SECTION J OF NCC 2019 VOLUME 1
PRELIMINARY FEEDBACK REPORT

DA Issue A – February 2021

PERISHER VIEW LODGE
PERISHER VALLEY
LOT 1 DP 1192372
NSW 2624

Folio Identifier 1/1192372
Registered Lease AK755506

by

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in conjunction with:

partners energy

Department of Planning and Environment

Issued under the Environmental Planning and Assessment Act 1979

Approved Application No DA 21/11288

Granted on the 23 June 2023

Signed M Brown

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SECTION 1 - BASIS OF ASSESSMENT

1.1 THE PROJECT

The proposed development at Lot 1 DP 1192372 Perisher Valley NSW 2624 is a three level Class 3 lodge, with basement services and 2 levels of living space.

- The Climate Zone is Climate Zone 8.
- This preliminary assessment is based on drawings 20/17 DA-00 to DA-17
- This report is a preliminary assessment and address ONLY matters relevant to Section 'J' of Volume 1 of NCC 2019 Amendment 1 pertaining to building Class 3.
- The project is assessed using the Deemed To Satisfy provisions of NCC 2019, amendment 1.

1.2 AUTHOR

This report has been produced by JS Solutions in conjunction with Partners Energy Management.

1.3 COMPLIANCE

This assessment demonstrates that the project, as specified in the plans and in the compliance requirements in Section 2 of this report, is able to comply with Section J of the NCC 2019.

SECTION 2 - SUMMARY OF COMPLIANCE REQUIRMENTS

In addition to the information provided in the drawings, the following measures are required to comply with Section J of the NCC 2019. The detailed report (Section 3) includes supporting information.

Note: The following summary is:

- preliminary only, all details are to be confirmed at construction certificate stage; and
- is not exhaustive of all NCC BCA 2019 Volume 1 Section J requirements; and
- is to be read in conjunction with the detailed report following and NCC BCA 2019 Volume 1 Section J.

2.1 PART J1 – BUILDING FABRIC

Compliance can be met by:

New metal roof

- *The required minimum Total R-Value is R4.80 (upward direction of heat flow).*
- *Installing R2.5 reflective insulating blanket or equivalent under the metal roof and R1.5 ceiling batts in timber frame, giving a **Total 'R-Value' of R4.86(upwards)**, which exceeds the required minimum of R4.80.*
- *alternately 55mm R1.3 reflective insulation blanket or equivalent can be installed under the roof sheeting plus R4.0 ceiling batts*

New external stone or brick veneer wall

- *Adding R2.50 wall batts to the brick or stone veneer wall system and a reflective wall wrap, giving a **Total 'R-Value' of R2.97** which exceeds the required minimum of R2.70.*

New external cladding walls

- *adding R2.50 wall batts and a reflective airgap to the metal cladding wall system, giving a **Total 'R-Value' of R2.80** which exceeds the required minimum of R2.70.*

New external glazing

- *Installing the new windows and glazed doors with a characteristic equal to or less than a **U-Value of 2.59 and a SHGC-value of 0.38.***

New suspended floor without in-slab floor heating

- *Adding a 60mm R3.0 PIR board product or equivalent to the concrete slab, giving a **Total 'R-Value' of R3.66,** which exceeds the required minimum of R3.50.*

New suspended floor with in-slab floor heating

- *Adding a 90mm R4.5 PIR board product or equivalent to the concrete slab, giving a Total 'R-Value' of R5.16, which exceeds the required minimum of R4.75*

2.2 PART J3 - BUILDING SEALING

Compliance can be met by the following:

- *Ensuring a damper or flap is installed that can be closed when the chimney or flue is not is use.*
- *Any new exhaust fans to have self-closing dampers, including "miscellaneous exhaust fans".*

2.3 PART J5 - A/C & VENTILATION SYSTEMS

- *The requirements of this part are typically achievable. This part is to be addressed by a suitably qualified person at construction certificate stage.*

2.4 PART J6 - ARTIFICIAL LIGHTING & POWER

- *The requirements of this part are typically achievable. This part is to be addressed by a suitably qualified person at construction certificate stage.*

2.5 PART J7 - HEATED WATER SUPPLY AND SWIMMING POOL AND SPA POOL PLANT

Compliance can be met by:

- *Direct electric resistance heating must not be used*
- *A spa cover must be used when heating with either gas or heat pump*
- *A time switch and push button must be used to control the spa heater*
- *A time switch must be used to operate any circulation pumps if the capacity is more than 680L.*
- *Any pipework carrying heated water must comply with the insulation requirements of J5.8*

2.6 PART J8 - FACILITIES FOR ENERGY MONITORING

Compliance can be met by:

- *The building must have energy meters for recording time-of-use electricity and gas (if applicable) consumption for the whole building.*

SECTION 3 - DETAILED REPORT OF PROVISIONS TO COMPLY

3.1 PART J1 - BUILDING FABRIC

J1.1 Application - All parts of the building envelope need to comply.

Building Envelope

The building envelope for the purpose of Section J is bound by the new external walls, floor and roof of the proposed new two storey building. As shown in Appendix 2. Note, the Basement Level has not been considered as conditioned space for the purpose of this assessment.

Note: insulation options presented in this report:

- are “options only” and are not exhaustive of options available; and
- are to be confirmed with manufacture/supplier regarding Section J of NCC BCA 2019 Volume 1 compliance; and
- are to be installed to manufacturers specification; and
- should be verified against fire protection, acoustic measures and any other relevant NCC BCA 2016 and Australian Standard requirements; and
- *reflective insulation* must be installed with the necessary airspace between a reflective side of the *reflective insulation* and a building lining or cladding

J1.2 Thermal Construction General - Builder is to ensure compliance, during construction.

- Insulation must comply with AS/NZS 4859.1.
- Insulation must abut or overlap adjoining insulation other than at supporting members such as studs, noggings, joists, furring channels where the insulation must be against the member.
- Insulation must form a continuous barrier with ceilings, walls, bulkheads, floors or the like that contribute to the thermal barrier.
- Insulation must not affect the safe or effective operation of a service or fitting.
- Reflective insulation must be installed with the necessary airspace between the reflective side of the insulation and the lining or cladding.
- Reflective insulation must be installed closely against any penetration, door or window opening.
- Each adjoining sheet of roll membrane being overlapped not less than 50mm or taped together.
- Bulk insulation must be installed so that it maintains its position and thickness, other than when it is compressed between cladding and supporting members, water pipes, electrical cabling or the like.
- When selecting insulation caution should be taken to clearly identify the Total R-Value of the installed roofing and ceiling system or wall system.

J1.3 Roof & Ceiling Construction

(a) In this Climate Zone, the minimum Total R-Value is R4.80 (upward direction of heat flow).

The roof & ceiling system is a metal roof with plasterboard ceiling which requires additional insulation to achieve a minimum Total R-Value of R4.8(upwards).

Roof & Ceiling Element	R- Value Unventilated- Upwards
Outside air film	0.04
Metal roof	0.00
Additional insulation	*3.87 minimum*
Reflective Airspace	0.72
Plasterboard	0.06
Internal air film	0.11
Total R-Value	**4.80 minimum**

Compliance can be met by:

- *installing R2.5 reflective insulating blanket or equivalent under the metal roof and R1.5 ceiling batts in timber frame, giving a **Total 'R-Value' of R4.86(upwards)**, which exceeds the required minimum of R4.80.*
- *alternately 55mm R1.3 reflective insulation blanket or equivalent can be installed under the roof sheeting plus R4.0 ceiling batts.*

J1.4 Roof lights – not applicable

J1.5 Walls-glazing construction

(a) The total system U-Value for the Wall-glazing construction must not be greater than U-Value 2.0

(b) The total system U-Value for display glazing must not be greater than U-Value 5.8.

(c) The total system U-Value for wall-glazing construction must be calculated in accordance with Specification J1.5a.

(d) Wall components must achieve a minimum Total R-Value of R1.0 where the wall area is less than 80% of the total wall-glazing area, and in accordance with Table J1.5a where the wall area is 80% or more of the total wall-glazing area.

(e) The solar admittance of externally facing wall-glazing construction must not be greater than that specified in Table J1.5b, namely 0.13 for this climate zone.

(f) The solar admittance of a wall-glazing construction must be calculated in accordance with Specification J1.5a.

(g) The total system SHGC of Display glazing must not be greater than 0.81 divided by the shading multiplier specified in Specification J1.5a.

In this project the new walls have to achieve a minimum Total R-Value of R1.0, however, the walls will have to achieve a minimum of R2.7 as part of the wall glazing assessment.

Brick or stone veneer walls.

Wall Element	R- Value
Outside air film	0.04
Brick or stone	0.17
Reflective Air Gap	0.66
R2.5 batts & wooden frame	1.92
Plasterboard	0.06
Internal air film	0.12
Total R-Value	**2.97**

Compliance can be met by:

- *Adding R2.50 wall batts to the brick or stone veneer wall system and a reflective wall wrap, giving a **Total 'R-Value' of R2.97.***

Cladding walls with thermal break and internal plasterboard.

Wall Element	R- Value
Outside air film	0.04
Metal Cladding	0.00
Furring chanel reflective air gap	*0.66*
R2.5 Wall batts with wooden frame	*1.92*
Plasterboard	0.06
Internal air film	0.12
Total R-Value	**2.80**

Compliance can be met by:

- *adding R2.50 wall batts and a reflective airgap to the metal cladding wall system, giving a **Total 'R-Value' of R2.80.***

Glazing – Method 2 – Refer Appendix 1.

Compliance can be met by:

- *Installing the new windows and glazed doors with a characteristic equal to or less than a **U-Value of 2.59 and a SHGC-value of 0.38.***

J1.6 Floors

(a) A floor must achieve a Total R-Value of R3.5 without in floor heating or R4.75 with in floor heating.

The insulation value of an enclosed subfloor for a floor area to perimeter ration of 4.1 is R0.40 (refer Table 2a below)

Without in-slab floor heating, the concrete suspended slab requires additional insulation to achieve a minimum Total R-Value of R3.5.

Floor Element	R- Value
Indoor air film	0.16
150mm Concrete (without in-slab heating)	0.10
Additional insulation	*2.84 minimum*
Subfloor insulation contribution	0.40
Total R-Value	**3.5 minimum**

Compliance can therefore be met by the following:

- *Adding a 60mm R3.0 PIR board product or equivalent to the concrete slab, giving a **Total 'R-Value' of R3.66,** which exceeds the required minimum of R3.5.*

With in-slab floor heating, the concrete suspended slab requires additional insulation to achieve a minimum Total R-Value of R4.75.

Floor Element	R- Value
Indoor air film	0.16
150mm Concrete (with in-slab heating)	0.10
Additional insulation	*4.09 minimum*
Subfloor insulation contribution	0.40
Total R-Value	**4.75 minimum**

Compliance can therefore be met by the following:

- *Adding a 90mm R4.5 PIR board product or equivalent to the concrete slab, giving a Total 'R-Value' of R5.16, which exceeds the required minimum of R4.75*

Table 2a R-Value of sub-floor spaces

Ratio of *floor area* to floor perimeter (m)	Sub-floor space *R-Value*
1.0	0.10
1.5	0.15
2.0	0.20
2.5	0.25
3.0	0.30
3.5	0.35
4.0	0.40
4.5	0.45
5.0	0.50
5.5	0.55
6.0	0.60
6.5	0.65
7.0	0.70

Table 2b R-Value of soil in contact with a floor

Ratio of *floor area* to floor perimeter (m)	Wall thickness of 50 mm	Wall thickness of 100 mm	Wall thickness of 150 mm	Wall thickness of 200 mm	Wall thickness of 250 mm	Wall thickness of 300 mm
1.0	0.4	0.5	0.5	0.6	0.7	0.8
1.5	0.6	0.7	0.7	0.8	0.9	1.0
2.0	0.7	0.8	0.9	1.0	1.1	1.3
2.5	0.9	1.0	1.1	1.2	1.3	1.5
3.0	1.0	1.2	1.3	1.4	1.5	1.7
3.5	1.2	1.3	1.5	1.6	1.7	1.9
4.0	1.3	1.5	1.6	1.7	1.9	2.2
4.5	1.5	1.7	1.8	1.9	2.1	2.4
5.0	1.6	1.8	2.0	2.1	2.3	2.6
5.5	1.8	2.0	2.1	2.2	2.4	2.8
6.0	1.9	2.1	2.3	2.4	2.6	2.9
6.5	2.0	2.3	2.4	2.6	2.8	3.1

3.2 PART J2 - this part is not included in the current NCC.

Note: The glazing provisions are now included in Part J1.

3.3 PART J3 - BUILDING SEALING

J3.1 Application

Applies to elements forming the envelope of a Class 2 to 9 building other than:

(a) A building in climate zones 1, 2, 3 and 5 where the only means of air-conditioning is by using an evaporative cooler.

(b) A permanent building opening, in a space where a gas appliance is located, that is necessary for the safe operation of a gas appliance.

(c) A building or space where the mechanical ventilation required provides sufficient pressurisation to prevent infiltration.

J3.2 Chimneys and Flues

The chimney or flue of an open solid-fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue.

Compliance can be met by the following:

- *Ensuring a damper or flap is installed that can be closed when the chimney or flue is not is use.*

J3.3 Roof Lights – not applicable

J3.4 Windows and doors

All external doors and windows must either have seals to restrict air infiltration or the windows must comply with AS 2047. (fire and smoke doors, roller shutter door or grills are exempt)

A seal for the bottom edge of a swing door must be a draft protection device and for other edges of an external door and openable windows may be a foam or rubber compression strip fibrous seal or the like.

J3.5 Exhaust fans

All exhaust fans fitted in a conditioned space must have a sealing device such as a self-closing damper or the like.

Compliance can be met by:

- *Any new exhaust fans to have self-closing dampers, including "miscellaneous exhaust fans".*

J3.6 Construction of roofs, walls and floors

Roofs, walls and floors and any opening such as a window or door must be constructed to minimise air leakage by:

- Enclosed or internal lining systems that are close fitting at ceiling, wall and floor *junctions* or
- Sealed by caulking, skirting, architraves, cornices or the like.

3.4 PART J4 - This part is not included in the current NCC

3.5 PART J5 - A/C & VENTILATION SYSTEMS

The requirements of this part are typically achievable. This part is to be addressed by a suitably qualified person at construction certificate stage.

3.6 PART J6 - ARTIFICIAL LIGHTING & POWER

The requirements of this part are typically achievable. This part is to be addressed by a suitably qualified person at construction certificate stage.

3.7 PART J7 - HEATED WATER SUPPLY AND SWIMMING POOL AND SPA POOL PLANT

J7.2 Heated Water Supply

A heated water supply for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of the NCC Volume Three – Plumbing Code of Australia.

J7.3 Swimming Pool Heating and Pumping - Not Applicable

J7.4 Spa Pool Heating and Pumping

(a) Heating for a spa pool that shares a water recirculation system with a swimming pool must be by a solar heater, a geothermal heater, a heater using reclaimed energy, a gas heater, a heat pump or a combination of any of these.

(b) Where some or all of the heating is provided by a gas heater or heat pump the spa must have a cover and a push button and time switch in accordance with Specification J6 to control the heater.

(c) A time switch in accordance with Specification J6 must be provided to operate any circulation pump for a spa pool of more than 680L.

(d) Where required a time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days

(e) Pipework carrying heated or chilled water for a swimming pool must comply with the insulation requirements of J5.8

Compliance can be met by:

- *Direct electric resistance heating must not be used*
- *A spa cover must be used when heating with either gas or heat pump*
- *A time switch and push button must be used to control the spa heater*
- *A time switch must be used to operate any circulation pumps if the capacity is more than 680L.*
- *Any pipework carrying heated water must comply with the insulation requirements of J5.8*

3.8 PART J8 - FACILITIES FOR ENERGY MONITORING

J8.1 Application

The provisions of this part apply to all buildings except:

- the sole-occupancy of a Class 2 building,
- a Class 4 part of a building or
- a Class 8 electricity network substation.

J8.2 Not included in current NCC

J8.3 Facilities for Energy Monitoring

(a) A building with a floor area greater than 500m^2 must have an energy meter to record time-of-use consumption of gas and electricity.

(b) A building with a floor area greater than 2500m^2 must have energy meters to record time-of-use energy consumption of air-conditioning plant, artificial lighting, appliance power, central hot water supply, internal transport devices, and other ancillary plant.

(c) Energy meters required by (b) must be interlinked by a communication system that collates the time-of-use energy consumption data to a single interface monitoring system where it can be stored, analysed and reviewed.

(d) the provision of (b) do not apply to a Class 2 Building with a floor of more than 2500m^2 where the total area of common areas is less the 500m^2

Compliance can be met by:

- *The building must have energy meters for recording time-of-use electricity and gas (if applicable) consumption for the whole building.*

SECTION 4 – APPENDICES

APPENDIX 1 – WALL-GLAZING CONSTRUCTION

NCC 2019 Facade calculator

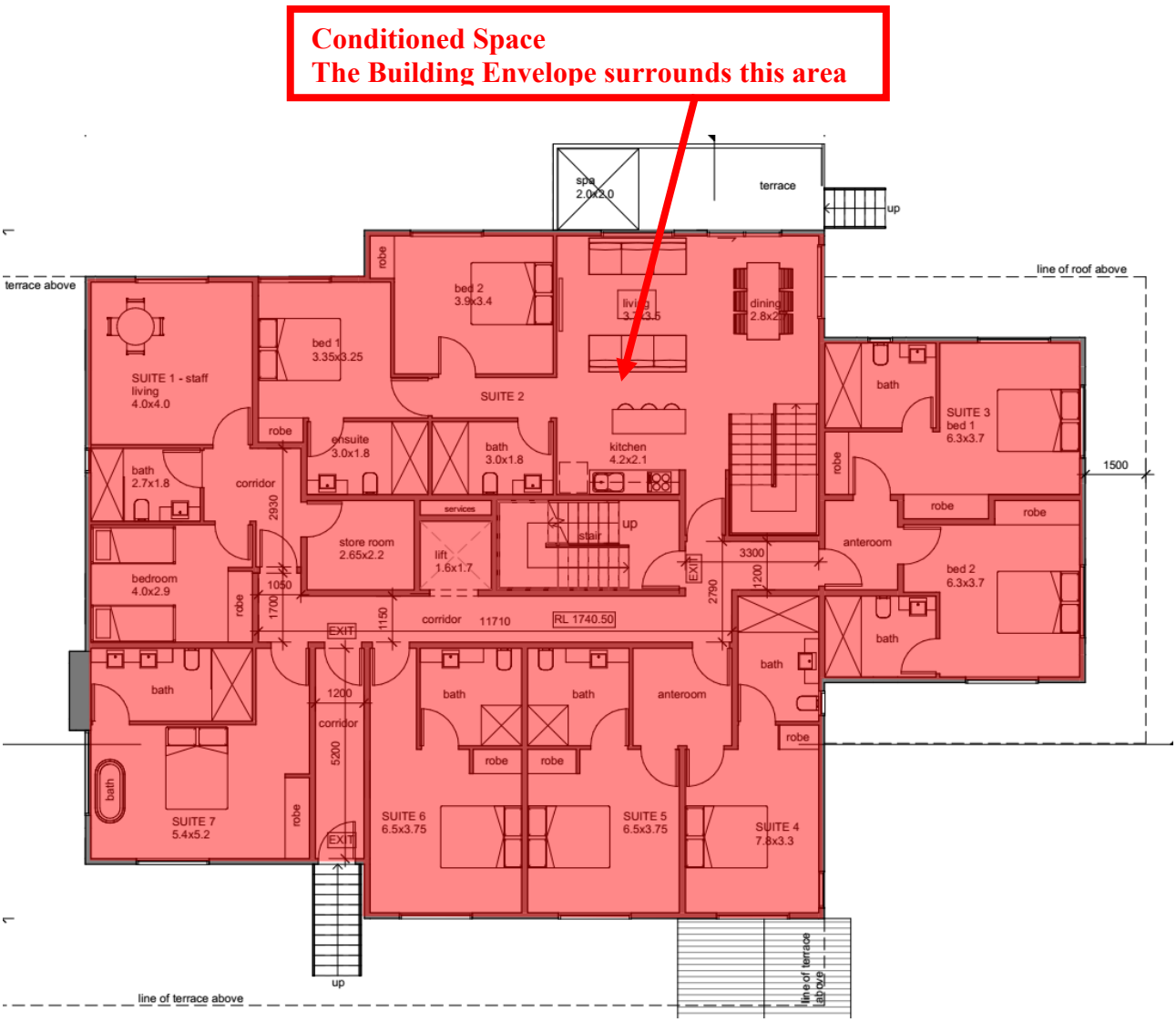
Project Name	Barramys Road perisher					
Building Class	3		Class 2,3,5,6,7,8,9a, 9c, ward			
Climate Zone	8		Storey	ground & First		
Wall+glazing U-value max limit	0.9					

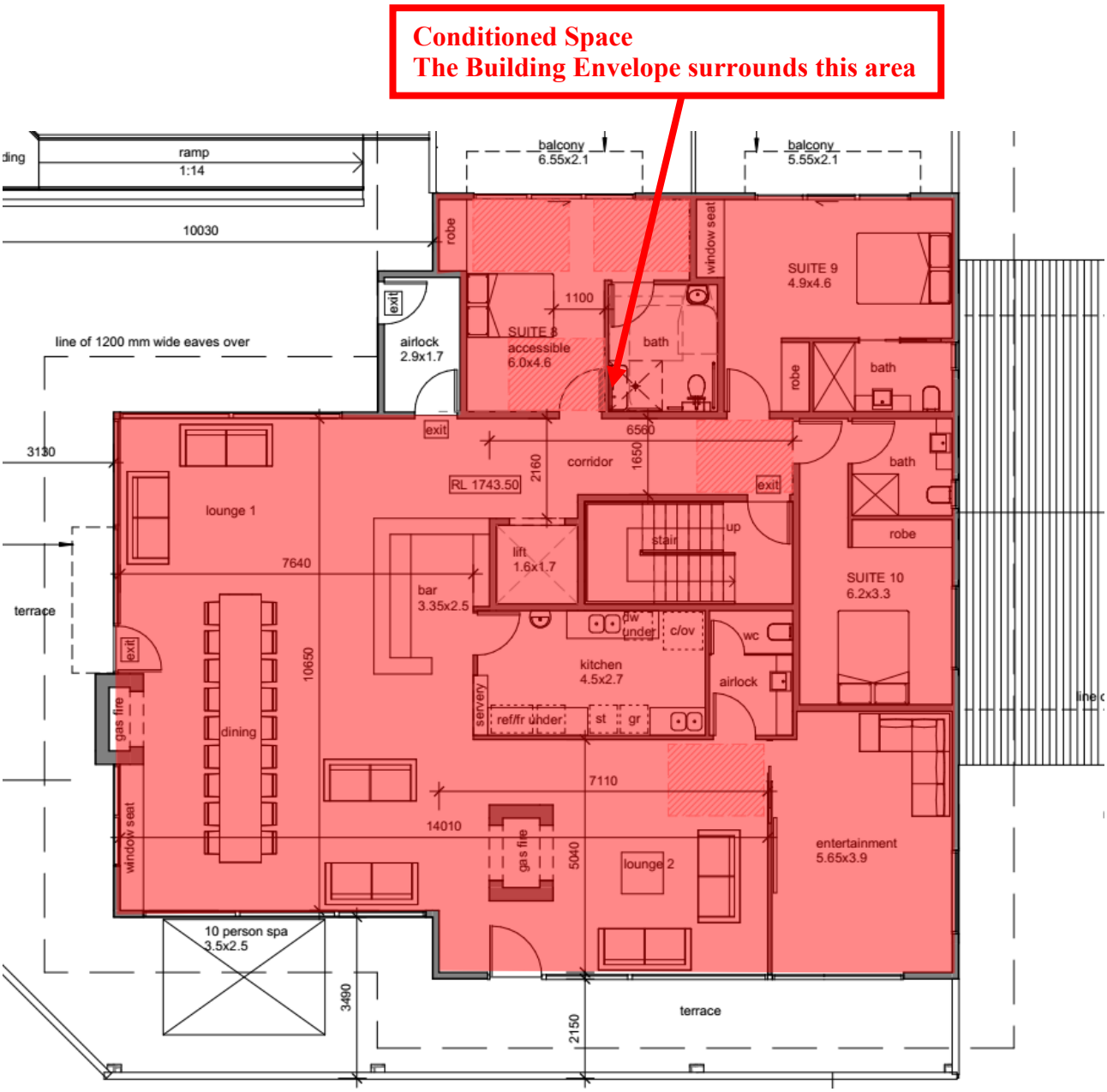
	N	E	S	W
Solar Admittance max limit	0.08	0.08	0.08	0.08
Proposed wall R-value	2.80	2.80	2.80	2.80

	Method 1				Method 2	
	N	E	S	W	Combined	
Wall+glazing area	131.8	96.9	137.3	105.2	471.3	
Glazing area	41.9	11.1	44.2	17.3	114.4	
percentage	32%	11%	32%	16%	24%	
Proposed Wall U-value	0.36	0.36	0.36	0.36	0.36	
Proposed Wall+Glazing U-value	1.07	0.61	1.08	0.72		0.90
Proposed Wall+Glazing Solar Admit	0.082	0.029	0.078	0.031		
	Reference combined SHGC Energy Value					24.07
	Proposed combined SHGC Energy Value					24.05

Element	Facing	Height	Width	Area	U-value	SHGC	P	H
Suite 1	n	1.20	1.70	2.0	2.59	0.38		
Suite 2 Bed 1	n	1.20	1.70	2.0	2.59	0.38		
Suite 2 Bed 2	n	1.20	1.70	2.0	2.59	0.38		
Suite 2 living	n	2.40	3.60	8.6	2.59	0.38		
Suite 2 dining	e	1.20	1.70	2.0	2.59	0.38		
Suite 3 bath	n	0.90	0.60	0.5	2.59	0.38	1.5	0.90
Suite 3 Bed 1	n	1.20	1.70	2.0	2.59	0.38	1.5	1.50
Suite 3 bed 1	e	0.60	1.70	1.0	2.59	0.38	1.5	0.90
Suite 3 Bed 2	e	0.60	1.70	1.0	2.59	0.38	1.5	0.90
Suite 3 Bed 2	s	1.20	1.70	2.0	2.59	0.38	1.5	1.50
Suite 4 Bath	e	1.20	0.60	0.7	2.59	0.38		
Suite 4 Bed	e	1.50	0.90	1.4	2.59	0.38		
Suite 4 Bed	s	1.20	1.70	2.0	2.59	0.38	2.1	1.6
Suite 5 bed	s	1.20	1.70	2.0	2.59	0.38	2.1	1.6
Suite 6 bed	s	1.20	1.70	2.0	2.59	0.38	2.1	1.6
Suite 7 bed	s	1.50	1.70	2.6	2.59	0.38	3.5	1.6
suite 7 bed	w	0.90	2.10	1.9	2.59	0.38	3.1	1.4
Suite 1 bed	w	0.60	0.90	0.5	2.59	0.38	3.1	1
Suite 1 bath	w	0.60	0.60	0.4	2.59	0.38	3.1	1
Lounge 1	n	1.30	4.70	6.1	2.59	0.38	1.5	1.30
Suite 8	n	2.10	3.40	7.1	2.59	0.38	0.9	2.10
Suite 9	n	2.10	3.40	7.1	2.59	0.38	0.9	2.10
Bath x2	e	0.70	1.20	0.8	2.59	0.38	1.5	0.70
Suite 10	e	1.20	1.70	2.0	2.59	0.38	1.5	1.30
Entertain	e	1.20	1.70	2.0	2.59	0.38	1.5	1.30
Entertain	s	2.10	2.80	5.9	2.59	0.38	1.5	2.10
Lounge 2	s	2.10	6.00	12.6	2.59	0.38	1.5	2.10
Dining	s	1.30	5.90	7.7	2.59	0.38	1.5	1.30
Dining	w	1.30	2.10	2.7	2.59	0.38	1.5	2.10
Dining	w	2.10	1.00	2.1	2.59	0.38	1.5	2.10
dining	w	1.30	4.50	5.9	2.59	0.38	1.5	1.30
south high	s	0.82	8.90	7.3	2.59	0.38	1.5	0.70
west high	w	0.54	7.10	3.8	2.59	0.38	1.5	0.50
north high	n	0.64	6.60	4.2	2.59	0.38	1.5	0.60

APPENDIX 2 – BUILDING ENVELOPE




Conditioned Space
The Building Envelope surrounds this area
ramp
1:14
10030
balcony
6.55x2.1
balcony
5.55x2.1
robe
window seat
SUITE 9
4.9x4.6
exit
airlock
2.9x1.7
1100
SUITE 8
accessible
6.0x4.6
bath
robe
bath
line of 1200 mm wide eaves over
3130
exit
6560
2160
corridor
1650
RL 1743.50
exit
bath
lounge 1
stair
up
robe
lift
1.6x1.7
7640
SUITE 10
6.2x3.3
bar
3.35x2.5
dw
under
c/ov
wc
terrace
exit
kitchen
4.5x2.7
airlock
10650
gas fire
servery
ref/fr under
st
gr
dining
7110
window seat
14010
gas fire
5040
lounge 2
entertainment
5.65x3.9
10 person spa
3.5x2.5
3490
2150
terrace