



SECTION J – ENERGY EFFICIENCY

NCC 2022, Volume 1

NCC Compliance Assessment of:

61 – 63 Bradley Street, Goulburn

NCC Class 3 (main) and Class 5 (office)/Class 6 (café)

Climate Zone 7

Goulburn Mulwaree Council

V1.0

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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 development at 61-63 Bradley Street, Goulburn as defined in NSW J4D2:

NSW J4D3	<ul style="list-style-type: none"> All reflective and bulk insulation must be installed in accordance NSW J4D3 Thermal Construction.
NSW J4D4	<ul style="list-style-type: none"> Add minimum R3.0 to ceiling plus R1.3 reflective roof blanket to metal roof and R3.5 beneath suspended slab of roof terrace in accordance with NSW J4D4. The solar absorptance of the upper surface of the roof must be not more than 0.45.
NSW J4D6	<ul style="list-style-type: none"> Glazing for the Class 3 co-living units achieves U1.1 with Maximum U-value 4.3; SHGC ≤ 0.41 as calculated in accordance with NSW J4D6 using Method 2 (Multiple aspects). Refer to Attachment A.1. Glazing for mixed Class 5/6 achieved U2.0 with existing double hung windows assumed timber framed, single glaze clear glass and new sliding windows Maximum U-value 4.2; SHGC ≤ 0.41 as calculated in accordance with NSW J4D6 using Method 2 (Multiple aspects). Refer to Attachment A.2. External walls: Brick cavity (Class 3) R1.8 for Class 3 building and Class 5/6 for new walls with sisalation 0.05 emittance and 20mm airspace; Lightweight cladding (FC): R2.0 for Class 3 building with sisalation 0.05 emittance and 20mm airspace Internal walls: Brick Cavity to unconditioned stairwell (Class 3) R2.04; Single Brick (to unconditioned spaces) (Class 3): R2.4
NSW J4D7	<ul style="list-style-type: none"> Add R-2.0 to suspended, exposed floors for Class 3 building and Class 5/6 (if replacing). New slab on ground is compliant with J4D7, provided no in-slab or in-screed heating or cooling system (otherwise NSW J4D7 (3) and (4) apply)
NSW J5D5	<ul style="list-style-type: none"> Entrance doors must have a self-closing door and seal to restrict air infiltration in accordance with J5D5.
NSW J5D6	<ul style="list-style-type: none"> Exhaust fans serving a conditioned space or habitable room must be fitted with a sealing device such as a self-closing damper
NSW J5D7	<ul style="list-style-type: none"> Construction of ceilings, walls and floors must be constructed to minimise air leakage in accordance with NSW J5D7.
Part J6	<ul style="list-style-type: none"> The air conditioning supplier must certify that the installation complies with Part J6 Air-conditioning and ventilation of NCC 2022 at Attachment C.
NSW J7D3(2)	<ul style="list-style-type: none"> The lighting supplier must certify that artificial lighting complies with NSW J7D3(2) of NCC 2022 at Attachment B.
NSW J7D4(4)	<ul style="list-style-type: none"> The lighting supplier must certify that artificial lighting and power control complies with NSW J7D3 and Specification 40 at Attachment C.
NSW J7D7	<ul style="list-style-type: none"> 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	<ul style="list-style-type: none"> 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 and energy efficiency class defined in NSW J7D8 Lifts.
NSW J9D3	<ul style="list-style-type: none"> • Install energy meters configured to record the time-of-use consumption of electricity (and gas if applicable) with envelop more than 500m2.
NSW J9D4	<ul style="list-style-type: none"> • The development must have features that facilitate the future installation of electric vehicle charging equipment in accordance with NSW J9D4 including being sized to support the future installation of 7kW (32 A) type 2 electric vehicle chargers for 20% car spaces associated Class 3.
NSW J9D5	<ul style="list-style-type: none"> • 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 development at 61-63 Bradley 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
Title	A-01
Site Survey	40288
General Notes	A-03
Site Plan	A-04
Ground Floor Plan	A-05
First Floor Plan	A-06
Second Level Floor Plan	A-07
Roof Top Terrace Plan	A-08
Elevations	A-09
Elevations	A-10
3D Concept	A-11
Shadow Diagrams	A-12
Shadow Diagrams	A-13
Shadow Diagrams	A-14

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 3 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 3 building, Performance Requirement J1P4 is satisfied by complying with J9D4 and J9D5.

Part J3 Class 2 /Class 4 part of building

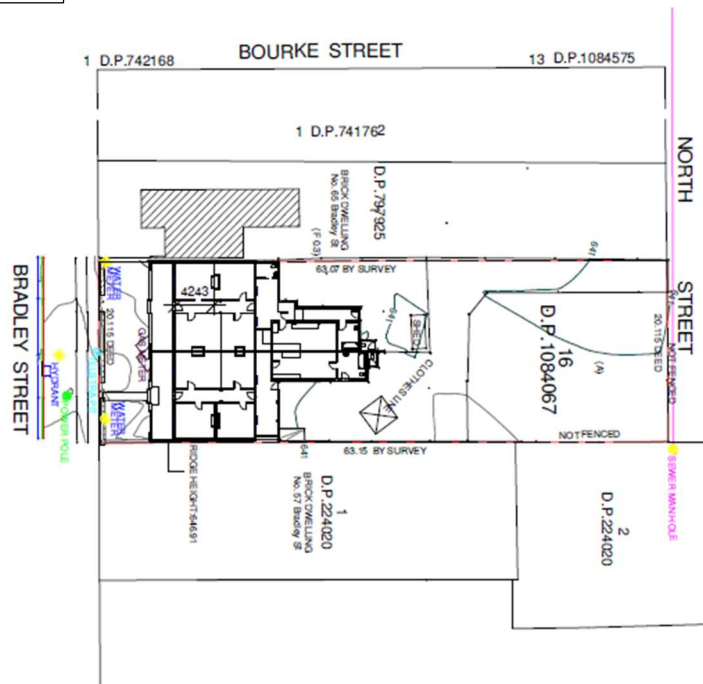
Not applicable to this development.

Part J4 Building Fabric

NSW J4D2

The building elements forming the envelop assessed in this report is limited to the extent of the new proposed building and/or alterations to building elements forming the envelop of the existing building shown in Figure 2¹. 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: Existing



The DTS Provisions have been applied to the building envelope (including roofs, ceilings, roof lights, walls, glazing and floors), highlighted in Figure 2 to the extent required under NSW J1P1 and Section 19(c) of the *Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021*:

Figure 2: Envelop



1 SECOND FLOOR PLAN
1:200 @ A3

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 1: Calculations for Total R-Value of roof and ceiling construction				
Type	Total R-Value required	R-Value of construction ²		R-Value of insulation required
Metal Roof	3.7 Upward direction of heat flow	Facing external		~ R3.0 to ceiling plus R1.3 reflective roof blanket to roof
		Outdoor air film	0.03	
		Metal cladding	0.00	
		Reflective air space (ventilated roof space) emittance < 0.05	0.34	
		Plasterboard 10mm	0.06	
		Indoor air film	0.11	
		Total	0.55	
		Lined suspended concrete slab (Roof Terrace)	3.7 Upward direction of heat flow	
Outdoor air film	0.03			
Concrete or terra cotta tiles 8mm @ 0.81 W/m.K	0.01			
Suspended concrete slab 200mm	0.14			
Plasterboard 10mm	0.06			
Indoor air film	0.11			
Total	0.35			

² As per NCC 2022 Specification 36 Material Properties

- Add minimum R3.0 to ceiling plus R1.3 reflective roof blanket to metal roof and R3.5 beneath suspended slab of roof terrace in accordance with NSW J4D4.
- The solar absorptance of the upper surface of a roof must be not more than 0.45

NSW J4D5 Roof Lights

Not applicable to this development.

NSW J4D6 Walls and 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 U1.1 for a Class 3 building other than a ward area and U2.0 for a Class 5/6 building.
- 2) The Total System U-Value of display glazing² 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
 - a) R1.0 where a wall is <80% of the area of the wall-glazing construction; or
 - b) R2.8 as per NSW Table J4D6a for Class 3 building and R1.4 for a Class 5/6 building in Climate Zone 7 with >80% wall area

NSW Table NSW J4D6a: Minimum wall Total R-Value - Wall area 80% or more of wall-glazing construction area

Climate zone	Class 5, 6, 7, 8 or 9b building or a Class 9a building other than a ward area	Class 3 or 9c building or Class 9a ward area
1	2.4	3.3
2	1.4	1.4
3	1.4	3.3
4	1.4	2.8
5	1.4	1.4
6	1.4	2.8
7	1.4	2.8
8	1.4	3.8

- Glazing for the Class 3 co-living units achieves U1.1 with Maximum U-value 4.3; SHGC ≤ 0.41 as calculated in accordance with NSW J4D6 using Method 2 (Multiple aspects). Refer to [Attachment A.1](#).
- Glazing for mixed Class 5/6 achieved U2.0 with existing double hung windows assumed timber framed, single glaze clear glass and new sliding windows Maximum U-value 4.2; SHGC ≤ 0.41 as calculated in accordance with NSW J4D6 using Method 2 (Multiple aspects). Refer to [Attachment A.2](#).
- External walls: Brick cavity (Class 3) R1.8 for Class 3 building and Class 5/6 for new walls with sisalation 0.05 emittance and 20mm airspace; Lightweight cladding (FC): R2.0 for Class 3 building with sisalation 0.05 emittance and 20mm airspace
- Internal walls: Brick Cavity to unconditioned stairwell (Class 3) R2.04; Single Brick (to unconditioned spaces) (Class 3): R2.4

Table 3	Total R-Value required	R-Value of construction ³		R-Value of insulation required
External Wall – New Brick Cavity (Class 3)	2.8	Outdoor air film	0.03	~ R1.8 for Class 3 building with insulation 0.05 emittance and 20mm airspace
		Brickwork 110mm	0.18	
		(Reflective non-ventilated as per NCC Table S36C2i) Inner reflective surface of 0.05 emittance and 20mm airspace to the wall lining	0.61	
		Brickwork 110mm	0.18	
		Indoor air film	0.12	
		Total	1.12	2.92
Internal Party Wall – Brick Cavity to unconditioned stairwell (Class 3)	2.8	Indoor air film	0.12	~ R2.04 for Class 3 building
		Brickwork 110mm	0.18	
		Airspace (non-reflective, non-ventilated) as per NCC Table S36C2h	0.16	
		Brickwork 110mm	0.18	
		Indoor air film	0.12	
		Total	0.76	2.80
Internal Party Wall – Single Brick (to unconditioned spaces) (Class 3)	2.8	Indoor air film	0.12	~ R2.4 for Class 3 building
		Brickwork 110mm	0.18	
		Indoor air film	0.12	
		Total	0.42	2.80

Table 3	Total R-Value required	R-Value of construction ³		R-Value of insulation required
External Wall – Lightweight Cladding (Class 3)	2.8	Outdoor air film	0.03	~ R2.0 for Class 3 building with insulation 0.05 emittance and 20mm airspace
		Fibre cement (FC) 8mm sheeting	0.03	
		(Reflective non-ventilated as per NCC Table S36C2i) Inner reflective surface of 0.05 emittance and 20mm airspace to the wall lining	0.61	
		Plasterboard 10mm	0.06	
		Indoor air film	0.12	
		Total	0.85	2.85

The solar admittance of externally facing wall-glazing construction, excluding wall-glazing construction which is wholly internal, must not be greater than the value specified in NSW Table J4D6b for Class 5/6 building.

³ As per NCC Specification 36 Material Properties

NSW Table J4D6b: Maximum wall-glazing construction solar admittance - Class 5, 6, 7, 8 or 9b building or Class 9a building other than a ward area

Climate zone	Eastern aspect solar admittance	Northern aspect solar admittance	Southern aspect solar admittance	Western aspect solar admittance
1	0.12	0.12	0.12	0.12
2	0.13	0.13	0.13	0.13
3	0.16	0.16	0.16	0.16
4	0.13	0.13	0.13	0.13
5	0.13	0.13	0.13	0.13
6	0.13	0.13	0.13	0.13
7	0.13	0.13	0.13	0.13
8	0.2	0.2	0.42	0.36

NSW J4D7 Floors

- 1) A floor 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.
- 2) For the purpose 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 for Class 5, 6, 7, 8.
- 3) If there is to be installed an in-slab or in-screed heating or cooling system (other than where used solely in a bathroom, amenity area or the like), the Total R-Value of the floor needs to achieve a Total R-Value of 3.25 including the vertical edge of the slab perimeter having an R-Value greater than or equal to 1.0.

- 4) Additionally, if an in-slab or in-screed heating or cooling system is used, the insulation must be water resistant and be continuous from the adjacent finished ground level to a depth not less than 300mm; or for the full depth of the vertical edge of the concrete slab-on-ground.

- Add R-2.0 to suspended, exposed floors for Class 3 building.
- New slab on ground is compliant with J4D7, provided no in-slab or in-screed heating or cooling system (otherwise NSW J4D7 (3) and (4) apply)

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

Not applicable to this development.

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 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 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 must comply with NSW J5D7.

NSW J5D8 Evaporative coolers

Not applicable to this development.

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 B – 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 B.

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 C.

- 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 C 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 C Specification 40.

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

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

Lifts must –

- (a) Be configured to ensure artificial lighting and ventilation in the car are turned off when it is unused for 15 minutes; and
- (b) Achieve the idle and standby energy performance level in Table J7D8a; and
 - a. Achieve the energy efficiency class in Table J7D8b; or
 - b. If a dedicated goods lift, energy efficiency Class D in accordance with ISO 25745-2.

Table J7D8a Lift idle and standby energy performance level

Rated load	Idle and standby energy performance level in accordance with ISO 25745-2 ^{Note}
Less than or equal to 800 kg	2
801 kg to less than or equal to 2000 kg	3
2001 kg to less than or equal to 4000 kg	4
Greater than 4000 kg	5

▼ Table Notes

Applies to the standby power used after 30 minutes.

Table J7D8b Lift energy efficiency class

Usage category in accordance with ISO 25745-2	Energy efficiency class in accordance with ISO 25745-2
1-4	C
> 5	D

- 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 and energy efficiency class defined in NSW J7D8 Lifts.

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

- The floor area of the envelope is more than 500m² and must have energy meters configured to record the time-of-use consumption of electricity [and gas if applicable].
- This development is <2,500 m², so there is no requirement for the facility to record individual time-of-use energy data recording for systems noted in NCC 2022 J9D3 (2).

- Install energy meters configured to record the time-of-use consumption of electricity (and gas if applicable) with envelop more than 500m².

NSW J9D4 Facilities for electric vehicle charging equipment

A building must have features that facilitate the future installation of electric vehicle charging equipment as per J1P4.

- 1) Subject to (2), a carpark associated with a Class 2, 3, 5, 6, 7b, 8 or 9 building must be provided with electrical distribution boards dedicated to electric vehicle charging –
 - a. In accordance with Table J9D4 in each storey of the carpark; and
 - b. Labelled to indicate use for electric vehicle charging equipment.

Table J9D4: Electric vehicle distribution board requirement for each storey of a carpark

Carpark spaces per storey for electric vehicles	Electrical distribution boards for electric vehicle charging per storey
0 - 9	0
10 - 24	1
25 - 48	2
49 - 72	3
73 - 96	4
97 - 120	5
121 - 144	6
145 - 168	7

Table Notes

Where there are more than 168 *carpark* spaces per *storey*, one additional distribution board must be provided for each additional 24 spaces or part thereof.

- 2) Electrical distribution boards dedicated to serving electrical vehicle charging in a carpark must –
 - a. Be fitted with a charging control system with the ability to manage and schedule charging of electric vehicles in response to total building demand; and
 - b. When associated with a Class 2 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00pm to 7:00am daily; and
 - c. When associated with a Class 5 to 9 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 12 kWh from 11:00pm to 7:00 am daily; and
 - d. When associated with a Class 3 building, have capacity for each circuit to support an electric vehicle charger able to deliver a minimum of 48 kWh from 11:00pm to 7:00 am daily; and
 - e. Be sized to support the future installation of a 7kW (32 A) type 2 electric vehicle charger in
 - i. 100% of the car parking spaces associated with a Class 2 building; or
 - ii. 10% of car parking spaces associated with a Class 5 or 6 building; or
 - iii. 20% of car parking spaces associated with a Class 3, 7b, 8 or 9 building; and
 - f. Contain space of at least 36mm width of DIN rail per outgoing circuit for individual sub-circuit electricity metering to record electricity use of electrical vehicle charging equipment; and
 - g. Be labelled to indicate the use of the space required by (f) is for the future installation of metering equipment.

- The development must have features that facilitate the future installation of electric vehicle charging equipment in accordance with NSW J9D4 including being sized to support the future installation of 7kW (32 A) type 2 electric vehicle chargers for 20% car spaces associated with Class 3.

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.

Disclaimer

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<End Report>

Attachments

- A.1 Façade Calculator: Class 3 building
- A.2 Façade Calculator: Class 5/6 area of development
- B HVAC
- C Lighting