hr.

J2D1 – Deemed To Satisfy Provisions

Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements J1P1 to J1P4 are satisfied by complying with

1. J2D2; and
2. J3D2 to J3D15; and
3. J4D2 to J4D7; and
4. J5D2 to J5D8; and
5. J6D2 to J6D13; and
6. J7D2 to J7D9; and
7. J8D2 to J8D4; and
8. J9D2 to J9D5.

J2D2 – Application of Section J

For a Class 2 to 9 building, other than a sole-occupancy unit of a Class 2 building or a Class 4 part of a building, Performance Requirement J1P1 is satisfied by complying with Part J4, for the building fabric; and Part J5, for building sealing; and Part J6, for air-conditioning and ventilation; and Part J7, for artificial lighting and power; and Part J8, for heated water supply and swimming pool and spa pool plant; and J9D3, for facilities for energy monitoring. (4) For a Class 2 to 9 building, Performance Requirement J1P4 is satisfied by complying with J9D4 and J9D5.

PART J4D3: THERMAL CONSTRUCTION (GENERAL)

(1) 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 studs, noggings, joists, furring channels and the like where the insulation must be 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 service or fitting.

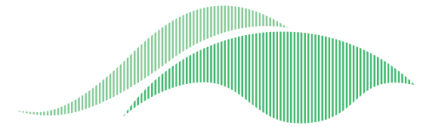
(2) Where required, reflective insulation must be installed with the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and the reflective insulation closely fitted against any penetration, door or window opening; and the reflective insulation adequately supported by framing members; and each adjoining sheet of roll membrane being overlapped not less than 50 mm; or taped together.

(3) Where required, bulk insulation must be installed so that it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like; and in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50 mm.

(4) Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification 36.

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

(5) The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be calculated in accordance with AS/NZS 4859.2 for a roof or floor; or determined in accordance with Specification 37 for wall-glazing construction; or determined in accordance with Specification 39 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.

J4D4: ROOF AND CEILING

A roof or ceiling must achieve a Total R-Value greater than or equal to in climate zones 1, 2, 3, 4 and 5, R3.7 for a downward direction of heat flow; and in climate zone 6, R3.2 for a downward direction of heat flow; and in climate zone 7, R3.7 for an upward direction of heat flow; and in climate zone 8, R4.8 for an upward direction of heat flow. (2) In climate zones 1, 2, 3, 4, 5, 6 and 7, the solar absorptance of the upper surface of a roof must be not more than 0.45.

Construction Type	R Value of construction	Required	Proposed	Complies
Framed Roof	R0.54	R3.16	R3.5	YES
Suspended Concrete	R0.58	R3.12	R3.5	YES

J4D5: ROOF LIGHTS

Roof lights must have a total area of not more than 5% of the floor area of the room or space served; and transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of for Total system SHGC, in accordance with Table J4D5; and for Total system U-Value, not more than U3.9. (1) A roof light must be sealed, or capable of being sealed, when serving a conditioned space; or a habitable room in climate zones 4, 5, 6, 7 or 8.

GLASS TYPE	FRAME	U VALUE	SHGC
Double Glazed	Aluminium	3.9	0.76

J4D6: WALLS & GLAZING

(1) The Total System U-Value of wall-glazing construction, including wall-glazing construction which wholly or partly forms the envelope internally, must not be greater than for a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, U2.0; and for a Class 3 or 9c building or a Class 9a ward area in climate zones 1, 3, 4, 6 or 7, U1.1; or in climate zones 2 or 5, U2.0; or in climate zone 8, U0.9.

(2) The Total System U-Value of display glazing must not be greater than U5.8. (3) The Total System U-Value of wall-glazing construction must be calculated in accordance with Specification 37. (4) Wall components of a wall-glazing construction must achieve a minimum Total R-Value of where the wall is less than 80% of the area of the wall-glazing construction, R1.0; or where the wall is 80% or more of the area of the wall-glazing construction, the value specified in Table J4D6a.

(5) The solar admittance of externally facing wall-glazing construction, excluding wall-glazing construction which is wholly internal, must not be greater than for a Class 2 common area, a Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area, the values specified in Table J4D6b; and for a Class 3 or 9c building or a Class 9a ward area, the values specified in Table J4D6c.

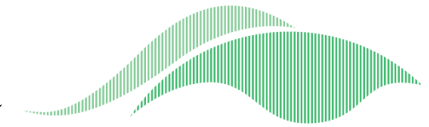
(6) The solar admittance of a wall-glazing construction must be calculated in accordance with Specification 37.

(7) The Total system SHGC of display glazing must not be greater than 0.81 divided by the applicable shading factor specified in S37C7.

ADDITIONAL NOTES - R1.5 Insulation to the external tilt panel walls, R2.0 insulation with R0.2 thermal break to the external framed walls.

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING



Façade

Report



Project Summary

Date
14/02/2024

Name
Don Fleming

Company
Ecorate WA

Position
Energy Assessor

Building Name / Address
147 Burswood Road, Burswood WA
Elven property

Building State
WA

Climate Zone
Climate Zone 5 - Warm temperate

Building Classification
Class 9b - early childhood centres

Storeys Above Ground
2

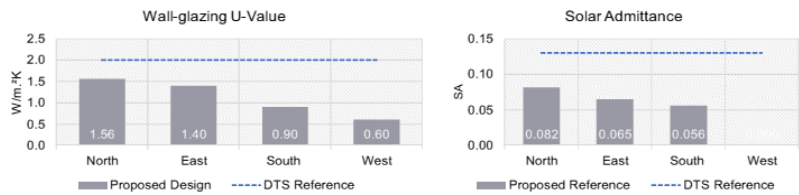
Tool Version
1.1 (April 2020)

The summary below provides an overview of where compliance has been achieved for Specification J1.5a - Calculation of U-Value and solar admittance - Method 1 (Single Aspect) and Method 2 (Multiple Aspects).

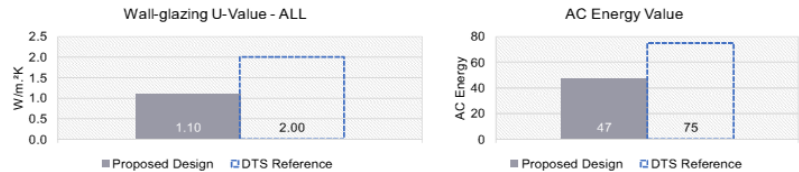
Compliant Solution =
Non-Compliant Solution =

	North	East	Method 1	South	West	Method 2
Wall-glazing U-Value (W/m ² .K)	1.56	1.40		0.90	0.60	All 1.10
Solar Admittance	0.08	0.06		0.06		
AC Energy Value						47

Method 1



Method 2

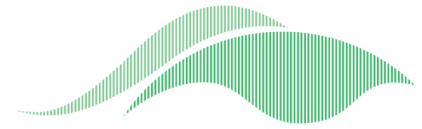


Project Details

	North	East	South	West
Glazing Area (m ²)	51.9	63	14	0
Glazing to Façade Ratio	21%	19%	8%	0%
Glazing References	Fixed window Sliding door	Fixed window Hinged door Sliding door	Fixed window	
Glazing System Types	Fixed Sliding Door	Fixed Sliding Door	Fixed	
Glass Types	Single glazing	Single glazing	Single glazing	
Frame Types	Aluminium	Aluminium	Aluminium	
Average Glazing U-Value (W/m ² .K)	5.80	5.80	5.80	
Average Glazing SHGC	0.72	0.72	0.72	0.00
Shading Systems	Horizontal	Horizontal	Horizontal	Horizontal
Wall Area (m ²)	201	271.5	166	370
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Tilt Panel Insulated Steel Framed Wall	Tilt Panel Insulated Steel Framed Wall	Tilt Panel Insulated Steel Framed Wall	Tilt Panel Insulated
Wall Thickness	225 90	225 90	225 90	225
Average Wall R-value (m ² .K/W)	2.15	2.60	2.04	1.66
Solar Absorptance	0.5	0.5	0.5	0.5

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

J4D7: FLOORS

(1) A floor must achieve the Total R-Value specified in Table J4D7. (2) For the purposes of (1), a slab-on-ground that does not have an in-slab heating or cooling system is considered to achieve a Total R-Value of R2.0, except in climate zone 8; or a Class 3, Class 9a ward area or Class 9b building in climate zone 7 that has a floor area to floor perimeter ratio of less than or equal to 2. (3) A floor must be insulated around the vertical edge of its perimeter with insulation having an R-Value greater than or equal to 1.0 when the floor is a concrete slab-on-ground in climate zone 8; or has an in-slab or in-screed heating or cooling system, except where used solely in a bathroom, the Total R-Value of a floor, the sub-floor and soil

Construction Type	R Value of construction	Required	Proposed	Complies
Suspended Concrete Slab	R0.82	R1.18	R1.5	YES
Concrete Slab	R2.0	Nil	Nil	YES

PART J5: BUILDING SEALING

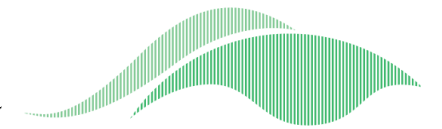
A door, openable window or the like must be sealed when forming part of the envelope; or in climate zones 4, 5, 6, 7 or 8. The requirements of (1) do not apply to a window complying with AS 2047; or a fire door or smoke door; or a roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security. A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like. Does not apply to ventilation openings for gas appliances, buildings where the only means of air-conditioning is by an evaporative cooler or unconditioned atriums or solariums that are separated from the remainder of the building. If the only means of air-conditioning is by an evaporative cooling system, this building will not be required to be sealed. All chimneys, flues and exhaust fans (where applicable) are fitted with dampers & all windows and doors are fitted with air infiltration seals. If the main entrance to the building opens into a conditioned space more than 50m², it will be fitted with a self-closing door or will be provided with an airlock. All roofs, walls and floors will be constructed to minimise air leakage in accordance with J5D2

PART J6: AIR-CONDITIONING AND VENTILATION SYSTEMS

All air-conditioning and ventilating systems and components will be designed in accordance with the DTS requirements of Part J6 and a declaration check sheet or a report will be submitted by the mechanical services designer verifying compliance. This part does not apply to Class 8 electricity network substations.

ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

PART J7 ARTIFICIAL LIGHTING AND POWER

All artificial lighting for the whole building must not exceed the aggregated maximum Illumination Power Density (IPD) specified in Table J7D3a. The NCC total illumination power load allowance class 5 is **1319 Watts** and the proposed lighting design is **1270 Watts**. Therefore compliance is achieved (see Appendix)

The NCC total illumination power load allowance class 9b is **2309 Watts** and the proposed lighting design is **2073 Watts**. Therefore compliance is achieved (see Appendix)



ABCB

Non-residential Lighting



Calculator

Building name/description					
147 Burswood Road, Burswood WA 6100					
Number of rows preferred in table below		5	(as currently displayed)		

Classification
Class 5

ID	Description	Floor area of the space	Perimeter of the space	Floor to ceiling height	Design illumination power load	Space	Illuminance		Adjustment factor 1			Adjustment factor 2			Light colour adjustment factors		SATISFIES PART J7D3	
							Designed lux level	Recommended lux level	Adjustment factor 1	Dimming % area	Illuminance turndown	Adjustment factor 2	Dimming % area	Illuminance turndown	Light colour adjustment factor 1	Light colour adjustment factor 2	System illumination power load allowance	Lighting system share of % of aggregate allowance used
							These columns do not represent a requirement of the NCC and are suggestions only.						Adjustment factors			Adjustment factors		
1	Access	36.6 m²	27 m	2.7 m	474 W	Entry lobby from outside the building											491 W	37% of 96%
2	Tenancy	77.9 m²	36 m	2.7 m	288 W	An illuminance more than 160 lx to 240 lx											308 W	23% of 96%
3	Toilet	3.9 m²	8 m	2.7 m	20 W	Toilet, locker room, staff room, rest room and the like											21 W	2% of 96%
4	Tenancy	133.9 m²	47 m	2.7 m	468 W	An illuminance more than 160 lx to 240 lx											473 W	37% of 96%
5	Toilet	5.1 m²	9 m	2.7 m	20 W	Toilet, locker room, staff room, rest room and the like											26 W	2% of 96%
Total																Total	1319 W	

If inputs are valid



Building name/description					
147 Burswood Road, Burswood WA 6100					
Number of rows preferred in table below		17	(as currently displayed)		

Classification
Class 9b

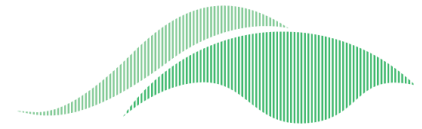
ID	Description	Floor area of the space	Perimeter of the space	Floor to ceiling height	Design illumination power load	Space	Illuminance		Adjustment factor 1			Adjustment factor 2			Light colour adjustment factors		SATISFIES PART J7D3	
							Designed lux level	Recommended lux level	Adjustment factor 1	Dimming % area	Illuminance turndown	Adjustment factor 2	Dimming % area	Illuminance turndown	Light colour adjustment factor 1	Light colour adjustment factor 2	System illumination power load allowance	Lighting system share of % of aggregate allowance used
							These columns do not represent a requirement of the NCC and are suggestions only.							Adjustment factors			Adjustment factors	
1	Corridor	27.5 m²	35 m	2.7 m	216 W	Corridors											230 W	10% of 90%
2	WC	11.8 m²	15 m	2.7 m	36 W	Toilet, locker room, staff room, rest room and the like											58 W	2% of 90%
3	Cleaner	2.8 m²	7 m	2.7 m	7 W	Service area, cleaner's room and the like											7 W	0% of 90%
4	Ldry	5.2 m²	9 m	2.7 m	14 W	Service area, cleaner's room and the like											14 W	1% of 90%
5	Staff	8.0 m²	12 m	2.7 m	36 W	Toilet, locker room, staff room, rest room and the like											41 W	2% of 90%
6	Indoor Play	19.2 m²	17 m	2.7 m	72 W	An illuminance more than 160 lx to 240 lx											91 W	3% of 90%
7	Activity 1	68.4 m²	38 m	2.7 m	252 W	An illuminance more than 160 lx to 240 lx											285 W	12% of 90%
8	Cots	9.5 m²	12 m	2.7 m	36 W	An illuminance more than 160 lx to 240 lx											48 W	2% of 90%
9	Cots	9.7 m²	12 m	2.7 m	36 W	An illuminance more than 160 lx to 240 lx											48 W	2% of 90%
10	Bath	25.8 m²	20 m	2.7 m	108 W	Toilet, locker room, staff room, rest room and the like											117 W	5% of 90%
11	Kitchen	15.2 m²	18 m	2.7 m	72 W	Kitchen and food preparation area											100 W	3% of 90%
12	Corridor	9.1 m²	15 m	2.7 m	72 W	Corridors											81 W	3% of 90%
13	Activity 2	67.2 m²	37 m	2.7 m	252 W	An illuminance more than 160 lx to 240 lx											281 W	12% of 90%
14	Activity 3	83.9 m²	44 m	2.7 m	324 W	An illuminance more than 160 lx to 240 lx											341 W	16% of 90%
15	Indoor Play	41.2 m²	30 m	2.7 m	180 W	An illuminance more than 160 lx to 240 lx											165 W	9% of 90%
16	Bath 2	24.9 m²	20 m	2.7 m	108 W	Toilet, locker room, staff room, rest room and the like											114 W	5% of 90%
17	Activity 4	67.0 m²	33 m	2.7 m	252 W	An illuminance more than 160 lx to 240 lx											268 W	12% of 90%
Total		2073 W																
Total		2309 W																

If inputs are valid



ENERGY EFFICIENCY REPORT

SECTION J DEEMED TO SATISFY COMPLIANCE ASSESSMENT



GREEN START CONSULTING

J7D4: INTERIOR ARTIFICIAL LIGHTING AND POWER CONTROL

The artificial lighting must be operated by a switch or other control device. A switch must be in a visible position in the room or space being switched or in an adjacent room or space from where the lighting being switched is visible. The above do not apply to emergency lighting in accordance with Part E4.

J7D5: INTERIOR DECORATIVE AND DISPLAY LIGHTING

Any new interior decorative and display lighting must be controlled separately from other artificial lighting and by a manual switch for each area other than when the operating times of the displays are the same in a number of areas in which case they may be combined. Where the display lighting exceeds 1kW a time switch in accordance with Specification 40 is required.

J7D6: EXTERIOR ARTIFICIAL LIGHTING

Any new artificial lighting around the perimeter of the building must be controlled by a daylight sensor or a programmable time switch. When the perimeter lighting load exceeds 100W, the light source efficacy must not be less than 60 Lumens/W. The perimeter lighting used for decorative purposes such as facade and signage lighting must have a separate time switch in accordance with Specification 40. Such a time switch must be capable of switching on and off electric power at variable pre-programmed times and on variable pre-programmed days. It must also be capable of limiting the period the system is switched on to between 30 minutes before sunset and 30 minutes after sunrise is determined or detected including any pre-programmed period between these times; and being overridden by a manual switch or a security access system for a period of up to 30 minutes, after which the time switch must resume control.

J7D7: BOILING WATER AND CHILLED WATER STORAGE UNITS

Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification 40.

J7D8: LIFTS

Lifts must be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes and achieve the idle and standby energy performance level in Table J7D8a and achieve the energy efficiency class in Table J7D8a or if a dedicated goods lift, energy efficiency class D in accordance with ISO 25745-2.

PART J7D9: ESCALATORS AND MOVING WALKWAYS

Escalators and moving walkways must have the ability to slow to between 0.2 m/s and 0.05 m/s when unused for more than 15 minutes.