RAN ski lodge

THREDBO

SECTION J REPORT

DESIGN STATEMENT AND DESIGN CERTIFICATE

Pursuant to BCA A2.2; this report relies on supplied documentation for assessment in regards to adopting measures contributing to deemed-to-satisfy of designed and built deliverables. It is our opinion that the project can be constructed to satisfy the requirements of the Building Code of Australia.

Mechanical and Electrical designs have not been sighted

Document control

Rev	Date	Description
	12 Jul. 21	Prepared from supplied information.

Deanei Energy Consultants

Sustainable Housing

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Energy Efficiency

In response to concerns over global warming, the Australian Government announced in July 2000 that agreement had been reached with industry and State and Territory Governments to adopt a two-pronged approach to reducing greenhouse gas emissions from buildings. The first approach was the introduction of mandatory minimum energy performance requirements through the Building Code of Australia (BCA), and the second approach was the encouragement of best practice voluntary initiatives by industry. Industry was supportive of this two-pronged approach, taking the view that building-related matters should be consolidated in the BCA wherever possible.

Given the importance of the energy performance of buildings to overall national greenhouse gas emissions performance, the Australian Building Codes Board (ABCB) and the Australian Greenhouse Office signed a Memorandum of Understanding to jointly develop the BCA Energy Efficiency Provisions.

The Energy Efficiency Project was endorsed under the National Framework for Energy Efficiency (NFEE), an agreement between all Australian Governments established to improve energy efficiency. The objective of NFEE is to unlock the significant economic potential associated with increased implementation of energy efficiency technologies and processes to deliver a least cost approach to energy efficiency in Australia.

To enable the effective involvement of stakeholders in the development of the BCA Energy Efficiency Provisions, several committees and working groups comprising representatives from a range of government, industry and community organisations were developed.

At specific stages of the project, the ABCB sought the views of the wider community. This process was undertaken when the ABCB released the Directions Report on the Energy Efficiency Project (2001), and on the release of Regulation Documents (RDs) and Regulatory Impact Statements (RISs). Any proposed annual changes to the BCA are also made public prior to finalisation.

Energy efficiency requirements are now incorporated in the Building Code of Australia. In Volume 1, it is Section J, hence the "Section J Report".

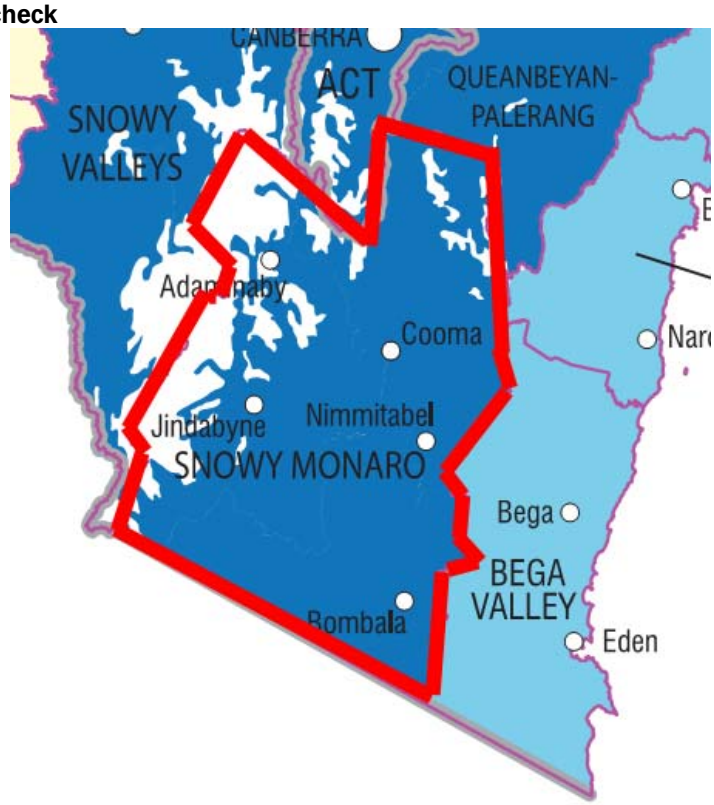
CONTENTS

Section J review

Application

Class 3	Section J affected **Section J requirements override BASIX requirements.**

Climate Zone check



		Remarks
Climate zone: Snowy Monaro	8	white

Verification by Applicant to PCA

Show me, not tell me

Satisfy as directed by PCA forms of verifications as evidence that as-built complies with this assessment

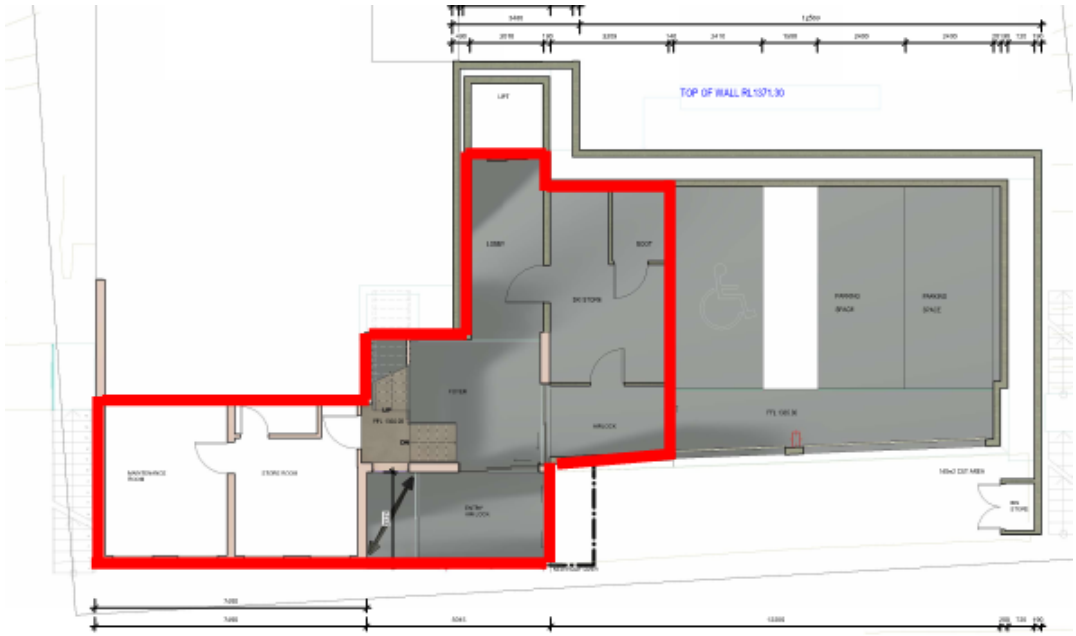
Forms of verification to enable PCA to form an opinion to certify

Electronic evidence must be file date stamped.
Forms as approved by PCA may take the forms of

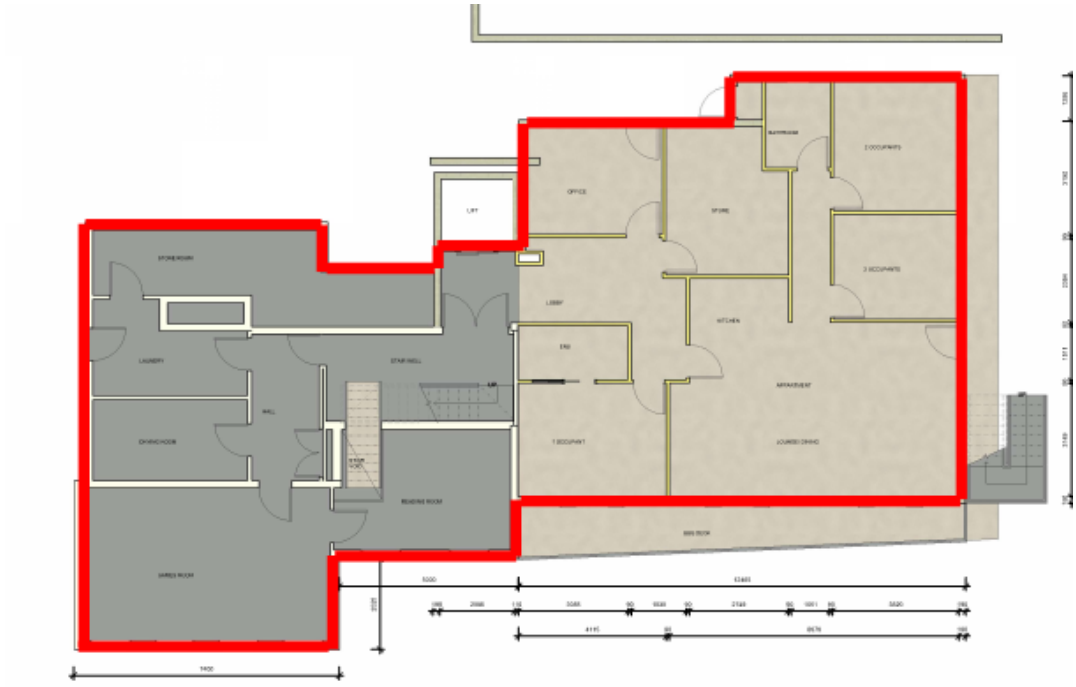
- Site progress photographs
- Emails
- Completed window calculator showing green tick with U and SHGC values of installed manufacturer's windows
- Completed lighting calculator showing green tick.
- Detailed invoices [not purchase orders]
- Site inspections with PCA esp prior to cover up.
- Door blower test if requested by PCA
- And other evidence as requested by PCA

Conditioned spaces (likely to be heated or cooled)

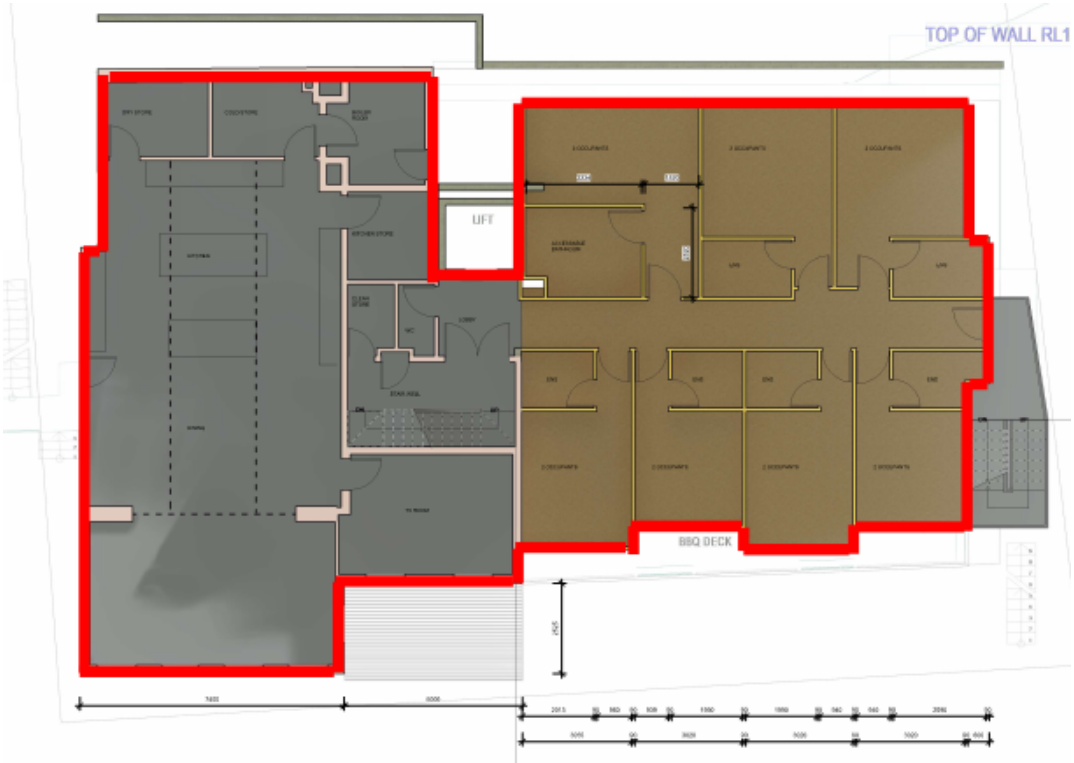
Space	Conditioned	Non-conditioned
Ski Lodge Building Class 3	**X**	**-**



1 10 Lower Level
1 : 50



20 Ground Floor Level
1 : 50



30 First Floor Level
1 : 50

Second Floor FFL
50

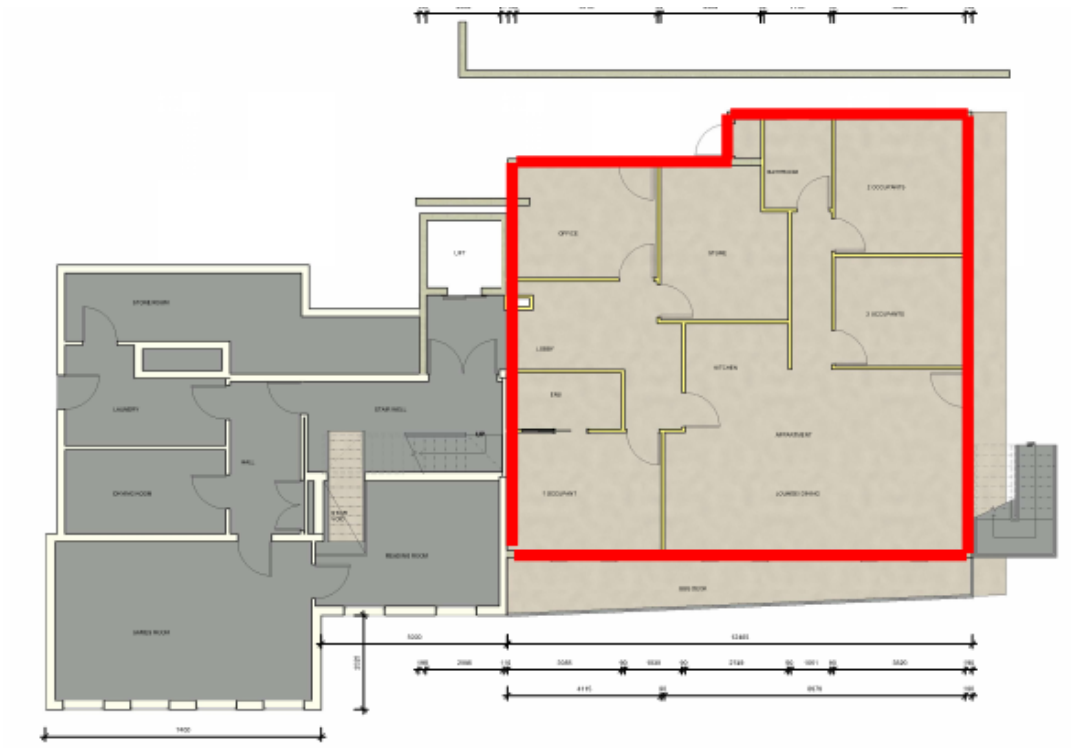
0. PART J0 ENERGY EFFICIENCY

	Requirements	Provide evidence to PCA	Certifier action
J0.1	**Application of Section J**	**Applies**	**PCA must satisfy himself that the installation is compliant.**
J0.2	Heating and cooling loads Class 2 or Class 4	Not applicable	Note
J0.3	**Ceiling fans**	**Applies IF INSTALLED.** **Provide** • **permanent installation [hard wired]** • **speed controller** • **serve whole room** o **900 mm dia per 15 m2 room** o **1200 mm dia per 25 m2 room**	**PCA must satisfy himself that the installation is compliant.**
J0.4	**Roof thermal breaks**	**Applies WHERE METAL FRAMED** **R 0.2 minimum between metal framing and roofing.** **[Commercial thermal break tapes available in the marketplace.]**	**PCA must satisfy himself that the installation is compliant.**
J0.5	**Wall thermal breaks**	**Applies WHERE METAL FRAMED** **R 0.2 minimum between metal framing and cladding** **[Commercial thermal break tapes available in the marketplace.]**	**PCA must satisfy himself that the installation is compliant.**

1. PART J1 BUILDING FABRIC

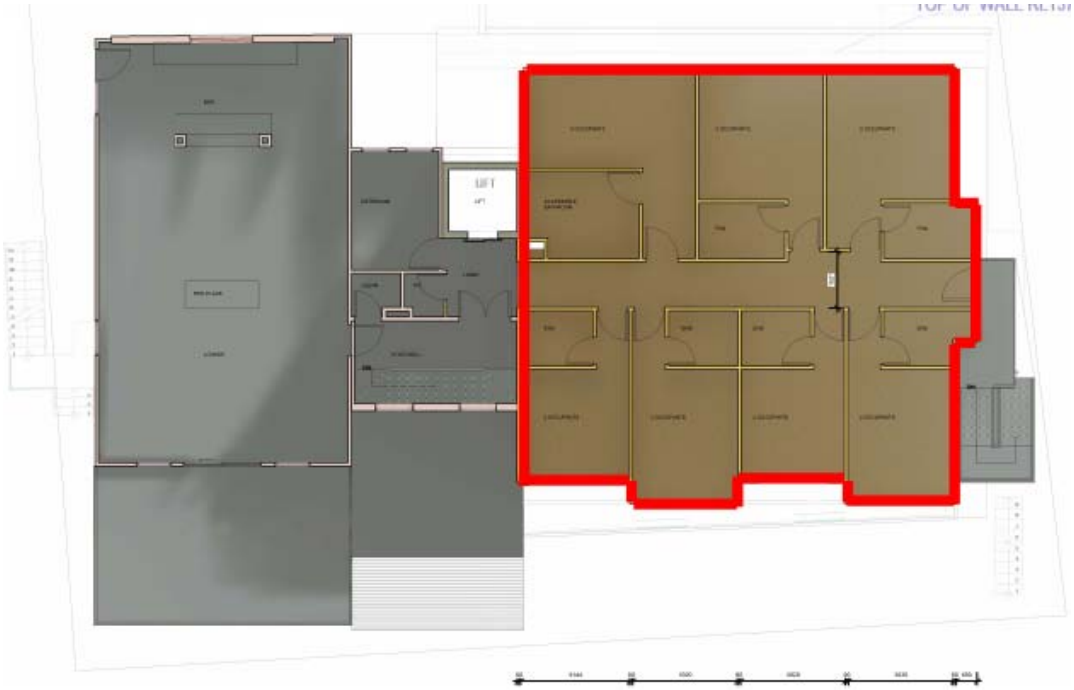
	Requirements	Provide evidence to PCA	Certifier action
J1.1 **NSW J(A)1.1**	**BUILDING FABRIC** **Including Building Classes 2 and 4** **Note: Section J complements BASIX**	**Applies**	**Note**
J1.2	**THERMAL CONSTRUCTION — GENERAL**	**Applies**	
(a)	**Compliance with AS/NZS 4859.1** **Including that product branded with thermal performance**	**Applies**	**PCA must satisfy himself that the installation is compliant.**
	abut or overlap 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	**Applies**	**PCA must satisfy himself that the installation is compliant.**
	Form a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier	**Applies**	**PCA must satisfy himself that the installation is compliant.**
	Installation does not affect the safe or effective operation of a service or fitting	**Applies**	**PCA must satisfy himself that the installation is compliant.**
(b)	**Air space next to reflective surface**	**Applies**	**PCA must satisfy himself that the installation is compliant.**
reflective insulation	**Fit closely against any door or window opening** **Overlaps not less than 50 mm** **Tape all joins for air tightness**	**Applies**	**PCA must satisfy himself that the installation is compliant.**
(c) **Bulk insulation**	**Install to maintain position and thickness other than where it is compressed between cladding and**	**Applies**	**PCA must satisfy himself that the installation is compliant.**

	Requirements	Provide evidence to PCA	Certifier action
	supporting members, water pipes, electrical cabling or the like 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		
(d)	Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification J1.2	Applies	PCA must satisfy himself that the installation is compliant.
(e)	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 J1.5a for *wall-glazing construction, or* determined in accordance with Specification J1.6 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.	Applies	PCA must satisfy himself that the installation is compliant.



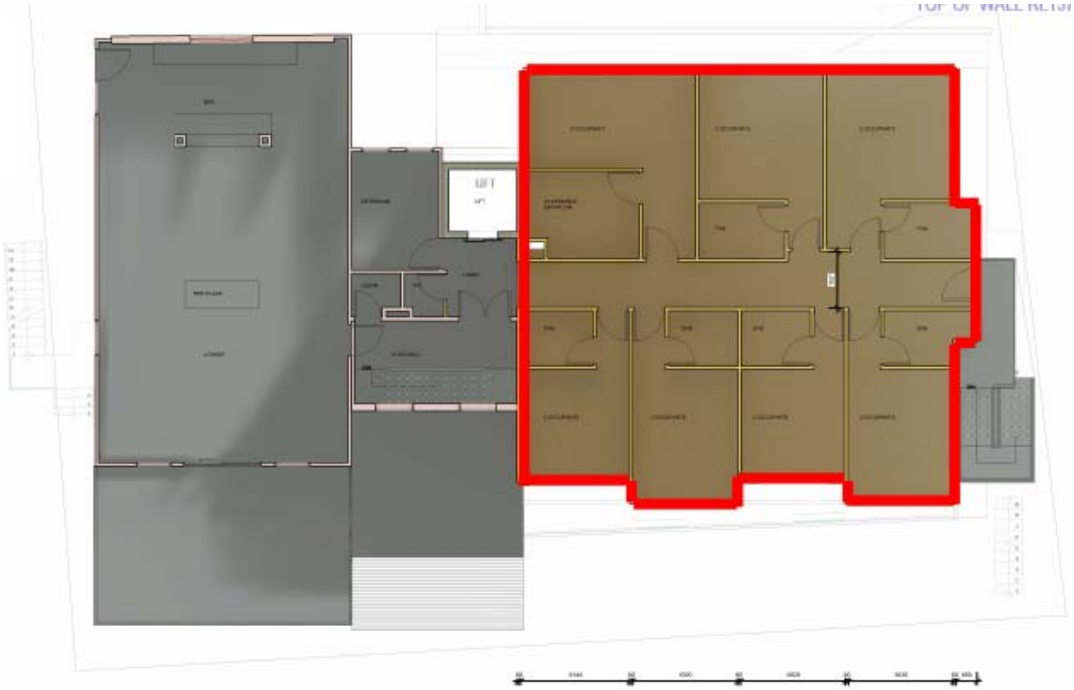
Ground Floor Level

30 First Floor Level



40 Second Floor FFL
1 : 50

	Requirements	Provide evidence to PCA	Certifier action
J1.3	**ROOF AND CEILING CONSTRUCTION**	Not applicable	Note
(a)	achieve a Total R-Value greater than or equal to R 3.7 downward heat flow	Provide R 3.0 between roofing and ceiling	PCA must satisfy himself that the installation is compliant.
	achieve a Total R-Value greater than or equal to **R 3.2 downward heat flow** **Tiled and metal roofing R 0.56**	**Provide R 3.5 between roofing and ceiling**	**PCA must satisfy himself that the installation is compliant.**
(b)	**Solar absorptance of the upper surface of a roof must be not more than 0.45.**	**Note**	**PCA must satisfy himself that the installation is compliant.**



40 Second Floor FFL
1 : 50

		Provide evidence to PCA	Certifier action
J1.4	ROOF LIGHTS		
(a)	not more than 5% of the floor area of the room or space served	Not applicable	Note
(b)	3%<5% floor area Light shaft index <1.0:	Not applicable	Note

		Provide evidence to PCA	Certifier action
J1.5	**WALLS AND GLAZING**		
(a)	**Total System U-Value of wall-glazing construction** **U 2.0**		
(b)	Display glazing <U-5.8 shopfronts	Not applicable	Note
(c)	**Total System U-Value of wall-glazing construction must be calculated in accordance with Specification J1.5a**	**Refer calculations below**	**PCA must satisfy himself that the installation is compliant.**
(d)	Wall area >80% or more of wall-glazing construction area Class 2 common area, Class 5, 6, 7, 8 or 9b building or a Class 9a building wall Total R-Value >R-1.4	Refer calculations below	PCA must satisfy himself that the installation is compliant.

		Provide evidence to PCA	Certifier action
(d)	Wall area >80% or more of wall-glazing construction area Class 2 common area, Class 5, 6, 7, 8 or 9b building or a Class 9a building wall Total R-Value >R-1.4	Not applicable	Note
	Class 3 **wall Total R-Value >R-2.8**	**Refer calculations below**	**PCA must satisfy himself that the installation is compliant.**
(e)	**Wall area <80% or more of wall-glazing construction area** **wall Total R-Value >R-0.13**	**Refer calculations below**	**PCA must satisfy himself that the installation is compliant.**

WINDOW SELECTION

DEEMED TO SATISFY WITH

	+/- 10% RULE TO WINDOW SELECTIONS Does not apply to Section J
U-2.1 max figure	
SHGC- 0.16 max figure	Expected to be dark at 0.19 light transmission

Note regards North windows

North windows are very large at about 51% of facade area whereas the existing is about 26%.
We suggest a lower size to allow for more window choices from the marketplace.

We reduced to windows to 1.8 wide to pass.
And allowed for external shading devices to top windows [see chart].

WINDOW SELECTION TO SATISFY PCA

Always select from
https://awawers.net/res

OR use their search engine
https://www.awawers.net/ressearch/search/nsw

E.g for PVC triple glazed windows from https://www.deceuninck.com.au/

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Window ID	Frame Description	Glazing	Cooling Stars	Heating Stars	Heat%	Cool%	Uw	SHGC	Tvw	AI
DEC-004-02	Deceuninck uPVC Awning Window...	SOLOS OE+ 5Clr/16Ar/5OE/16Ar/5OE	★★★★★★★☆	★★★★★★☆	68%	82%	1.2	0.16	0.19	0.34
DEC-004-04	Deceuninck uPVC Awning Window...	SOLOS OE+ 5Clr/16Ar/5Clr/16Ar/5OE	★★★★★★☆	★★★★★★☆	67%	81%	1.3	0.16	0.19	0.34
DEC-004-03	Deceuninck uPVC Awning Window...	SOLOS OE 5Clr/16Ar/5Clr/16Ar/5OE	★★★★★★☆	★★★★★★☆	65%	80%	1.5	0.17	0.19	0.34
PRO-016-03	70mm System Opening Outward...	AGG PLUS(2) Gy 4/12/4/12/4	★★★★★★☆	★★★★★★☆	67%	79%	1.4	0.18	0.22	0.66
PRO-015-03	70mm System Opening Inward...	AGG PLUS(2) Gy 4/12/4/12/4	★★★★★★☆	★★★★★★☆	66%	79%	1.4	0.18	0.22	0.11
PRO-015-02	70mm System Opening Inward...	AGG PLUS(1) Gy 4/12/4/12/4	★★★★★★☆	★★★★★★☆	66%	77%	1.6	0.19	0.22	0.11
PRO-016-02	70mm System Opening Outward...	AGG PLUS(1) Gy 4/12/4/12/4	★★★★★★☆	★★★★★★☆	66%	77%	1.6	0.19	0.22	0.66
DEC-004-01	Deceuninck uPVC Awning Window...	SOLOS OE 5Clr/16Ar/5OE/16Ar/5OE	★★★★★★☆	★★★★★★☆	69%	77%	1.4	0.21	0.27	0.34
PRO-016-01	70mm System Opening Outward...	AGG CLASSIC Gy 4/12/4/12/4	★★★★★☆	★★★★★★☆	67%	72%	1.8	0.25	0.22	0.66
PRO-015-01	70mm System Opening Inward...	AGG CLASSIC Gy 4/12/4/12/4	★★★★★☆	★★★★★★☆	67%	72%	1.9	0.25	0.22	0.11
PRO-016-06	70mm System Opening Outward...	AGG PLUS(2) Clr 4/12/4/12/4	★★★★★☆	★★★★★★☆	72%	74%	1.4	0.26	0.35	0.66
PRO-015-06	70mm System Opening Inward...	AGG PLUS(2) Clr 4/12/4/12/4	★★★★★☆	★★★★★★☆	72%	74%	1.4	0.26	0.35	0.11

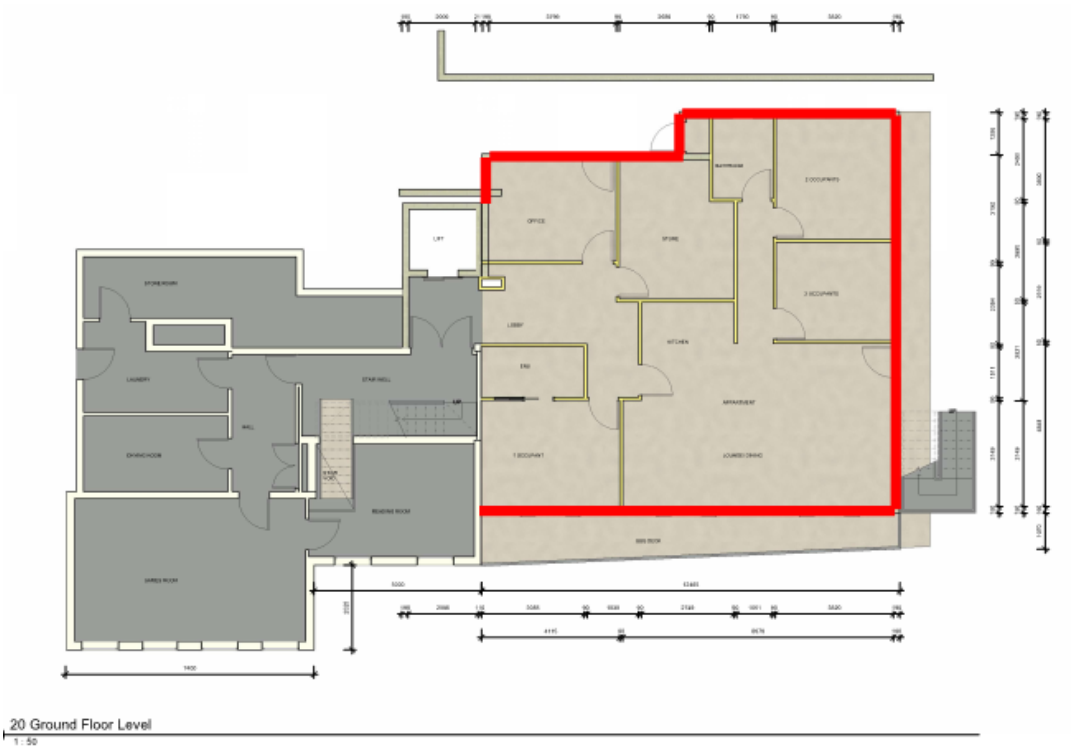
BRICK VENEER + R 2.7 insulation [BV]

Extend to underside floor soffit or roofing.

Variation requires separate calculation for approval.

Allow for any required egress width if affected.

		R	
1	Outside air	0.04	
2	110 Brick	0.09	
3	Cavity air	0.17	Batten space to manage condensation
4	Insulation in 90 stud frame	3.00	e.g. 90 polystyrene
5	Insulated plasterboard	1.81	e.g. 50 Kingspan K18
6	Inside air	0.12	
	TOTAL	5.23	



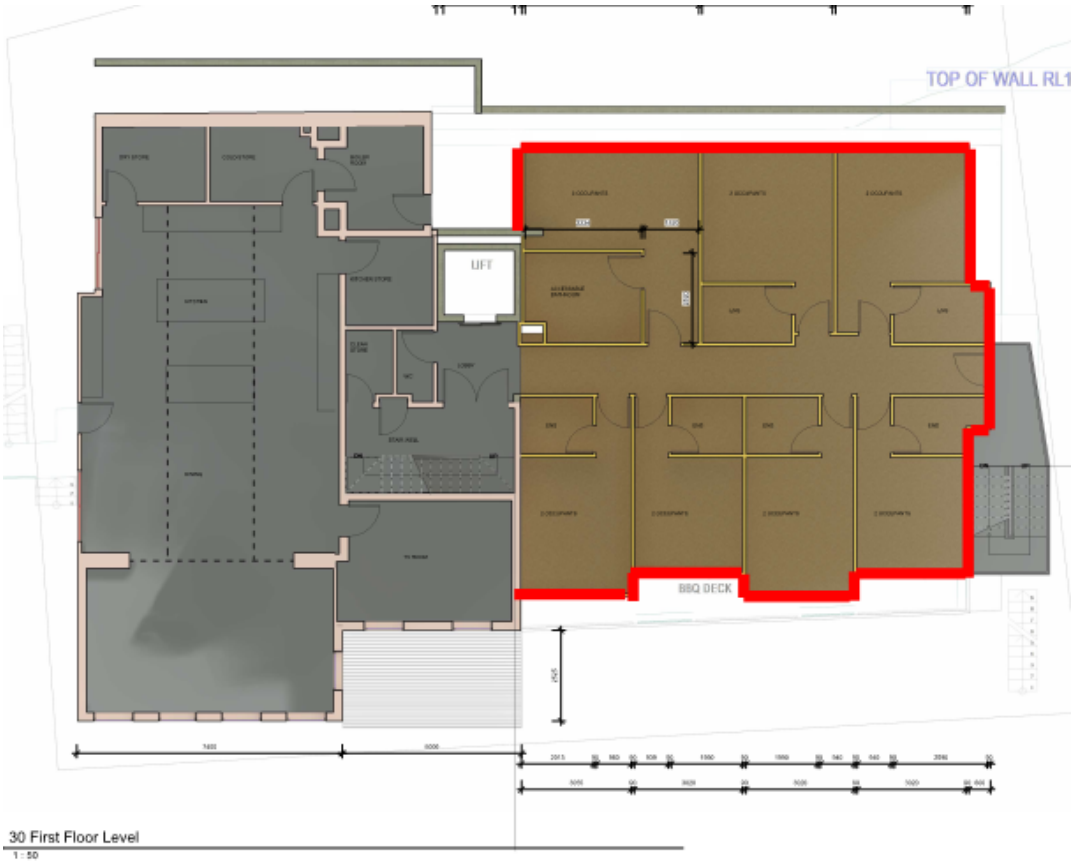
STUD FRAME WALL + R 2.7 insulation [STUD]

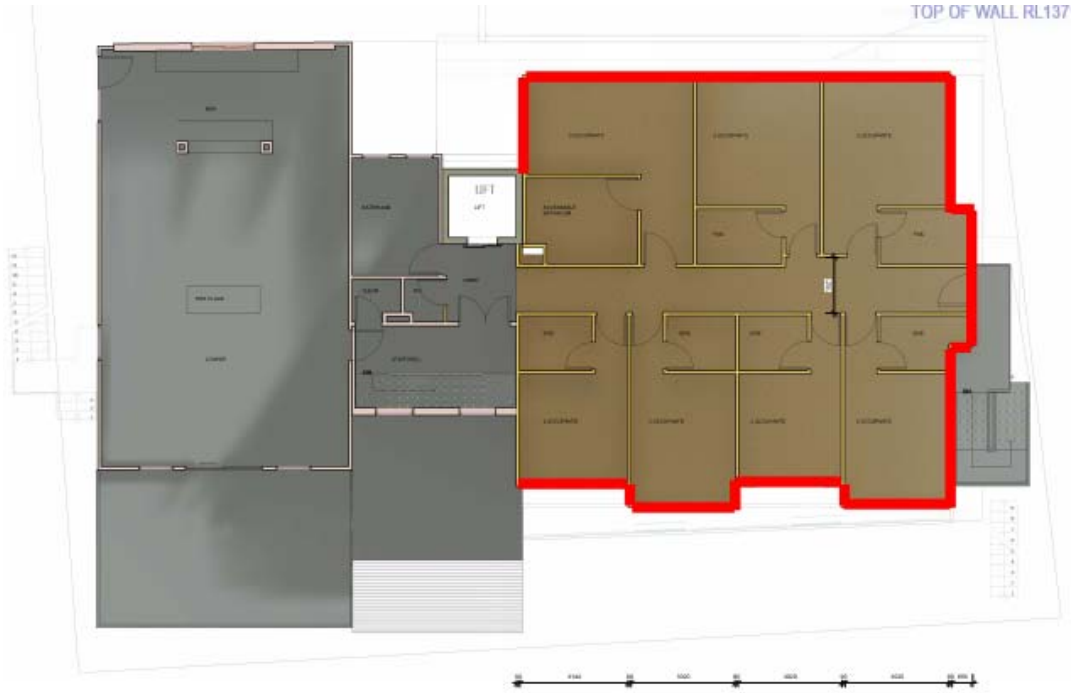
Extend to underside floor soffit or roofing.

Variation requires separate calculation for approval.

Allow for any required egress width if affected.

		R	
1	Outside air	0.04	
2	Cladding	0.04	
3	Cavity air	0.17	Batten space to manage condensation
4	Insulation in 90 stud frame	2.70	e.g. 90 polystyrene
5	Insulated plasterboard	1.81	e.g. 50 Kingspan K18
6	Inside air	0.12	
	TOTAL	4.88	





40 Second Floor FFL
1 : 50

NCC 2019 Facade calculator

V2.3-20210601

Project Name	Deemed to satisfy with			
Building Class	3	Class 2,3,5,6,7,8,9a, 9c, ward		
Climate Zone	8	Storey	all	
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	4.99	0.00	5.04	4.99

	Method 1				Method 2	
	N	E	S	W	Combined	
Wall+glazing area	91.6	0.0	79.6	78.9	250.1	
Glazing area	46.7	0.0	23.5	5.6	75.8	
percentage	51%	0%	30%	7%	30%	
Proposed Wall U-value	0.20	0.00	0.20	0.20	0.20	
Proposed Wall+Glazing U-value	1.49	0.00	0.76	0.33		0.89
Proposed Wall+Glazing Solar Admit	0.101	0.000	0.047	0.011		
Reference combined SHGC Energy Value						15.46
Proposed combined SHGC Energy Value						15.25

Wall R-value

	total A	total A x Rt	R_avg
N	*44.9*	*223.977*	*4.99*
E	*0*	*0*	*0.00*
S	*56.1*	*282.833*	*5.04*
W	*73.3*	*365.684*	*4.99*

	Glazing total A	Wall-glazing total A
N	*46.7*	*91.6*
E	*0.0*	*0.0*
S	*23.5*	*79.6*
W	*5.6*	*78.9*

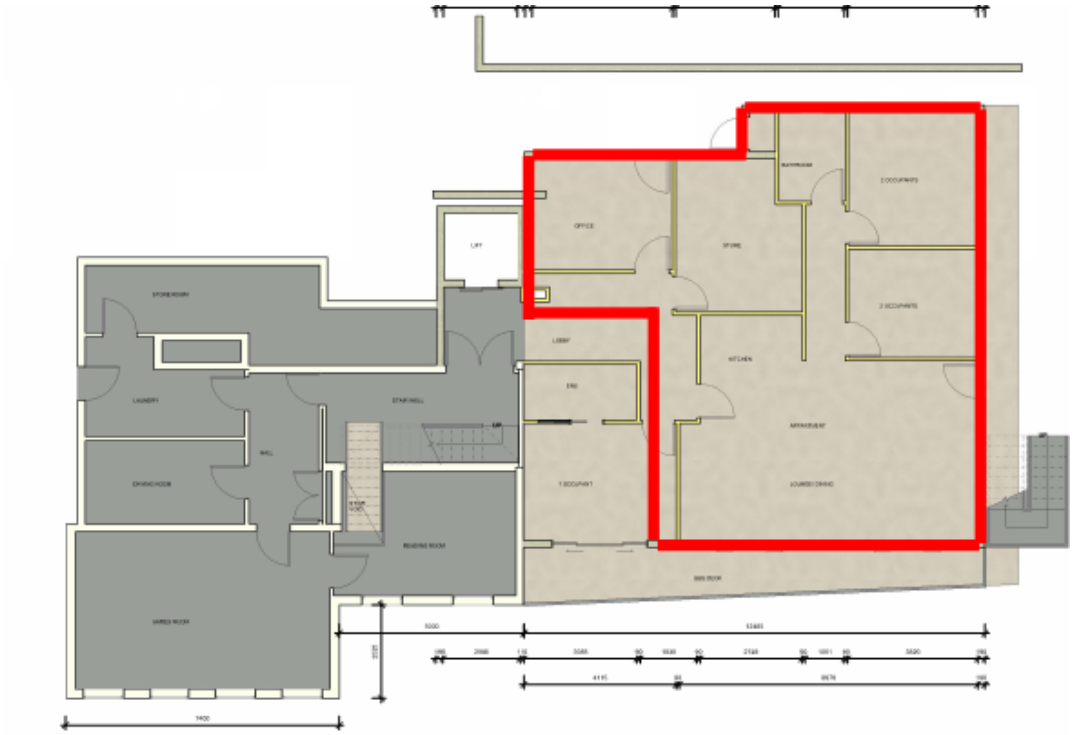
Element	Facing	Height	Width	Area	U-value	SHGC	P (device or int)	H
BV	N	2.10	2.40	5.0	2.10	0.16	1.5	2.7
BV	N	2.10	2.40	5.0	2.10	0.16	1.3	2.7
BV	N	2.10	2.40	5.0	2.10	0.16	1.1	2.7
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	
STUD	N	1.50	1.80	2.7	2.10	0.16	device	

INPUT Wall components only - Area and R- value for each wall type on each façade

Wall elements	Face	A	Rt
BV	N	13.90	5.23
BV	E	0.00	5.23
BV	S	25.90	5.23
BV	W	22.80	5.23
STUD	N	31.00	4.88
STUD	E	0.00	4.88
STUD	S	30.20	4.88
STUD	W	50.50	4.88

BV	S	0.60	0.60	0.4	2.10	0.16			
BV	S	0.90	1.90	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
STUD	S	1.50	1.10	1.7	2.10	0.16			
BV	W	0.90	1.80	1.6	2.10	0.16			
BV	W	0.90	1.80	1.6	2.10	0.16			
STUD	W	0.60	0.60	0.4	2.10	0.16			
STUD	W	0.60	0.60	0.4	2.10	0.16			
STUD	W	0.60	1.50	0.9	2.10	0.16			
STUD	W	0.60	0.60	0.4	2.10	0.16			
STUD	W	0.60	0.60	0.4	2.10	0.16			

		Provide evidence to PCA	Certifier action
J1.6 **(a)**	**Floor insulation.** **Total floor R 2.0 required** **RC floor R 0.3**	**Refer calculations below**	**PCA must satisfy himself that the installation is compliant.**



20 Ground Floor Level
1 : 50

2. PART J2 – not used

3. PART J3 BUILDING SEALING

		Provide evidence to PCA	Certifier action
J3.1		**Applies** **Note must achieve max 5 air changes per hour under blower door test.**	**Note.**
J3.2	**CHIMNEYS AND FLUES**	Not applicable	Note
	chimney or flue of an open solid-fuel burning appliance provide a damper or flap that can be closed to seal the chimney or flue.	Not applicable	Note
J3.3 **(a)**	**ROOF LIGHTS** **sealed, or capable of being sealed**	Not applicable	Note
(b)	**Constructed with—** **an imperforate ceiling diffuser or the like installed at the ceiling or internal lining level; or** **a weatherproof seal; or** **a shutter system readily operated either manually, mechanically or electronically by the occupant.**	Not applicable	Note

		Provide evidence to PCA	Certifier action
J3.4 **(a)** **And (b)**	**WINDOWS AND DOORS** **Must be sealed** **except** **windows and doors to AS 2017** **fire door** **smoke door** **roller shutter door – out of hours** **shutter grille – out of hours** **other security door or device – out of hours**	**Applies**	**Certify that the installation is deemed to satisfy**
(c)	**seal to restrict air infiltration** **bottom edge of a door, must have a draft protection device;**	**Applies**	**Certify that the installation is deemed to satisfy**
(d)	**Provide self-closing doors to entrances**	**Applies**	**Certify that the installation is deemed to satisfy**
J3.5	**Windows and doors** **Exhaust fans** **Fit with a sealing device such as a self-closing damper**	**Applies**	**Certify that the installation is deemed to satisfy**
J3.6	**Construction of ceilings, walls and floors** **Ceilings, walls, floors and any opening such as a *window* frame, door frame, *roof light* frame or the like must be constructed to minimise air leakage in accordance with (b) when forming part of—** **(i)the *envelope*; or** **(ii)in *climate zone* 8.**	**Show construction details and as installed evidences**	**Certify that the installation is deemed to satisfy**

		Provide evidence to PCA	Certifier action
	Construction *required* by must be— **(i)enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or** **(ii)sealed at junctions and penetrations with—** **(A)close fitting architrave, skirting or cornice; or** **(B)expanding foam, rubber compressible strip, caulking or the like.**		
J3.7 NSW J(A)2	Evaporative coolers	Not applicable	Certify that the installation is deemed to satisfy

4. PART J4 – not used

		Provide evidence to PCA	Certifier action
J4.0		None	Note

5. PART J5 AIR CONDITIONING

		Action by a/c designer at CC and thereafter	Certifier action
J5.1		**Applies**	**Note**
J5.2	**When not occupied** • **Capable of being deactivated.** • **Dampers close when a/c deactivated.** • **Ductwork sealed and insulated.** • **Capable of controlling temperature during sleeping periods.** • **Fan power to Table J5.2.**	**Applies**	**Refer separate report by a/c designer** **Certify that the installation is deemed to satisfy**
J5.3	**Time Switch**	**Applies**	**Refer separate report by a/c designer** **Certify that the installation is deemed to satisfy**
5.4	**Applies if Heating And Cooling System installed**	**Applies**	**Refer separate report by a/c designer** **Certify that the installation is deemed to satisfy**
5.5	**Applies if Miscellaneous Exhaust Systems installed**	**Applies**	**Refer separate report by a/c designer** **Certify that the installation is deemed to satisfy**

6. PART J6 ARTIFICIAL LIGHTING AND POWER

		Provide evidence to PCA	Certifier action
6		Applies	Certify that the installation is deemed to satisfy Refer also lighting designer certifications for compliance with Illumination code Part F4.
6.2	Submit to BCA, completed calculations from the following spreadsheet http://www.abcb.gov.au/Resources/Tools-Calculators/Lighting-Calculator	Applies	Refer separate report by lighting designer Certify that the installation is deemed to satisfy
6.3	Room or space Provide individually operated switch or other device control unless SOU for people with disability or aged. Locate	Applies	Refer separate report by lighting designer Certify that the installation is deemed to satisfy
	Switch controls location In visible position in room serviced or adjacent room.	Applies	
	Time switch To Specification J6	Applies	Refer separate report by lighting designer Certify that the installation is deemed to satisfy
6.4	Interior Decorative & Display Lighting	Applies	Refer separate report by lighting designer

		Provide evidence to PCA	Certifier action
			Certify that the installation is deemed to satisfy
6.5	**Perimeter lighting** **Control by a** • **daylight sensor or a** • **programmable time switch.**	**Applies**	**Refer separate report by lighting designer** **Certify that the installation is deemed to satisfy**
	When the perimeter lighting load exceeds 100W **the light source efficacy must not be less than 60 Lumens/W or Controlled by a motion detector in accordance with Specification J6**	**Applies**	**Refer separate report by lighting designer** **Certify that the installation is deemed to satisfy**
	Decorative lighting	**Applies**	**Refer separate report by lighting designer** **Certify that the installation is deemed to satisfy**
6.6	**Boiling Water and chilled water storage units**	**Applies**	**Refer separate report by lighting designer** **Certify that the installation is deemed to satisfy**

7. PART J7 HEATED WATER SUPPLY AND SWIMMING POOL AND SPA POOL PLANT

		Provide evidence to PCA	Certifier action
7.2	**Design a**nd install in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia.	Applies	Refer separate report by Hydraulic and Electrical consultants

8. PART J8 ACCESS FOR MAINTENANCE

		Provide evidence to PCA	Certifier action
8.2	Provide access to any operable controls.	Inclusions Times switches Thermostats Air dampers Light fittings Heat transfer equipment	Certify that respective controls are in place.

END OF REPORT

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