Section J Report

Horatio Motel

Garden Suites

No.11 Horatio Street,

MUDGEE NSW 2850

Lot 4 DP159565

Prepared by:

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Report Statement

This report assesses the proposed development using the DTS or Deemed-to-Satisfy Provisions of the NCC 2019 Volume 1 – Section J Energy Efficiency.

This report is confined to the Section J provisions and only addresses matters relating to Section J compliance.

It is our opinion that the proposed development will comply with Section J of NCC 2019 if built in accordance with the recommendations contained in this report, and of the referenced plans indicated below.

Title	Date	Page	Job
Site Plan	21-02-22	1001 A	902
Floor & Roof Plans	21-02-22	1201 A	512
Elevations & Sections 1	21-02-22	1501 A	512
Elevations & Sections 2	21-02-22	1502 A	512

Section J Overview or Objective

JO1 - The Objective is to reduce greenhouse gas emissions.

This was in response to concerns over global warming, and in July 2000, the Australian Government announced an 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 National Construction Code (NCC), 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 NCC 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 NCC 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.

Background of Energy Efficiency in the NCC

Energy efficiency provisions were introduced into the National Construction Code (NCC) in stages. The first was in 2003 for Class 1 and 10 Buildings (NCC Volume Two Housing Provisions).

This was followed in 2005 by provisions in Volume One for Class 2 buildings (apartments) and Class 3 buildings (hotels, motels, dormitories etc.) and Class 4 parts of buildings (residences over other buildings).

The range of buildings became complete in 2006 when provisions for Classes 5 to 9 buildings (all other applications) were added to Volume One.

At the same time, the provisions for Classes 1 and 10 in Volume Two were made more stringent. In 2010 the stringency of the provisions in both volumes were again increased.

Note that these dates were when the provisions were introduced into the national NCC and not necessarily when States and Territories adopted them into building law.

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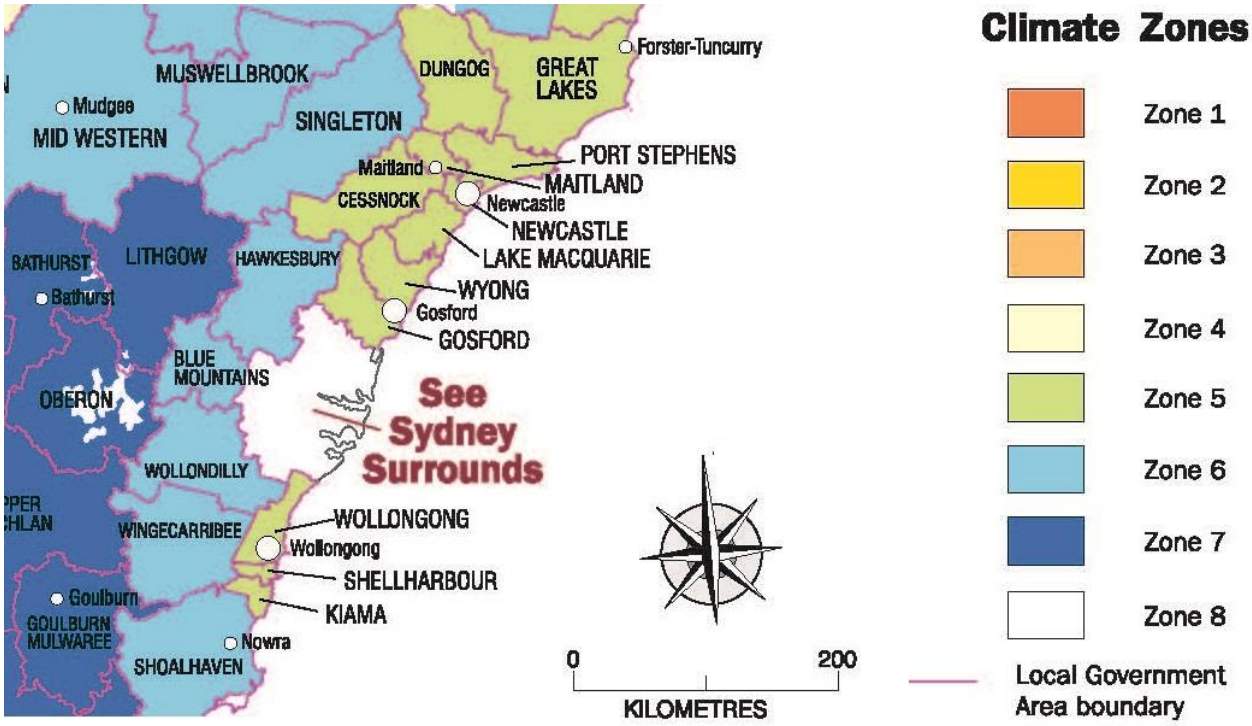
1. Section J Review

Dwelling Type: Motel Complex

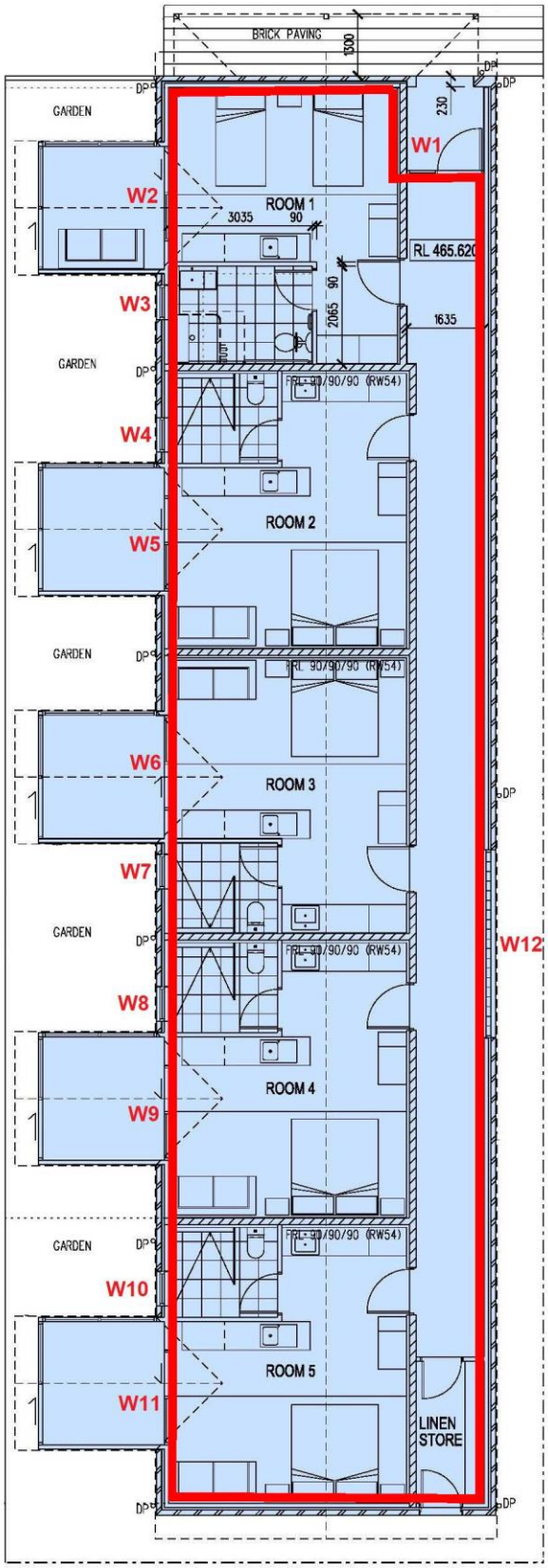
Building Class: 3 *(The Building Class should be confirmed by the PCA)*

Climate Zone: 6 *(See map below)*

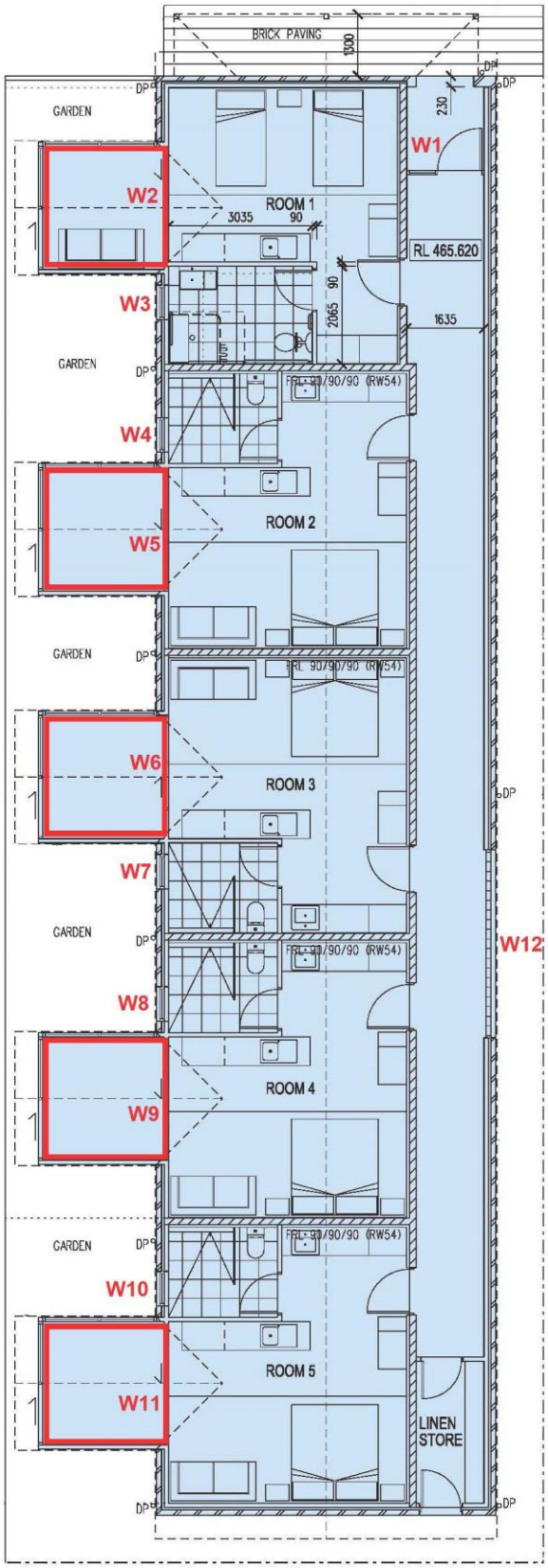


2. Conditioned Space

Areas likely to be air conditioned - *or Conditioned Space*



Areas not to be air conditioned – *or Non-Conditioned Space and not part of the building fabric.*



3. J1 - Building Fabric

Section Part	Section J Requirement	Notes
J1.1 Application of Part	Applies to areas for Conditioned spaces as outlined on page 5 of this report.	
J1.2 Thermal Construction *(General)*	(a) Insulation must comply with AS/NZS 4859.1 & be installed so that it abuts or overlaps adjoining insulation other than at supporting members, forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier, & does not affect the safe or effective operation of a service or fitting. (b) Reflective insulation must be installed with the necessary airspace, be close fitting to any door or window opening, be adequately supported, & each adjoining sheet be overlapped not less than 50mm or taped. (c) Bulk insulation must be installed so that maintains its position & thickness, where it is compressed between cladding & supporting members, water pipes, electrical cables or the like. (d) Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification J1.2. (e) The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be – (i) calculated in accordance with AS/NZS 4859.2 for roof or floor: or (ii) determined in accordance with Specification J1.5a for wall-glazing construction; or (iii) determined in accordance with Specification J1.6 or Section 3.5 or CIBSE Guide A for soil or sub-floor spaces.	Refer to NCC Volume One for further information if required.
J1.3 Roof & Ceiling Insulation	Minimum Total R-Value of R3.2 (Downwards) based on a roof with a solar absorptance of not more than 0.45, which are Light colours, and some Medium. If metal battens are used to fix the metal sheeting, then a thermal break must be used in accordance with J1.2 (e). ***NOTE: Shale Grey is permitted as the solar absorptance is 0.43.***	The total R-Value of R3.2 could be achieved with Anticon 55 under the metal roofing, plus R3.0 bulk insulation on the ceiling. Increase accordingly for Loss of Ceiling Insulation. Refer to NCC Volume One for further information if required.

J1.4 Roof Lights	Not applicable – i.e. not evident in referenced plan documentation.	
J1.5 Walls & Glazing	The Total System U-Value of wall-glazing construction must not be greater than U1.1, and the minimum wall Total R-Value is R2.8 if the wall is 80% or more of the wall-–glazing, and R1.0 if under 80% The ABCB Façade Calculator has been used to determine the minimum glazing requirements, based a Light coloured wall system, and refer to page 18 for the values for each glazed unit. See page 16 & 17 of this report the external walls, and page 14 & 15 for the Façade Calculator Report.	If values are not suitable, then an Alternative JV3 Assessment would be required, which can also assess the requirement for floor, wall and ceiling insulation requirements. Stated window values are based on AFRC values, and represent the total unit system of frame and glass. Suitable products can be sourced from www.wers.net Windows with different values than those stated should be checked for compliance before use. Refer to NCC Volume One for further information if required.
J1.6 Floors	All floors must achieve a minimum Total R-Value of 2.0. For Slab on ground (without in-slab heating) this is achieved if in direct contact with the ground.	Refer to NCC Volume One for further information if required relating to the installation of insulation.

4. J3 – Building Sealing

Section Part	Section J Requirement	Notes
J3.1 Application of Part	Applies to areas for Conditioned spaces as outlined on page 5 of this report.	
J3.2 Chimney and Flues	Not applicable – i.e. not evident in referenced plan documentation.	
J3.3 Roof Lights	Not applicable – i.e. not evident in referenced plan documentation.	
J3.4 Windows and Doors	Seals must be fitted to the each edge of a door *(unless it is a fire door)* or window as defined by J3.4, or if manufactured in accordance with AS 2047 shall automatically comply. The entrance doors must have a self-closing door.	
J3.5 Exhaust Fans	Any exhaust fans *(including rangehoods)* must be fitted with a sealing device such as a self-closing damper.	Refer to NCC Volume One for further information if required.
J3.6 Construction of roofs, walls and floors	Roofs, ceilings, walls, floors, plus window and door frames must be constructed to minimise air leakage. Construction must be enclosed by internal linings that are close fitting the ceiling, wall and floor junctions, or sealed by caulking, expanding foam, rubber compressible strip, or close fitting skirtings, architraves, cornices or the like.	
J3.7 Evaporative Coolers	Not applicable – i.e. not evident in referenced plan documentation.	

5. J5 – Air conditioning and Ventilation Systems

Section Part	Section J Requirement	Notes
Air conditioning is not evident on the referenced plan documentation, and if such is to be provided, it is recommended that a full compliance report be provided by the installer to state the system(s) are in accordance with the NCC Volume One Part J5. The following is an indicative guide only and is a summary of the Section J requirements.		
J5.1	Does not apply	
J5.2 Air-conditioning system control	Each air conditioning system must be capable of being deactivated when part of the building being served is not occupied and the system has motorised outside air and return dampers, the dampers must close when the system is deactivated. When serving a Unit, the system must not operate if an external door is open for more than 1 minute. Any supply & return ductwork must be sealed in accordance with J5.2 When serving more than one zone or an area with different heating & cooling needs, the system must comply with J5.2 The system must be capable of controlling the different temperatures during sleeping and non-sleeping periods.	
J5.3 Mechanical Ventilation system control.	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.4 Fan systems	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.5 Ductwork Insulation	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.6 Ductwork Sealing	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.7 Pump Systems	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.8 Pipework Insulation	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.9 Space Heating	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.10 Refrigerator chillers	Should not apply, but as with the whole system, should be confirmed by the installer	
J5.11 & J5.12	Should not apply, but as with the whole system, should be confirmed by the installer	

6. J6 – Artificial Lighting and Power

Section Part	Section J Requirement	Notes
For Lighting requirements, it is recommended that a full compliance report be provided by the installer to state the system(s) are in accordance with the NCC Volume One Part J6. The following is an indicative guide only and is a summary of the Section J requirements.		
J6.1 Application of Part	Applies to areas for Conditioned spaces as outlined on page 5 of this report.	
J6.2 Artificial Lighting	The artificial lighting, aggregate design illumination power load must not exceed the maximum illumination power density as per table in NCC Volume One J6.2a. See page 19 for an example power loads using the ABCB Lighting Calculator.	
J6.3 Interior artificial lighting & power control	(a) Artificial lighting of a room or space must be individually operated by a switch or other control device. (b) An occupant activated device, such as a room security device, a motion detector or the like must be provided in each bedroom , other than where providing accommodation for people with a disability or the aged, to cut power to the artificial lighting, air-conditioner, local exhaust fans and bathroom heater when the sol-occupancy unit is unoccupied, in accordance with NCC Volume One Specification J6. (c) An artificial lighting switch or control device must be in a visible position in the room it controls or in an adjacent room or space from where the lighting being switched is visible.	
J6.4 Interior decorative and display lighting	Should not apply, but as with the whole system, should be confirmed by the installer	
J6.5 Artificial lighting around the perimeter of a building	Artificial lighting around the perimeter must be either a daylight sensor or programmable time switch. If the total perimeter lighting exceeds 100W it must use LED luminaires for 90% of the total lighting load, or be controlled by a motion detector in accordance with Specification J6.	
J6.6 Boiling water & chilled water storage units.	Should not apply, but as with the whole system, should be confirmed by the installer	
J6.7 & J6.8 Lifts & Escalators	Do not apply	

7. J7 – Hot water supply & Swimming Pool & Spa Pool Plant

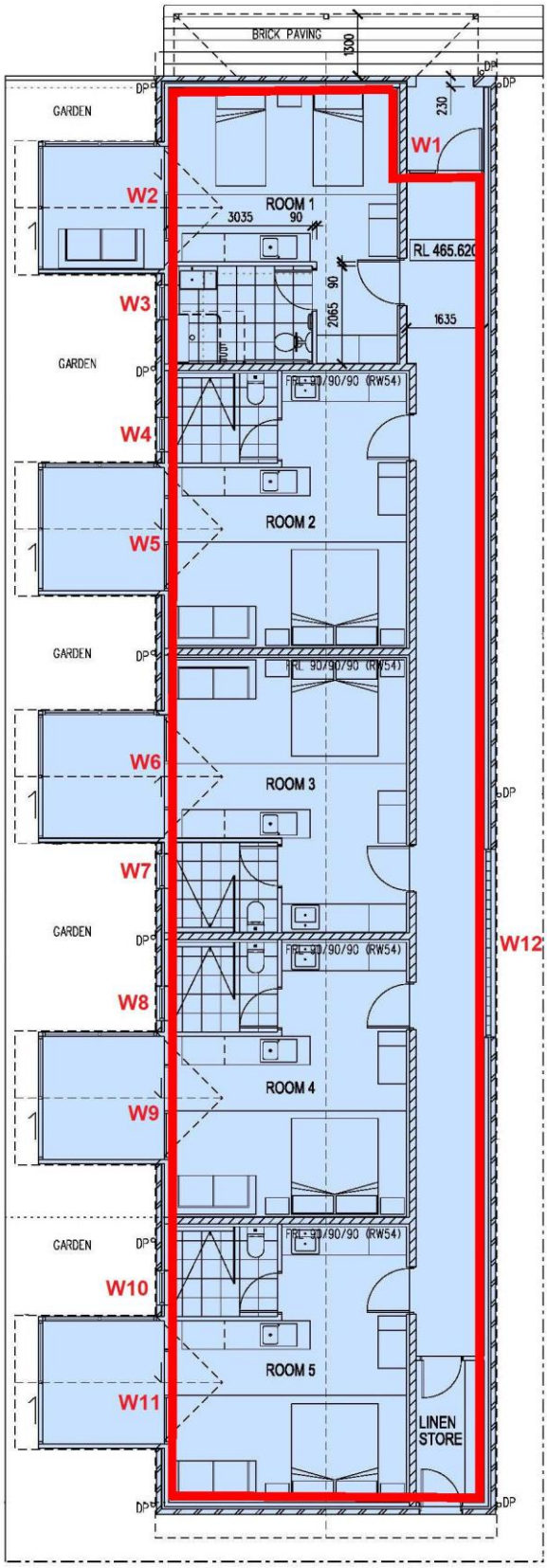
Section Part	Section J Requirement	Notes
J7.1	Left blank in NCC 2019	
J7.2	Hot water supply must be designed and installed in accordance with Part B2 of NCC Volume Three – Plumbing Code of Australia.	
J7.3 Swimming pool heating and pumping	Not applicable – i.e. not evident in referenced plan documentation.	
J7.4 Spa pool heating and pumping	Not applicable – i.e. not evident in referenced plan documentation.	

8. J8 – Facilities For Energy Monitoring

Section Part	Section J Requirement	Notes
J8.1 Application of Part	Does not apply.	
J8.2 Deliberately left blank		
J8.3 Facilities for energy monitoring	A building with a floor area of more than 500m² must have the facility to record the consumption of gas and electricity.	

9. External Walls

Nominated external walls to Conditioned Areas *(bordered in Red)*



10. Façade Report

Garden Suites

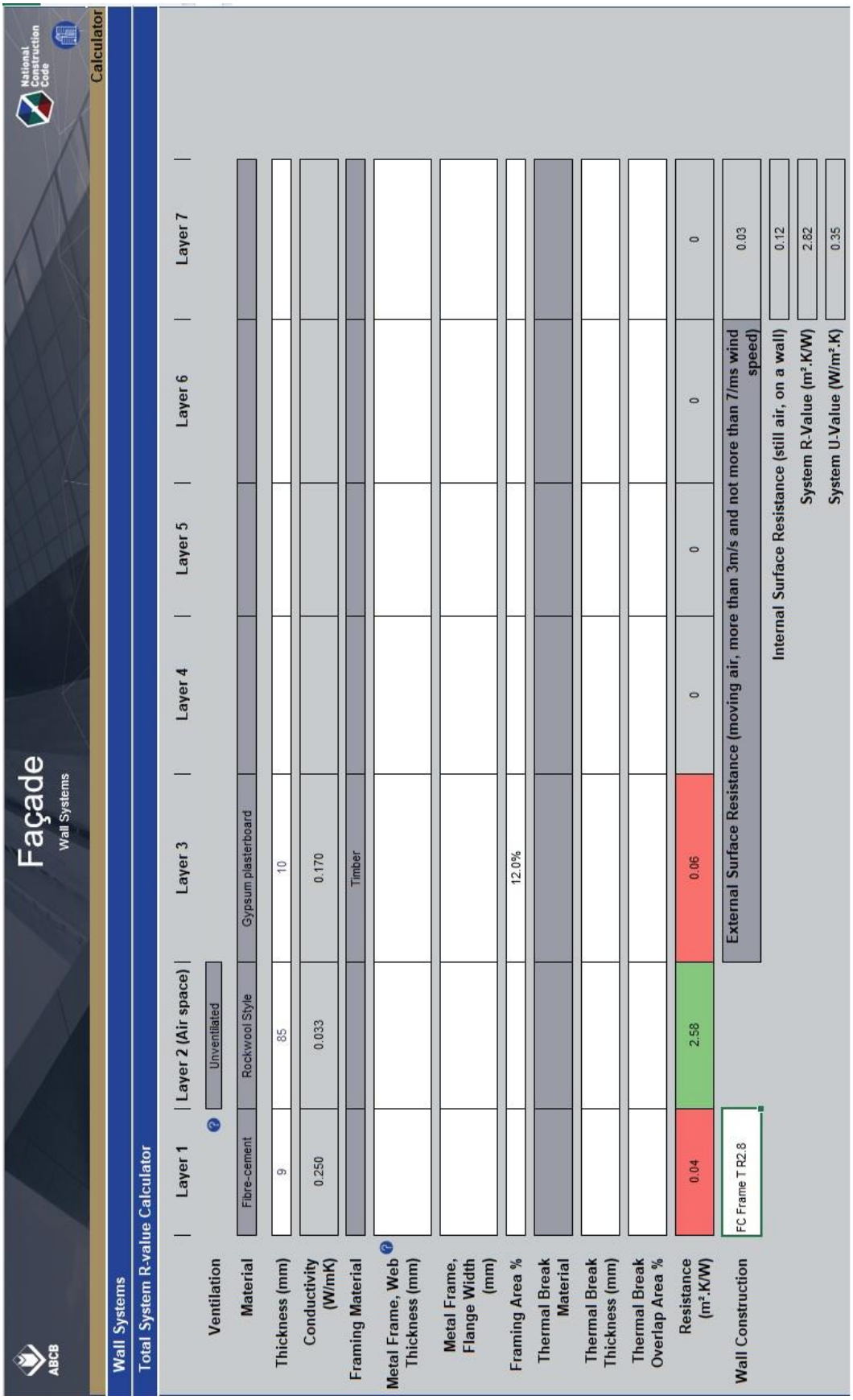
Project Details

	North	East	South	West
Glazing Area (m²)	3.4335	9.6	0	27.285
Glazing to Façade Ratio	16%	10%	0%	25%
Glazing References	ADR Type 2 AFW Type 2	AFW Type 1		ASD Type 3 AAW Type 2
Glazing System Types	Hinged Door Fixed	Hinged Door Fixed		Sliding Door Awning
Glass Types	Single Glazing - low-E coating	Single glazing		Double Glazed Unit - no low-E coating Single Glazing - low-E coating
Frame Types	Aluminium	Aluminium		
Average Glazing U-Value (W/m².K)	4.30	5.60		3.33
Average Glazing SHGC	0.45	0.56	0.00	0.45
Shading Systems	Horizontal Device	Horizontal Device	Horizontal Device	Horizontal Device
Wall Area (m²)	18.4	82	50.8	82
Wall Types	Wall	Wall	Wall	Wall
Methodology	Wall			
Wall Construction	Brick Veneer T R2.8	Brick Veneer T R2.8	Brick Veneer T R2.8 FC Frame T R2.8	Brick Veneer T R2.8 FC Frame T R2.8
Wall Thickness	270	270	270 90	270
Average Wall R-value (m².K/W)	2.81	2.81	2.82	2.82
Solar Absorptance	0.3	0.3	0.3	0.3

11. Façade Wall System Components

Typical Brick Veneer

Typical FC Sheeted Frame



Fascade Glazing Systems

Wednesday, 25 May 2022

Horatio Motel - No.11 Horatio Street, Mudgee NSW 2850
Garden Suites
Class 3

			U Value	SHGC	Glazed Units
Type	**1**	AAW	5.6	0.50	
		ASD	5.6	0.56	
		AFW	**5.6**	**0.56**	**To W12 - Glass Blocks**
		ASW	5.6	0.56	
		ADR	5.6	0.50	
Type	**2**	**AAW**	**4.3**	**0.45**	**To W3, W4, W7, W8, W10**
		ASD	4.3	0.45	
		AFW	**4.3**	**0.45**	**W1 - Entry Sidelite**
		ASW	4.3	0.45	
		ADR	**4.3**	**0.45**	**To Entry Door**
Type	**3**	AAW	3.2	0.45	
		ASD	**3.2**	**0.45**	**To W2, W5, W6, W9, W11**
		AFW	3.2	0.45	
		ASW	3.2	0.45	
		ADR	3.2	0.45	
Code		AAW			Aluminium Awning Window
		ASD			Aluminium Sliding Door
		AFW			Aluminium Fixed Window
		ASW			Aluminium Sliding Window
		ADR			Aluminium Hinged Door

13. Lighting Calculation Sample

Using the Lighting Calculator developed the ABCB