



SECTION J – ENERGY EFFICIENCY

NCC 2022, Volume 1

NCC Compliance Assessment of:

61 Verner Street, Goulburn

New Medical Centre (NCC Class 5)

Lot 1 & 3 DP 1060354

Climate Zone 7

Goulburn Mulwaree Council

V1.0

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17/06/2024

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1. Compliance Summary

Below is a summary of actions required to comply with the Deemed-To-Satisfy (DTS) provisions of Part J2 of NCC 2022 for the proposed new Medical Centre at 61 Verner Street, Goulburn as defined in NSW J4D2:

NSW J4D3	All reflective and bulk insulation must be installed in accordance NSW J4D3 Thermal Construction.
NSW J4D4	Ensure a minimum R3.5 insulation to roof spaces in accordance with NSW J4D4.
NSW J4D6	Altered external walls (if applicable) must achieve a minimum of R1.4 insulation as per Table J4D6a and no glazing replacement is assumed for this development. Unaltered external walls/windows are excluded from this report
NSW J4D7	Altered or new floors must achieve the Total R-Value of 2.0 for Climate Zone 7 in accordance with Table J4D7, providing no in-slab or in-screed heating or cooling system. Unaltered floors are excluded from this report.
NSW J5D3	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 in accordance with NSW J5D3.
NSW J5D5	Entrance doors must have a self-closing door and seal to restrict air infiltration in accordance with J5D5.
NSW J5D6	Exhaust fans serving a conditioned space or habitable room must be fitted with a sealing device such as a self-closing damper
NSW J5D7	Construction of ceilings, walls and floors, where altered as part of this development, must comply with NSW J5D7.
NSW J5D8	An evaporative cooler, if applicable to this development, must be fitted with a self-closing damper or the like when serving a heated space.
Part J6	The air conditioning supplier must certify that the installation complies with Part J6 Air-conditioning and ventilation of NCC 2022 at Attachment A .
NSW J7D3(2)	The lighting supplier must certify that artificial lighting complies with NSW J7D3(2) of NCC 2022 at Attachment B .
NSW J7D4(4)	The lighting supplier must certify that artificial lighting and power control complies with NSW J7D3 and Specification 40 at Attachment B .
NSW J7D7	Boiling water and chilled water storage units must be fit with a time switch with manual override capability and efficiency measures as applicable and in accordance with NSW J7D7.
NSW J9D3	Install energy meters configured to record the time-of-use consumption of electricity (and gas if applicable) with envelop more than 500m ² .
NSW J9D5	The main electrical switchboard must be sized to install future solar PV panels on at least 20% of the building roof area and at least 20% of the roof area is left clear for installation of solar PV system, with exception to the limitations defined under J9D5.

2. Introduction

This report identifies and details the Deemed-to-Satisfy (DTS) provisions relevant to Part J2 Energy Efficiency of the NCC 2022 for the design of the proposed new Medical Centre development at 61 Verner Street, Goulburn. The development is assessed under climate zone 7.

Documentation used in the development of this report are summarised in Table 1 below:

Table 1: Documentation used in Section J Report	
Description	Dwg No
Site Plan	0224 – 1651 - 02
Floor Plan	0224 – 1651 - 03
Existing Elevations	0224 – 1651 - 05

Part J2 Energy Efficiency

NSW J2D1(1)

Where a DTS Solution is proposed, Performance Requirements NSW J1P1 and NSW J1P4 is satisfied by complying with:

- a) [NSW J2D2](#); and
- b) NSW [J3D2 to J3D15](#); and
- c) NSW [J4D2](#) to J4D7; and
- d) NSW J5D2 to J5D8; and
- e) NSW J6D2 to J6D13; and
- f) NSW J7D2 to J7D9; and
- g) J8D2 to J8D4; and
- h) J9D2 to J9D5.

NSW J2D2

For a Class 5 building, Performance Requirements NSW J1P1 is satisfied by complying with

- a) for building fabric, Part J4; and
- b) for building sealing, Part J5; and
- c) for air conditioning and ventilation, Part J6; and
- d) for artificial lighting and power, Part J7; and
- d) for heating water supply, Part J7; and
- e) for facilities for monitoring, J9D3.

For a Class 5 building, Performance Requirement J1P4 is satisfied by complying with J9D4 and J9D5.

Part J3 Class 2 /Class 4 part of building

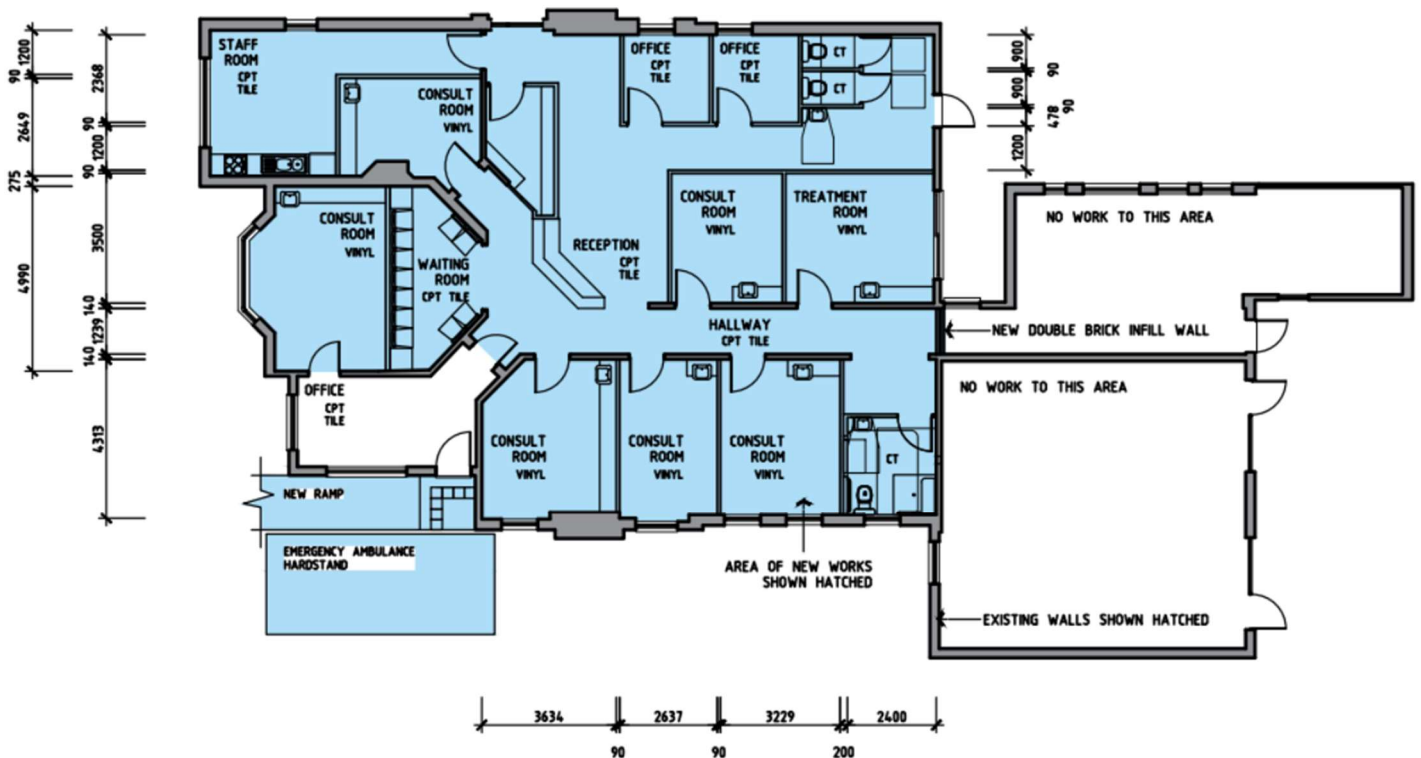
Not applicable to this development.

Part J4 Building Fabric

NSW J4D2

The building elements forming the envelop assessed in this report is limited to the extent of the alterations to building elements forming the envelop of the existing building shown in Figure 1. Unaltered parts of the existing building elements forming the envelop are excluded from this report and assumed to comply with relevant requirements in force at the time of construction in accordance with Section 19(c) of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*.

Figure 1: Envelop



NSW J4D3 Thermal Construction - general

- 1) Where required, insulation must comply with AS/NZS 4859.1 and be installed so that it:
 - a) 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
 - b) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and
 - c) does not affect the safe or effective operation of a service or fitting.
- 2) Where required, reflective insulation must be installed with:
 - a) the necessary airspace to achieve the required R-Value between a reflective side of the reflective insulation and a building lining or cladding; and
 - b) the reflective insulation closely fitted against any penetration, door or window opening; and
 - c) the reflective insulation adequately supported by framing members; and
 - d) each adjoining sheet of roll membrane being
 - i. overlapped not less than 50 mm; or
 - ii. taped together.
- 3) Where required, bulk insulation must be installed so that:
 - a) 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
 - b) in a ceiling, where there is no bulk insulation or reflective insulation in the wall beneath, it overlaps the wall by not less than 50mm.
- 4) Roof, ceiling, wall and floor materials, and associated surface are deemed to have the thermal properties listed in Specification 36.
- 5) The required Total R-Value and Total System U-Value, including allowance for thermal bridging, must be
 - a) Calculated in accordance with AS/NZS 4859.2 for a roof or floor; or
 - b) Determined in accordance with Specification 37 for wall-glazing construction; or
 - c) Determined in accordance with Specification 39 or Section 3.5 of CIBSE Guide A for soil or sub-floor spaces.

NSW J4D4 Roof and ceiling construction

- 1) A roof or ceiling must achieve a Total R-Value greater than or equal to R3.7 for an upward direction of heat flow in climate zone 7.
- 2) In climate zone 7, the solar absorptance of the upper surface of a roof must be not more than 0.45.

Table 2	Total R-Value required	R-Value of construction		R-Value of insulation required
Roof/Ceiling	3.7 Upward direction of heat flow	Outdoor air film	0.04	~3.5 plus
		Metal Cladding	0.00	
		Cavity	0.18	
		Plasterboard	0.06	
		Indoor air film	0.11	
		Total	0.39	

- Ensure a minimum R3.5 insulation to roof spaces in accordance with NSW J4D4.

NSW J4D5 Roof Lights

No roof windows assumed for this development.

NSW J4D6 Walls and glazing

Unaltered external walls and glazing are excluded from this report and assumed to comply with relevant requirements in force at the time of construction in accordance with Section 19(c) of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*.

- Altered external walls must achieve a minimum of R1.4 insulation as per Table J4D6a and no glazing replacement is assumed for this development.

NSW J4D7 Floors

Unaltered floors are excluded from this report and assumed to comply with relevant requirements in force at the time of construction in accordance with Section 19(c) of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*.

Altered or new floors must achieve the Total R-Value of 2.0 for Climate Zone 7 in accordance with Table J4D7, providing no in-slab or in-screed heating or cooling system.

- Altered or new floors must achieve the Total R-Value of 2.0 for Climate Zone 7 in accordance with Table J4D7, providing no in-slab or in-screed heating or cooling system.

Part J5 Building Sealing

NSW J5D2

The DTS provisions of this part apply to elements forming the envelop as defined in [J4D2 Table 1](#) other than where mechanical ventilation is a requirement by Part F6 providing sufficient pressurisation to prevent infiltration or parts of buildings cannot be fully enclosed.

NSW J5D3 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.

- 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 in accordance with NSW J5D3.

NSW J5D4 Roof lights

Not applicable to this development.

NSW J5D5 Windows and doors

- 1) A door, openable window or the like must be sealed when forming part of the envelop to restrict air infiltration in climate zone 7.
- 2) The requirements for 1) do not apply to
 - a. A window complying with AS 2047; or
 - b. A fire door or smoke door; or
 - c. A roller shutter door, roller shutter grill or other security door or device installed only for out-of-hours security
- 3) A seal to restrict air infiltration
 - a. For the bottom edge of a door, must be a draft protection device; and
 - b. For the other edges of a door or the edges of an openable window or other such opening, may be a foam or rubber compression strip, fibrous seal or the like.
- 4) An entrance to a building, if leading to a conditioned space must have an airlock, self-closing door, rapid roller door, revolving door or the like, other than
 - a. Where the conditioned space has a floor area of not more than 50m²; or
 - b. Where a café, restaurant, open front shop or the like has
 - i. A 3m deep un-conditioned zone between the main entrance, including an open front, and the conditioned space; and
 - ii. At all other entrances to the café, restaurant, open front shop or the like, self-closing doors.
- 5) A loading dock entrance, if leading to a conditioned space, must be fitted with a rapid roller door or the like.

- Entrance doors must have a self-closing door and seal to restrict air infiltration in accordance with NSW J5D5.

NSW J5D6 Exhaust fans

An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving –

- a) A conditioned space; or
- b) A habitable room in climate zone 7

- Exhaust fans serving a conditioned space or habitable room must be fitted with a sealing device such as a self-closing damper in accordance with NSW J5D6.

NSW J5D7 Construction of ceilings, walls and floors

- 1) Ceilings, walls, floors and any opening such as a window frame, door frame, roof light frame or the like that is constructed as part of this development must be constructed to minimise air leaking in accordance with
(2) When forming part of the envelope in climate zone 7.
- 2) Construction required by (1) must be –
 - a. Enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or
 - b. Sealed at junctions and penetrations with –
 - i. Closed fitting architrave, skirting or cornice; or
 - ii. Expanding foam, rubber compressible strip; caulking or the like.
- 3) The requirements of (1) do not apply to openings, grilles or the like required for smoke hazard management.

- Construction of ceilings, walls and floors, where altered as part of this development, must comply with NSW J5D7.

NSW J5D8 Evaporative coolers

- An evaporative cooler, if applicable to this development, must be fitted with a self-closing damper or the like when serving a heated space.

Part J6 Air Conditioning and Ventilation

The provisions for the efficiency and control of air-conditioning, space heating and ventilation equipment, the efficiency, sealing and insulation requirements for ductwork systems containing fans, and for the efficiency and insulation of pipework and pump systems are set out in Attachment A – Extract of NCC 2022 Part J6 Air-conditioning and ventilation.

- The air conditioning supplier must certify that the installation complies with Part J6 Air-conditioning and ventilation of NCC 2022 at [Attachment A](#).

Part J7 Artificial lighting and power

NSW J7D3(2) Artificial lighting

The aggregate design illumination power load in a Class 3 or Class 5 to 9 building must not exceed the allowances as defined by NSW J7D3(2) and Table J7D3a as defined in Attachment B.

- The lighting supplier must certify that artificial lighting complies with NSW J7D3(2) of NCC 2022 at Attachment C.

NSW J7D4(4) Interior artificial lighting and power control

95% of the light fittings in a building, other than a Class 3 building of more than 250m² must be controlled by

- a) A time switch in accordance with Attachment B Specification 40; or
- b) An occupant sensing device such as
 - i. A security key card reader that registers a person entering and leaving a building; or
 - ii. A motion detector in accordance with Attachment B Specification 40.

- The lighting supplier must certify that artificial lighting and power control complies with NSW J7D3 and Specification 40 at Attachment B.

NSW J7D7 Boiling water and chilled water storage units

Boiling water and chilled water storage units must be fit with a time switch capable of switching on and off electric power at variable pre-programmed times and on variable pre-programmed days and in accordance with NSW J7D7.

A time switch for boiling water or chilled water storage units must be capable of being overridden by a manual switch or a security access system that senses a person's presence, overrides for a period of up to 2 hours, after which if there is no further presence detected, the time switch must resume control.

- Boiling water and chilled water storage units must be fit with a time switch with manual override capability and efficiency measures as applicable and in accordance with NSW J7D7.

NSW J7D8 Lifts

Not applicable to this development.

NSW J7D9 Escalators and moving walkways

Not applicable to this development.

NSW J8D3 Swimming pool heating and pumping

Not applicable to this development.

NSW J8D4 Spa pool heating and pumping

Not applicable to this development.

Part J9 Energy monitoring and on-site distributed energy resources

NSW J9D3 Facilities for energy monitoring

Not applicable to this development.

NSW J9D4 Facilities for electric vehicle charging equipment

Not applicable to this development with no dedicated carparking.

NSW J9D5 Facilities for solar photovoltaic and battery systems

A building must have features that facilitate the future installation of on-site renewable energy generation and storage as per J1P4.

- 1) The main electrical switchboard of a building must
 - a. Contain at least two empty three-phase circuit breaker slots and four DIN rail spaces labelled to indicate the use of each space for
 - i. A solar photovoltaic system; and
 - ii. A battery system; and
 - b. Be sized to accommodate the installation of solar photovoltaic panels producing their maximum electrical output on at least 20% of the building roof area.
- 2) At least 20% of the roof area of a building must be left clear for the installation of solar photovoltaic panels, except for buildings
 - a. With installed solar photovoltaic panels on
 - i. At least 20% of the roof area; or
 - ii. An equivalent generation capacity elsewhere on-site; or
 - b. Where 100% of the roof area is shaded for more than 70% of daylight hours; or
 - c. With a roof area of not more than 55m²; or
 - d. Where more than 50% of the roof area is used as a terrace, carpark, roof garden, roof light or the like.

Limitations

- 1) The requirements of J9D5(1)(a)(i) and (b) do not apply to a building with solar photovoltaic panels installed on at least 20% of the roof area.
- 2) The requirements of J9D5(1)(a)(ii) and (b) do not apply to a building with battery systems installed.

- The main electrical switchboard must be sized to install future solar PV panels on at least 20% of the building roof area and at least 20% of the roof area is left clear for installation of solar PV system, with exception to the limitations defined under J9D5.

Attachments

- A – Air Conditioning
- B – Lighting and Power

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