Date: 24 October 2023
Our Ref: P230133(4)

NSW Land and Housing Corporation
C/- Brewster Murray Architecture
Level 6, 99 York Street Sydney NSW 2000
Att: Mr Anthony Geck

Dear Anthony,

RE: Units 1 to 7 and 13 to 18, 64 - 70 Stapleton Ave, Casino
BCA COMPLIANCE ASSESSMENT

Please find enclosed our BCA Compliance Report prepared in respect of the proposed design contained within the architectural documentation provided.

In reviewing the content of this Report, particular attention is drawn to the content of Parts 2, 3 and 4, as: –

- Part 3 Provides a Key point summary

- Part 4 summarizes the compliance status of the proposed design in terms of each prescriptive provision of the BCA.

  The inclusion of this summary enables an immediate understanding of the compliance status of the proposed design to be obtained.

- Part 5 contains a detailed analysis of the proposed design, and provides informative commentary & recommendation in respect of each instance of prescriptive non-compliance and area of preliminary only (design) detail, as applicable.

  This commentary enables the project team to readily identify and understand the nature and extent of information required within the Construction Certificate application to demonstrate the attainment of BCA compliance.

Should you require any further information, please do not hesitate to contact me on the number provided.

Yours faithfully

Kieran Tobin
Director

BCA COMPLIANCE ASSESSMENT

PREPARED FOR

NSW Land and Housing Corporation

REGARDING
Units 1 to 7 and 13 to 18,
64 - 70 Stapleton Ave, Casino

Prepared By

BCAvision

REPORT REGISTER

The following report register documents the development and issue of this report and project as undertaken by this office, in accordance with the *Quality Assurance* policy of BCA Vision Pty Ltd.

Our Reference	Issue No.	Remarks	Issue Date
P230133	4	Design Compliance Report	24 October 2023
Author		Kieran Tobin Senior NCC Consultant Registered Building Surveyor - Fair Trading no 0409 Grad Dip Building Surveying UWS	

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1.0 INTRODUCTION

1.1 GENERAL

This "BCA Compliance Assessment" report has been prepared at the request of NSW Land and Housing Corporation, and relates to the premises located at Units 1 to 7 and 13 to 18, 64 - 70 Stapleton Ave, Casino.

The project proposal is for construction of new two storey residential unit buildings.

1.2 REPORT BASIS

The content of this report reflects –

(a) The principles and provisions of BCA 2022, Parts B, C, D, E, F and J;

(b) Architectural documentation provided by Brewster Murray Architecture

Plan Reference	Plan Description	Dated
DA04	Site Plan	17/10/23
DA05	Ground Floor Plan	17/10/23
DA06	First Floor Plan	17/10/23
DA07	Roof Plan	17/10/23
DA08	Elevation	17/10/23
DA09	Elevation	17/10/23
DA10	Section	17/10/23

(c)

1.3 EXCLUSIONS

It is conveyed that this report should not construed to infer that an assessment for compliance with the following has been undertaken –

(a) Structural and services design documentation;
(b) General building services;
(c) The individual requirements of service providers (i.e. Telstra, Water Supply, Energy Australia);
(d) The individual requirements of the Workcover Authority;
(e) Disability Discrimination Act (DDA);
(f) Assessment of any structural elements or geotechnical matters relating to the building, including any;
(g) Consideration of any fire services operations (including hydraulic, electrical or other systems);
(h) Assessment of plumbing and drainage installations, including stormwater;
(i) Assessment of mechanical plant operations, electrical systems or security systems;
(j) Heritage significance;
(k) Consideration of energy or water authority requirements;
(l) Consideration of Council's local planning policies;
(m) Environmental or planning issues;
(n) Requirements of statutory authorities;
(o) Sections G, H or I of the BCA are not considered;

(p) This report has been prepared for the exclusive use of the client referred to on the cover sheet of this report. We do not warrant or accept liability for the reliance upon or use of this report by anyother party.

(q) The report considers matters of a significant nature only and should not be considered exhaustive.

(r) The report does not consider structural adequacy of the building.

1.4 REPORT PURPOSE

The purpose of this report is to identify the extent to which the proposed plans may comply with the relevant prescriptive provisions of BCA 2022, Parts B, C, D, E, F and J

Assessment of the proposed design considers each prescriptive BCA provision, and identifies such as either: –

(a) Being complied with; or

(b) Not being complied with; or

(c) Requiring the provision further detail with the future Building Permit or other application or

(d) Not being relevant to the particular building works proposal.

The status of the design, in terms of these four (4) categories, is summarised within Part 3 of this report.

Where prescriptive non-compliance is identified, suitable recommendations to remedy the non-compliance shall be detailed in Part 4.

In instances where preliminary only detail exists, summary of the information required from the project team for inclusion within future applications (i.e. Construction Certificate) shall also be outlined in Part 4.

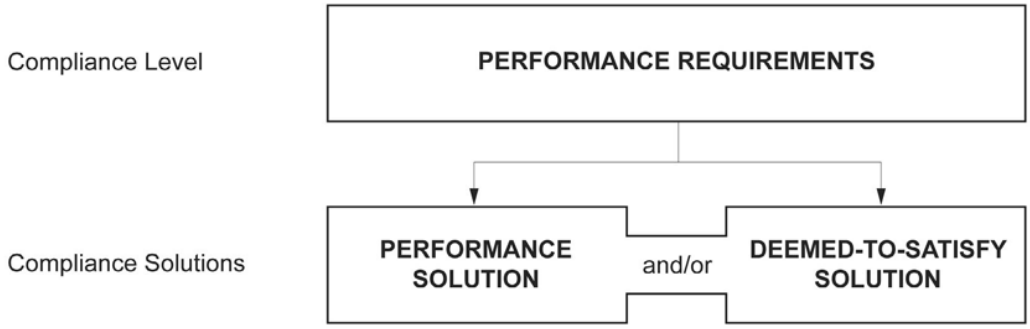
2.0 MATTERS IDENTIFIED / RECOMMENDATIONS

2.1 COMPLIANCE PATHWAYS WITHIN THE BCA

Compliance with the NCC is achieved by complying with—
(1) the Governing Requirements of the NCC; and
(2) the *Performance Requirements*.

A2.1 Compliance with the Performance Requirements
Performance Requirements are satisfied by one of the following, as shown in Figure 1:
(1)A *Performance Solution*.
(2)A *Deemed-to-Satisfy Solution*.
(3)A combination of (1) and (2)**.**

Figure 1: NCC compliance option structure



2.2 KEY COMPLIANCE ISSUES IDENTIFIED

The following table provides a list of key compliance issues within the proposed design.

Deemed-To-Satisfy Compliance – Key Considerations		
Item No.	**BCA Clause**	**Comment**
1.	C2D2, Spec 5	All building elements to achieve the fire resistance levels of TypeB Construction as outlined in Specification 5 (Refer Clause 3.4 of this report). Sectional Wall details will be required to clarify the FRLs required have been achieved Further detail is required for the nominated wall schedule to include the actual wall system reference numbers and the FRL achieved by each system
2.	C2D10	The following elements and their components are required to be non-combustible: • • External walls and common walls, including all components incorporated in them including the façade covering, framing and insulation. • • Non-loadbearing internal walls where they are

		required to be fire-resisting. Buildings of type B construction to have external walls including all components incorporated in them including the facade covering, framing and insulation to be non-combustible. Details to be provided with the application for CC. Evidence of suitability under BCA A5.2 via the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory, or a certificate or report from a professional engineer for each non-combustible building element.
3.	C2D14	An ancillary elements must not be fixed, installed or attached to the internal parts or external face of an external wall that is required to be non-combustible unless it complies with the allowable points in C1.14. The architect/structural engineer is to provide evidence of suitability under BCA A5.2 via the following; a) a current CodeMark certificate, b) a current certificate of Accreditation, c) a report issued by an Accredited Testing Laboratory or a certificate
4.	C3D13 C3D14	If the Main Switch Board Enclosure require elements identified in either clause C3D13 or C3D14 (please clarify with Services Engineer) the enclosure will require 120/120/120 Fire separation from the remainder of the building and a self closing -/120/20 Fire Door
5.	D3D9	Under Stair Enclosure The NBN Cupboard positioned beneath the stairs requires 60/60/60 fire separation and a self closing -/60/30 fire door
6.	Part D4D	Building Access An Access Assessment Report will be required Note it must be at "Construction Stage" issue prior to release of a Crown Certificate

2.3 ADDITIONAL PRE CC DOCUMENTATION

The following table provides a list of additional items which may be required by the PCA:-

Seq	Requirement
1.	A Door Schedule is required to determine compliance with the requirements of BCA Exit Doors – Clause D3D25, D326 and Part D4 Common Area Doors – Clause C4D12 and Clause 13 of AS 1428.1 - 2009
2.	A Window Schedule is required to determine compliance with the Light and Ventilation requirements of BCA Part F6
3.	Additional Part D4 Access requirements Colour contrast at Doors

	Slip resistance of floors Walkway sections Stair section
4.	Fire Hazard Certificates for floor linings
5.	Copy of BASIX
6.	Copy of individual NATHERS
7.	Copy of Structural Engineers Design Compliance Certificate and Services Plans Structural Engineers Design Compliance Certificate Confirm compliance with:- AS 3600 Concrete Structures AS 3700 Masonry Structures AS 1684 Timber Framed Construction
8.	Cladding Provide an AS 1530.1 Fire test Certificate for the system
9.	Provide AS 1530.1 Fire Test Certificate for insulation
10.	Provide AS 1530.3 Fire Test Certificate for sarking
11.	Provide AS 1530.1 Fire Test Certificate for building attachments – privacy screens etc
12.	Copy of Final Mechanical Services Engineers Design Compliance Certificate and Services Plans
13.	Copy of Final Hydraulic Services Engineers Design Compliance Certificate and Services Plans Note the Certificate must reference compliance with Clause E12D2, AS 2419.1 – 2021
14.	Copy of Final Civil Stormwater Services Engineers Design Compliance Certificate and Services Plans
15.	Copy of Electrical Services Engineers Design Compliance Certificate Confirm compliance with *Automatic Smoke Detection and Alarm System* Part E2 of the BCA and Specification 20 AS 3786-2014; AS 1670 - 2018 *Emergency Lighting and Exit Signs* BCA Part E4 of the BCA, and the relevant provisions of AS/NZS 2293.1-2018. Artificial Lighting AS/NZS 1680.0.
16.	Part F5 Requirements Details of the Acoustic requirements for Floor/ceiling systems between residential units

3.0 BUILDING DESCRIPTION

3.1 GENERAL

In the context of the Building Code of Australia (BCA), the subject development is described within items 2.2 – 2.6 below.

3.1 RISE IN STOREYS (CLAUSE C1.2)

The building has a rise in storeys of two (2).

3.2 BUILDING CLASSIFICATION (CLAUSE A3.2)

The Building will contain the following classifications

Class	Description
2	Class 2 building is a building containing two or more sole-occupancy units

3.3 Effective Height (Clause A1.1)

The buildings have an effective height of 12m.

3.4 TYPE OF CONSTRUCTION (TABLE C1.1)

Specification 5 - Type B Construction

TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS

Building element	
EXTERNAL WALL (including any column and other building element incorporated within it) or other external building element, where the distance from any *fire-source feature* to which it is exposed is—	
	Class 2
less than 1.5 m	90/ 90/ 90
1.5 to less than 3 m	90/ 60/ 30
3 to less than 9 m	90/ 30/ 30
9 to less than 18 m	90/ 30/–
18 m or more	–/–/–
For non-*loadbearing* parts—	
less than 1.5 m	–/ 90/ 90
1.5 to less than 3 m	–/ 60/ 30
3 m or more	–/–/–
EXTERNAL COLUMN not incorporated in an *external wall*, where the distance from any *fire-source feature* to which itis exposed is—	
For *loadbearing* columns—	
less than 18 m	90/–/–
18 m or more	–/–/–
For non-*loadbearing* columns—	
For non-*loadbearing* columns—	–/–/–
COMMON WALLS and FIRE WALLS—	90/ 90 / 90
INTERNAL WALLS—	
Fire-resisting lift and stair *shafts*—	
Loadbearing	90/ 90/ 90
Fire-resisting stair *shafts*—	
Non-*loadbearing*	–/ 90/ 90
Bounding *public corridors*, public lobbies and the like—	
Loadbearing	60/ 60/ 60
Non-*loadbearing*	–/ 60/ 60

Between or bounding *sole-occupancy units*—	
Loadbearing	60/ 60/ 60
Non-*loadbearing*	–/ 60/ 60
OTHER LOADBEARING INTERNAL WALLS and COLUMNS—	60/–/–
ROOFS	–/–/–

3.5 GENERAL FLOOR AREA LIMITATIONS (TABLE C2.2)

Note – Not applicable to residential portion

3.6 PART B1 - STRUCTURAL PROVISIONS

Structural Engineers Details prepared by an Appropriately qualified Structural Engineer will be required within the Construction Certificate Documentation.
Confirmation will be required that the design achieves compliance with the following standards (where relevant):-

- AS 1170.0 – 2002 – General Principles
- AS 1170.1 – 2002 – Certification of Barriers to Prevent Falls (Dead and Live Loads)
- AS 1170.2 – 2011 – Wind Loads
- AS 1170.4 – 2007 – Earthquake Actions
- AS 3700 – 2018 – Masonry Structures
- AS 3600 – 2018 – Concrete Structures
- AS 4100 – 1998 – Steel Structures
- AS 4600 – 2018 – Cold Formed Steel Structures
- AS 2519- 2009 – Piling Design and Installation
- AS 1720.1 – 2010 – Design of Timber Structures
- AS/NZS 1664.1 and 1664.2 – 1997 – Aluminium Construction
- AS 2047 – 2014 – Windows and External Glazed Doors in Buildings
- AS 1288 – 2006 – Glass In Buildings Selection and Installation
- A building in a *flood hazard area* must comply with the ABCB Standard for Construction of Buildings in Flood Hazard Areas.

4.0 BCA ASSESSMENT – SUMMARY

4.1 GENERAL

The tables contained within items 3.2 – 3.5 below summarise the compliance status of the proposed architectural design in terms of each prescriptive provision of the Building Code of Australia.

For those instances of either "prescriptive non-compliance" or "preliminary only detail", a detailed analysis and commentary is provided within Part 4.

4.2 SECTION C – FIRE RESISTANCE

BCA reference	Complies	Does not comply	Detail Required	Not relevant
C2D1 - Deemed-to-Satisfy Provisions			✓	
C2D4 - Buildings of multiple classification				✓
C2D5 - Mixed types of construction				✓
C2D6 - Two storey Class 2, 3 or 9c buildings				✓
C2D7 - Class 4 parts of buildings				✓
C2D8 - Open spectator stands and indoor sports stadiums				✓
C2D9 - Lightweight construction				✓
C2D10 - Non-combustible building elements			✓	
C2D11 - Fire hazard properties			✓	
C2D12 - Performance of external walls in fire				✓
C2D13 - Fire-protected timber: Concession			✓	
C2D14- Ancillary elements			✓	
C2D15-Fixing of bonded laminated cladding panels			✓	
C3D3 - General floor area and volume limitations				✓
C3D4 - Large isolated buildings				✓
C3D5 - Requirements for open spaces and vehicular access				✓
C3D6 - Class 9 buildings				✓
C3D7 - Vertical separation of openings in external walls				✓
C3D8 - Separation by fire walls				✓
C3D9 - Separation of classifications in the same storey				✓
C3D10 - Separation of classifications in different storeys				✓
C3D11 - Separation of lift shafts				✓
C3D12 - Stairways and lifts in one shaft				✓
C3D13 - Separation of equipment			✓	
C3D14 - Electricity supply system			✓	
C3D15 - Public corridors in Class 2 and 3 buildings				✓
C4D3 - Protection of openings in external walls	✓			
C4D4- Separation of external walls and associated openings in different fire compartments				✓
C4D5- Acceptable methods of protection				✓
C4D6- Doorways in fire walls				✓
C4D7-Sliding fire doors				✓
C4D8- Protection of doorways in horizontal exits				✓
C4D9- Openings in fire-isolated exits				✓
C4D10- Service penetrations in fire-isolated exits				✓
C4D11- Openings in fire-isolated lift shafts			✓	
C4D12- Bounding construction: Class 2 and 3 buildings and Class 4 parts			✓	
C4D13- Openings in floors and ceilings for services			✓	
C4D14- Openings in shafts			✓	
C4D15- Openings for service installations			✓	
C4D16- Construction joints			✓	
C4D17- Columns protected with lightweight construction to achieve an FRL			✓	

4.3 SECTION D – ACCESS AND EGRESS

BCA reference	Complies	Does not comply	Detail Required	Not relevant
D2D3 - Number of exits required	✓			
D2D4 - When fire-isolated stairways and ramps are required				✓
D2D5 - Exit travel distances	✓			
D2D6 - Distance between alternative exits				✓
D2D7 - Height of exits, paths of travel to exits and doorways	✓			
D2D8 - Width of exits and paths of travel to exits	✓			
D2D9 - Width of doorways in exits or paths of travel to exits	✓			
D2D10 - Exit width not to diminish in direction of travel	✓			
D2D12 - Travel via fire-isolated exits	✓			
D2D13 - External stairways or ramps in lieu of fire-isolated exits				✓
D2D14 - Travel by non-fire-isolated stairways or ramps	✓			
D2D15 - Discharge from exits	✓			
D2D16 - Horizontal exits				✓
D2D17 - Non-required stairways, ramps or escalators				✓
D2D18 - Number of persons accommodated				✓
D2D19 - Measurement of distances				✓
D2D20 - Method of measurement				✓
D2D21 - Plant rooms, lift machine rooms and electricity network substations: Concession				✓
D2D22 - Access to lift pits				✓
D2D23 - Egress from primary schools				✓
D3D3 - Fire-isolated stairways and ramps				✓
D3D4 - Non-fire-isolated stairways and ramps			✓	
D3D5 - Separation of rising and descending stair flights				✓
D3D6 - Open access ramps and balconies				✓
D3D7 - Smoke lobbies				✓
D3D8 - Installations in exits and paths of travel			✓	
D3D9 - Enclosure of space under stairs and ramps			✓	
D3D10 - Width of required stairways and ramps				✓
D3D11 - Pedestrian ramps				✓
D3D12 - Fire-isolated passageways				✓
D3D13 - Roof as open space				✓
D3D14 - Goings and risers			✓	
D3D15 - Landings			✓	
D3D16 - Thresholds			✓	
D3D17 - Barriers to prevent falls			✓	
D3D18 - Height of barriers			✓	
D3D19 - Openings in barriers			✓	
D3D20 - Barrier climbability			✓	
D3D21 - Wire barriers				✓
D3D22 - Handrails			✓	
D3D23 - Fixed platforms, walkways, stairways and ladders				✓
D3D24 - Doorways and doors				✓
D3D25 - Swinging doors	✓			
D3D26 - Operation of latch			✓	
D3D27 - Re-entry from fire-isolated exits				✓
D3D28 - Signs on doors				✓
D3D29 - Protection of openable windows			✓	
D3D30 - Timber stairways: Concession				✓
D4D2 -General building access requirements			✓	
D4D3-Access to buildings			✓	
D4D4 -Parts of buildings to be accessible			✓	
D4D5 -Exemptions			✓	
D4D6 -Accessible carparking	✓			
D4D7 -Signage			✓	
D4D8 -Hearing augmentation				✓
D4D9 -Tactile indicators			✓	
D4D10- Wheelchair seating spaces in Class 9b assembly buildings				✓

D4D11-Swimming pools				✓
D4D12-Ramps				✓
D4D13-Glazing on an accessway			✓	

4.4 SECTION E – SERVICES AND EQUIPMENT

BCA reference	Complies	Does not comply	Detail Required	Not relevant
E1D2 - Fire hydrants			✓	
E1D3 -Fire hose reels				✓
E1D4 - Sprinklers				✓
E1D5 - Where sprinklers are required: all classifications				✓
E1D6 - Where sprinklers are required: Class 2 and 3 buildings other than residential care buildings				✓
E1D7 -Where sprinklers are required: Class 3 building used as a residential care building				✓
E1D8 - Where sprinklers are required: Class 6 building				✓
E1D9 - Where sprinklers are required: Class 7a building, other than an open-deck carpark				✓
E1D10 -Where sprinklers are required: Class 9a health-care building used as a residential care building, Class 9c buildings				✓
E1D11 - Where sprinklers are required: Class 9b buildings				✓
E1D12 - Where sprinklers are required: additional requirements				✓
E1D13 -Where sprinklers are required: occupancies of excessive hazard				✓
E1D14 -Portable fire extinguishers				✓
E1D15 -Fire control centres				✓
E1D16 -Fire precautions during construction				✓
E1D17 -Provision for special hazards				✓
E2D3 -General requirements			✓	
E2D4 -Fire-isolated exits				✓
E2D5 -Buildings more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building				✓
E2D6 -Buildings more than 25 m in effective height: Class 5, 6, 7b, 8 or 9b buildings				✓
E2D7 -Buildings more than 25 m in effective height: Class 9a buildings				✓
E2D8 -Buildings not more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building			✓	
E2D9 -Buildings not more than 25 m in effective height: Class 5, 6, 7b, 8 and 9b buildings				✓
E2D10 -Buildings not more than 25 m in effective height: large isolated buildings subject to C3D4				✓
E2D11 -Buildings not more than 25 m in effective height: Class 9a and 9c buildings				✓
E2D12 -Class 7a buildings				✓
E2D13 -Basements (other than Class 7a buildings)				✓
E2D14 -Class 6 buildings – in fire compartments more than 2000 m2: Class 6 building (not containing an enclosed common walkway or mall serving more than one Class 6 sole-occupancy unit)				✓
E2D15 -Class 6 buildings – in fire compartments more than 2000 m2: Class 6 building (containing an enclosed common walkway or mall)				✓
E2D16 -assembly buildings: nightclubs, discotheques and the like				✓
E2D17 - assembly buildings: exhibition halls				✓
E2D18 - assembly buildings: theatres and public halls				✓
E2D19 -Class 9b – assembly buildings: theatres and public halls (not listed in E2D18) including lecture theatres and cinema/auditorium complexes				✓
E2D20 -Class 9b assembly buildings: other assembly buildings (not listed in E2D16 to E2D19)				✓
E2D21 -Provision for special hazards				✓
E3D2 - Lift installations			✓	
E3D3 - Stretcher facility in lifts				✓
E3D4 - Warning against use of lifts in fire				✓
E3D5 - Emergency lifts			✓	
E3D6 -Landings	✓			
E3D7 -Passenger lift types and their limitations			✓	

E3D8 -Accessible features required for passenger lifts			✓	
E3D9 -Fire service controls				✓
E3D10 -Residential care buildings				✓
E3D11 -Fire service recall control switch				✓
E3D12 -Lift car fire service drive control switch				✓
E4D2 -Emergency lighting requirements			✓	
E4D3 -Measurement of distance			✓	
E4D4 -Design and operation of emergency lighting			✓	
E4D5 -Exit signs			✓	
E4D6 -Direction signs			✓	
E4D7 -Class 2 and 3 buildings and Class 4 parts: exemptions				✓
E4D8 -Design and operation of exit signs			✓	
E4D9 -Emergency warning and intercom systems				✓

3.1. SECTION F – HEALTH AND AMENITY

BCA reference	Complies	Does not comply	Detail required	Not relevant
F1D3 - Stormwater drainage			✓	
F1D4 - Exposed joints			✓	
F1D5 - External waterproofing membranes			✓	
F1D6 - Damp-proofing			✓	
F1D7 - Damp-proofing of floors on the ground			✓	
F1D8 - Subfloor ventilation				✓
F2D2 - Wet area construction			✓	
F2D3 - Rooms containing urinals				✓
F2D4 - Floor wastes			✓	
F3D2 - Roof coverings			✓	
F3D3 - Sarking			✓	
F3D4 - Glazed assemblies			✓	
F3D5 - Wall cladding			✓	
F4D1 - Calculation of number of occupants and facilities				✓
F4D2 - Facilities in Class 2 buildings	✓			
F4D4 - Accessible sanitary facilities				✓
F4D5 - Accessible unisex sanitary compartments				✓
F4D6 - Accessible unisex showers				✓
F4D7 - Construction of sanitary compartments	✓			
F4D8 - Interpretation: urinals and washbasins				✓
F4D9 - Microbial (legionella) control				✓
F4D10 - Waste management				✓
F4D12 - Accessible adult change facilities				✓
F5D2 - Height of rooms and other spaces	✓			
F6D2 Provision of natural light			✓	
F6D3 Methods and extent of natural light			✓	
F6D4 Natural light borrowed from adjoining room			✓	
F6D5 Artificial lighting			✓	
F6D6 Ventilation of rooms			✓	
F6D7 Natural ventilation			✓	
F6D8 Ventilation borrowed from adjoining room			✓	
F6D9 Restriction on location of sanitary compartments			✓	
F6D10 Airlocks			✓	
F6D11 Carparks			✓	
F6D12 Kitchen local exhaust ventilation				✓
F7D3 Determination of airborne sound insulation ratings			✓	
F7D4 Determination of impact sound insulation ratings			✓	
F7D5 Sound insulation rating of floors			✓	
F7D6 Sound insulation rating of walls			✓	
F7D7 Sound insulation rating of internal services			✓	
F7D8 Sound isolation of pumps			✓	

3.1. SECTION J – ENERGY EFFICIENCY

BCA reference	Complies	Does not comply	Detail required	Not relevant
Part J0 Energy Efficiency			✓	
Part J1 Building Fabric			✓	
J3.1 Application of Part			✓	
J3.2 Chimneys and Flues				✓
J3.3 Roof Lights			✓	
J3.4 Windows and Doors			✓	
J3.5 Exhaust Fans			✓	
J3.6 Ceiling wall and roof construction			✓	
J3.7 Evaporative Coolers			✓	
J5.2 Air-conditioning system control			✓	
J5.3 Mechanical ventilation system control			✓	
J5.4 Fan systems			✓	
J5.5 Ductwork insulation			✓	
J5.6 Ductwork sealing			✓	
J5.7 Pump systems			✓	
J5.8 Pipework insulation			✓	
J5.9 Space heating			✓	
J5.10 Refrigerant chillers				✓
J5.11 Unitary air-conditioning equipment			✓	
J5.12 Heat rejection equipment				✓
J6.2 Artificial lighting			✓	
J6.3 Interior artificial lighting and power control			✓	
J6.4 Interior decorative and display lighting				✓
J6.5 Exterior artificial lighting			✓	
J6.6 Boiling water and chilled water storage units			✓	
J6.7 Lifts				✓
J6.8 Escalators and moving walkways				✓
J7.2 Heated water supply			✓	
J7.3 Swimming pool heating and pumping				✓
J7.3 Swimming pool heating and pumping				✓
J7.4 Spa pool heating and pumping				✓

5.0 BCA ASSESSMENT – DETAILED ANALYSIS

5.1 GENERAL

With reference to the "BCA Assessment Summary" contained within Part 3 above, the following detailed analysis and commentary is provided.

This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA.
In our opinion compliance with the Building Code of Australia 2022, Volume 1,Parts C, D, E and F can be achieved subject to the implementation of the following details into the Construction documentation.

5.2 SECTION C – FIRE RESISTANCE

CLAUSE	CLAUSE REQUIREMENT	ACTION/RECOMENDATION
C2D2	**Type of construction required** (1)The minimum Type of *fire-resisting construction* of a building must be determined in accordance with Table C2D2, except as allowed for— (a)certain Class 2, 3 or 9c buildings, in C2D6; and (b)a Class 4 part of a building located on the top *storey*, in C2D4(2); and (c)*open spectator stands* and indoor sports stadiums, in C2D8. (2)Each building element must comply with Specification 5 as applicable.	Further Detail is required within the Construction Documentation
C2D10	**Non-combustible building elements** (1)In a building *required* to be of Type A or B construction, the following building elements and their components must be *non-combustible*: (a)*External walls* and *common walls*, including all components incorporated in them including the facade covering, framing and insulation.	Further Detail is required within the Construction Documentation

	(b)The flooring and floor framing of lift pits. (c)Non-*loadbearing internal walls* where they are *required* to be *fire-resisting*. (2)A *shaft*, being a lift, ventilating, pipe, garbage, or similar *shaft* that is not for the discharge of hot products of combustion, that is non-*loadbearing*, must be of *non-combustible* construction in— (a)a building *required* to be of Type A construction; and (b)a building *required* to be of Type B construction, subject to C3D11, in— (i)a Class 2, 3 or 9 building; and (ii)a Class 5, 6, 7 or 8 building if the *shaft* connects more than 2 *storeys*. (3)A *loadbearing internal wall* and a *loadbearing fire wall*, including those that are part of a *loadbearing shafts*, must comply with Specification 5. (4)The requirements of (1) and (2) do not apply to the following: (a)Gaskets. (b)Caulking. (c)Sealants. (d)Termite management systems. (e)Glass, including laminated glass, and associated adhesives, including tapes. (f)Thermal breaks associated with— (i)glazing systems; or (ii)*external wall* systems, where the thermal breaks— (A)are no larger than necessary to achieve thermal objectives; and (B)do not extend beyond one *storey*; and (C)do not extend beyond one *fire compartment*. (g)*Damp-proof courses*. (h)Compressible fillers and backing materials, including those associated with articulation joints, closing gaps not wider than 50 mm. (i)Isolated— (i)construction packers and shims; or (ii)blocking for fixing fixtures; or (iii)fixings, including fixing accessories; or	

	(iv)acoustic mounts. (j)Waterproofing materials applied to the external face, used below ground level and up to 250 mm above ground level. (k)Joint trims and joint reinforcing tape and mesh of a width not greater than 50 mm. (l)Weather sealing materials, applied to gaps not wider than 50 mm, used within and between concrete elements. (m)Wall ties and other masonry components complying with AS 2699 Part 1 and Part 3 as appropriate, and associated with masonry wall construction. (n)Reinforcing bars and associated minor elements that are wholly or predominately encased in concrete or grout. (o)A paint, lacquer or a similar finish or coating. (p)Adhesives, including tapes, associated with stiffeners for cladding systems. (q)Fire-protective materials and components *required* for the protection of penetrations. (5)The following materials, when entirely composed of itself, are *non-combustible* and may be used wherever a *non-combustible* material is *required*: (a)Concrete. (b)Steel, including metallic coated steel. (c)Masonry, including mortar. (d)Aluminium, including aluminium alloy. (e)Autoclaved aerated concrete, including mortar. (f)Iron. (g)Terracotta. (h)Porcelain. (i)Ceramic. (j)Natural stone. (k)Copper. (l)Zinc.	

	(m)Lead. (n)Bronze. (o)Brass. (6)The following materials may be used wherever a *non-combustible* material is *required*: (a)Plasterboard. (b)Perforated gypsum lath with a normal paper finish. (c)Fibrous-plaster sheet. (d)Fibre-reinforced cement sheeting. (e)Pre-finished metal sheeting having a *combustible* surface finish not exceeding 1 mm thickness and where the *Spread-of-Flame Index* of the product is not greater than 0. (f)*Sarking-type materials* that do not exceed 1 mm in thickness and have a *Flammability Index* not greater than 5. (g)Bonded laminated materials where— (i)each lamina, including any core, is *non-combustible*; and (ii)each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and (iii)the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the bonded laminated material as a whole do not exceed 0 and 3 respectively; and when located externally, are fixed in accordance with C2D15.	
C2D11	**Fire hazard properties** (1)The *fire hazard properties* of the following internal linings, materials and assemblies within a Class 2 to 9 building must comply with Specification 7: (a)Floor linings and floor coverings. (b)Wall linings and ceiling linings. (c)Air-handling ductwork. (d)Lift cars. (e)In Class 9b buildings used as a theatre, public hall or the like— (i)fixed seating in the audience area	Further Detail is required within the Construction Documentation

	or auditorium; and (ii)a proscenium curtain *required* by Specification 32. (f)Escalators, moving walkways and non-*required* non *fire-isolated stairways* or pedestrian ramps subject to Specification 14. (g)*Sarking-type materials*. (h)Attachments to floors, ceilings, *internal walls*, *common walls*, *fire walls* and to internal linings of *external walls*. (i)Other materials including insulation materials other than *sarking-type materials*. (2)Paint or fire-retardant coatings must not be used to achieve compliance with the *required fire hazard properties*. (3)The requirements of (1) do not apply to a material or assembly if it is— (a)plaster, cement render, concrete, terrazzo, ceramic tile or the like; or (b)a *fire-protective covering*; or (c)a timber-framed *window*; or (d)a solid timber handrail or skirting; or (e)a timber-faced door; or (f)an electrical switch, socket-outlet, cover plate or the like; or (g)a material used for— (i)a roof insulating material applied in continuous contact with a substrate; or (ii)an adhesive; or (iii)a *damp-proof course*, *flashing*, caulking, sealing, ground moisture barrier, or the like; or (h)a paint, varnish, lacquer or similar finish, other than nitro-cellulose lacquer; or (i)a clear or translucent roof light of glass fibre-reinforced polyester if— (i)the roof in which it is installed forms part of a single *storey* building *required* to be Type C construction; and (ii)the material is used as part of the roof covering; and (iii)it is not closer than 1.5 m from another roof light of the same type; and (iv)each roof light is not more than 14 m2 in area; and (v)the area of the roof lights per 70 m2 of roof surface is not more than 14 m2; or (j)a face plate or neck adaptor of supply and return air outlets of an air handling system; or	

	(k)a face plate or diffuser plate of light fitting and emergency *exit* signs and associated electrical wiring and electrical components; or (l)a joinery unit, cupboard, shelving, or the like; or (m)an attached non-building fixture and fitting such as— (i)a curtain, blind, or similar decor, other than a proscenium curtain *required* by Specification 32; and (ii)a whiteboard, *window* treatment or the like; or (n)timber treads, risers, landings and associated supporting framework installed in accordance with D3D30 where the *Spread-of-Flame Index* and the *Smoke-Developed Index* of the timber does not exceed 9 and 8 respectively; or any other material that does not significantly increase the hazards of fire.	
C2D13	**Fire-protected timber: Concession** *Fire-protected timber* may be used wherever an element is *required* to be *non-combustible*, provided— (a)the building is— (i)a separate building; or (ii)a part of a building— (A)which only occupies part of a *storey*, and is separated from the remaining part by a *fire wall*; or (B)which is located above or below a part not containing *fire-protected timber* and the floor between the adjoining parts is provided with an FRL not less than that prescribed for a *fire wall* for the lower *storey*; and (b)the building has an *effective height* of not more than 25 m; and (c)the building has a sprinkler system (other than a FPAA101D or FPAA101H system) throughout complying with Specification 17; and (d)any insulation installed in the cavity of the timber building element to have an FRL is *non-combustible*; and cavity barriers are provided in accordance with Specification 9.	Further Detail is required within the Construction Documentation
C2D14	**Ancillary elements** An *ancillary element* must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an *external wall* that is *required* to be *non-combustible* unless it is one of the following: (a)An *ancillary element* that is *non-combustible*. (b)A gutter, downpipe or other plumbing fixture or fitting. (c)A flashing. (d)A grate, grille or similar cover not more than 2 m2 in area associated with a building service.	Further Detail is required within the Construction Documentation

	(e)An electrical switch, socket-outlet, cover plate or the like. (f)A light fitting. (g)A *required* sign. (h)A sign other than one provided under (a) or (g) that— (i)achieves a *group number* of 1 or 2; and (ii)does not extend beyond one *storey*; and (iii)does not extend beyond one *fire compartment*; and (iv)is separated vertically from other signs permitted under (h) by at least 2 *storeys*. (i)An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that— (i)meets the relevant requirements of Table S7C7 as for an internal element; and (ii)serves a *storey*— (A)at ground level; or (B)immediately above a *storey* at ground level; and (iii)does not serve an *exit*, where it would render the *exit* unusable in a fire. (j)A part of a security, intercom or announcement system. (k)Wiring. (l)Waterproofing material installed in accordance with AS 4654.2 and applied to an adjacent floor surface, including vertical upturn, or a roof surface. (m)Collars, sleeves and insulation associated with service installations. (n)Screens applied to vents, weepholes and gaps complying with AS 3959. (o)Wiper and brush seals associated with doors, windows or other openings. A gasket, caulking, sealant or adhesive directly associated with (a) to (o).	
C2D15	**Fixing of bonded laminated cladding panels** (1)In a building *required* to be of Type A or B construction, externally located bonded laminated cladding panels must have all layers of cladding mechanically supported or restrained to the supporting frame. (2)An externally located bonded laminated cladding panel need not comply with (1) if it is one of the following: (a)A laminated glass system. (b)Layered plasterboard product. (c)Perforated gypsum lath with a normal paper finish.	Further Detail is required within the Construction Documentation

	(d)Fibrous-plaster sheet. (e)Fibre-reinforced cement sheeting. A component of a garage door.	
C3D13	**Separation of equipment** [2019: C2.12] (1)Equipment other than that described in (2) and (3) must be separated from the remainder of the building with construction complying with (4), if that equipment comprises— (a)lift motors and lift control panels; or (b)emergency generators used to sustain emergency equipment operating in the emergency mode; or (c)central smoke control plant; or (d)*boilers*; or (e)a *battery system* installed in the building that has a total voltage of 12 volts or more and a storage capacity of 200 kWh or more. (2)Equipment need not be separated in accordance with (1) if the equipment comprises— (a)smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification 21; or (b)stair pressurising equipment installed in compliance with the relevant provisions of AS 1668.1; or (c)a lift installation without a machine-room; or (d)equipment otherwise adequately separated from the remainder of the building. (3)Separation of on-site fire pumps must comply with the requirements of AS 2419.1. (4)Separating construction must have— (a)except as provided by (b)— (i)an FRL as *required* by Specification 5, but not less than 120/120/120; and (ii)any doorway protected with a *self-closing* fire door having an FRL of not less than –/120/30; or when separating a lift *shaft* and lift motor room, an FRL not less than 120/–/–.	Further Detail is required within the Construction Documentation
C3D14	**Electricity supply system** (1)An electricity substation located within a building must— (a)be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and (b)have any doorway in that construction protected with a *self-closing* fire door having an FRL of not less than –/120/30. (2)A main switchboard located within the building which sustains emergency equipment operating in	Further Detail is required within the Construction Documentation

	the emergency mode must— (a)be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and (b)have any doorway in that construction protected with a *self-closing* fire door having an FRL of not less than –/120/30. (3)Subject to (4), electrical conductors must— (a)have a classification in accordance with AS/NZS 3013 of not less than— (i)if located in a position that could be subject to damage by motor vehicles — WS53W; or (ii)otherwise — WS52W; or (b)be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120. (4)The requirements of (3) only apply to electrical conductors located within a building that supply— (a)a substation located within the building which supplies a main switchboard covered by (2); or (b)a main switchboard covered by (2). (5)Where emergency equipment is *required* in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated from non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear. (6)For the purposes of (5), emergency equipment includes but is not limited to the following: (a)Fire hydrant booster pumps. (b)Pumps for *automatic* sprinkler systems, water spray, chemical fluid suppression systems or the like. (c)Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building. (d)Air handling systems designed to exhaust and control the spread of fire and smoke. (e)Emergency lifts. (f)Control and indicating equipment. Emergency warning and intercom systems.	
C4D11	**Openings in fire-isolated lift shafts** (1)Doorways — If a lift *shaft* is *required* to be fire-isolated, an entrance doorway to that *shaft* must be protected by –/60/– fire doors that— (a)comply with AS 1735.11; and (b)are set to remain closed except when discharging or receiving passengers, goods or vehicles. (2)Lift indicator panels — A lift call panel, indicator panel or other panel in the wall of a fire-	Further Detail is required within the Construction Documentation

	isolated lift *shaft* must be backed by construction having an FRL of not less than –/60/60 if it exceeds 35 000 mm2 in area.	
C4D12	**Bounding construction: Class 2 and 3 buildings and Class 4 parts** (1)A doorway in a Class 2 or 3 building must be protected if it provides access from a *sole-occupancy unit* to— (a)a *public corridor*, public lobby, or the like; or (b)a room not within a *sole-occupancy unit*; or (c)the landing of an internal non *fire-isolated stairway* that serves as a *required exit*; or (d)another *sole-occupancy unit*. (2)A doorway in a Class 2 or 3 building must be protected if it provides access from a room not within a *sole-occupancy unit* to— (a)a *public corridor*, public lobby, or the like; or (b)the landing of an internal non *fire-isolated stairway* that serves as a *required exit*. (3)A doorway in a Class 4 part of a building must be protected if it provides access to any other internal part of the building. *NSW C4D12(4)* (4)Except as provided in (5), protection for a doorway must be at least— (a)in a building of Type A construction — a *self-closing* –/60/30 fire door; and (b)in a building of Type B or C construction — a *self-closing*, tight fitting, solid core door, not less than 35 mm thick. (5)In a Class 3 building used as a *residential care building* protected with a sprinkler system complying with Specification 17, protection for a doorway must be at least— (a)a tight fitting, solid core door not less than 35 mm thick if the building is divided into *floor areas* not exceeding 500 m2 with smoke proof walls complying with S11C2; or (b)a tight fitting, solid core door not less than 35 mm thick fitted with a *self-closing* device, a delayed closing device or an *automatic* closing device. (6)Other openings in *internal walls* which are *required* to have an FRL with respect to *integrity* and *insulation* must not reduce the *fire-resisting* performance of the wall. (7)A door *required* by (4) or (5) may be *automatic*-closing in accordance with the following: (a)The *automatic*-closing operation must be initiated by the activation of a smoke detector, or	Further Detail is required within the Construction Documentation

	any other detector deemed suitable in accordance with AS 1670.1 if smoke detectors are unsuitable in the atmosphere, installed in accordance with the relevant provisions of AS 1670.1 and located not more than 1.5 m horizontal distance from the approach side of the doorway. (b)Where any other *required* suitable fire alarm system, including a sprinkler system (other than a FPAA101D system) complying with Specification 17, is installed in the building, activation of the system must also initiate the *automatic*-closing operation. (8)The requirements of (9) apply in a Class 2 or 3 building where a path of travel to an *exit*— (a)does not provide a person seeking egress with a choice of travel in different directions to alternative *exits*; and (b)is along an open balcony, landing or the like; and (c)passes an *external wall* of— (i)another *sole-occupancy unit*; or (ii)a room not within a *sole-occupancy unit*. (9)The *external wall* mentioned in (8)(c) must— (a)be constructed of concrete or masonry, or be lined internally with a *fire-protective covering*; and (b)have any doorway fitted with a *self-closing*, tight-fitting solid core door not less than 35 mm thick; and (c)have any *windows* or other openings— protected internally in accordance with C4D5	
C4D13	**Openings in floors and ceilings for services** (1)Where a service passes through— (a)a floor that is *required* to have an FRL with respect to *integrity* and *insulation*; or (b)a ceiling *required* to have a *resistance to the incipient spread of fire*, the service must be installed in accordance with (2). (2)A service must be protected— (a)in a building of Type A construction, by a *shaft* complying with Specification 5; or (b)in a building of Type B or C construction, by a *shaft* that will not reduce the fire performance of the building elements it penetrates; or (c)in accordance with C4D15.	Further Detail is required within the Construction Documentation

	(3)Where a service passes through a floor which is *required* to be protected by a *fire-protective covering*, the penetration must not reduce the fire performance of the covering.	

5.3 SECTION D – ACCESS AND EGRESS

CLAUSE	CLAUSE REQUIREMENT	ACTION/RECOMENDATION
D3D4	**Non-fire-isolated stairways and ramps** [2019: D2.3] In a building having a *rise in storeys* of more than 2, *required* stairs and ramps (including landings and any supporting building elements) which are not *required* to be within a *fire-resisting shaft*, must be constructed according to D3D3, or only of— (a)reinforced or prestressed concrete; or (b)steel in no part less than 6 mm thick; or (c)timber that— (i)has a finished thickness of not less than 44 mm; and (ii)has an average density of not less than 800 kg/m3 at a moisture content of 12%; and (iii)has not been joined by means of glue unless it has been laminated and glued with resorcinol formaldehyde or resorcinol phenol formaldehyde glue.	Further Detail is required within the Construction Documentation
D3D8	**Installations in exits and paths of travel** (1)Access to service *shafts* and services other than to fire-fighting or detection equipment as permitted in the *Deemed-to-Satisfy Provisions* of Section E, must not be provided from a *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp*. (2)An opening to any chute or duct intended to convey hot products of combustion from a boiler, incinerator, fireplace or the like, must not be located in any part of a *required exit* or any corridor, hallway, lobby or the like leading to a *required exit*. (3)Gas or other fuel services must not be installed in a *required exit*. (4)Except for in a fire-isolated *exit* specified in (1), services or equipment enclosed in accordance with (5) may be installed in a *required exit*, or in any corridor, hallway, lobby or the like leading to a *required exit*, where that service or equipment comprises— (a)electricity meters, distribution boards or ducts; or	Further Detail is required within the Construction Documentation

	(b)central telecommunications distribution boards or equipment; or (c)electrical motors or other motors serving equipment in the building. (5)An enclosure for the purposes of (4) must be suitably sealed against smoke spreading from the enclosure and be— (a)*non-combustible* construction; or (b)a *fire-protective covering*. (6)Electrical wiring may be installed in a fire-isolated *exit* if the wiring is associated with— (a)a lighting, detection, or pressurisation system serving the *exit*; or (b)a security, surveillance or management system serving the *exit*; or (c)an intercommunication system or an audible or visual alarm system in accordance with D3D27; or the monitoring of hydrant or sprinkler isolating valves.	
D3D9	**Enclosure of space under stairs and ramps** (1)Fire-isolated stairways and ramps — If the space below a *required fire-isolated stairway* or *fire-isolated ramp* is within the fire-isolated *shaft*, it must not be enclosed to form a cupboard or similar enclosed space. (2)Non fire-isolated stairways and ramps — The space below a *required* non *fire-isolated stairway* (including an external stairway) or non *fire-isolated ramp* must not be enclosed to form a cupboard or other enclosed space unless— (a)the enclosing walls and ceilings have an FRL of not less than 60/60/60; and any access doorway to the enclosed space is fitted with a *self-closing* –/60/30 fire door	Further Detail is required within the Construction Documentation
D3D14	**Goings and risers** (1)A stairway must have— (a)not more than 18 and not less than 2 risers in each *flight*; and (b)going (G), riser (R) and quantity (2R + G) in accordance with Table D3D14, except as permitted by (2) and (3); and (c)constant goings and risers throughout each *flight*, except as permitted by (2) and (3), and the dimensions of goings (G) and risers (R) in accordance with (1)(b) are considered constant if the variation between— (i)adjacent risers, or between adjacent goings, is no greater than 5 mm; and	Further Detail is required within the Construction Documentation

	(ii)the largest and smallest riser within a *flight*, or the largest and smallest going within a *flight*, does not exceed 10 mm; and (d)risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and (e)treads which have— (i)a surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; or (ii)a nosing strip with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; and (f)treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 *storeys*; and (g)in a Class 9b building, not more than 36 risers in consecutive *flights* without a change in direction of at least 30°; and (h)in the case of a *required* stairway, no winders in lieu of a landing. (2)In the case of a non-*required* stairway— (a)the stairway must have— (i)not more than 3 winders in lieu of a quarter *landing*; and (ii)not more than 6 winders in lieu of a half *landing*; and (b)the going of all straight treads must be constant throughout the same *flight* and the dimensions of goings (G) is considered constant if the variation between— (i)adjacent goings, is no greater than 5 mm; and (ii)the largest and smallest going within a *flight*, does not exceed 10 mm; and (c)the going of all winders in lieu of a quarter or half *landing* may vary from the going of the straight treads within the same *flight* provided that the going of all such winders is constant. (3)Where a stairway discharges to a sloping public walkway or public road— (a)the riser (R) may be reduced to account for the slope of the walkway or road; and the quantity (2R+G) may vary at that location.	
D3D15	**Landings** In a stairway— (a)*landings* having a maximum gradient of 1:50 may be used in any building to limit the number of risers in each *flight* and each *landing* must— (i)be not less than 750	Further Detail is required within the Construction Documentation

mm long, and where this involves a change in direction, the length is measured 500 mm from the inside edge of the *landing*; and

(ii)have— (A)a surface with a slip-resistance classification not less than that listed in Table D3D15 when tested in accordance with AS 4586; or D3D15 when tested in accordance with AS 4586, where the edge leads to a *flight* below; and a strip at the edge of the *landing* with a slip-resistance classification not less than that listed in (B)Table

(b)in a Class 9a building— (i)the area of any *landing* must be sufficient to move a stretcher, 2 m long and 600 mm wide, at a gradient not more than the gradient of the stairs, with at least one end of the stretcher on the *landing* while changing direction between *flights*; or

(ii)the stair must have a change of direction of 180°, and the *landing* a clear width of not less than 1.6 m and a clear length of not less than 2.7 m.

Table D3D15:Slip-resistance classification

Application	Dry Surface conditions	Wet surface conditions
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or *landing* surface	P3 or R10	P4 or R11
Nosing or *landing* edge strip	P3	P4

D3D16

Thresholds

The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless— (a)in *patient care areas* in a Class 9a *health-care building*, the door sill is not more than 25 mm above the finished floor level to which the doorway opens; or

(b)in *resident use areas* in a Class 9c building, a ramp is provided with a maximum gradient of 1:8 for a maximum height of 25 mm over the threshold; or

(c)in a building *required* to be *accessible* by Part D4, the doorway— (i)opens to a road or

Further Detail is required within the Construction Documentation

	open space; and (ii)is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or (d)in other cases— (i)the doorway opens to a road or *open space*, external stair landing or external balcony; and (ii)the door sill is not more than 190 mm above the finished surface of the ground, balcony, or the like, to which the doorway opens.	
D3D17	**Barriers to prevent falls** (1)A continuous barrier must be provided along the side of— (a)a roof to which general access is provided; and (b)a stairway or ramp; and (c)a floor, corridor, hallway, balcony, deck, verandah, *mezzanine*, access bridge or the like; and (d)any delineated path of access to a building, if the trafficable surface is 1 m or more above the surface beneath. (2)The requirements of (1) do not apply to— (a)the perimeter of a *stage*, rigging loft, loading dock or the like; or (b)areas referred to in D3D23; or (c)a retaining wall unless the retaining wall forms part of, or is directly associated with a delineated path of access to a building from the road, or a delineated path of access between buildings; or (d)a barrier provided to an openable window covered by D3D29. (3)A barrier *required* by (1) must be constructed in accordance with D3D18, D3D19, D3D20 and, if a wire barrier is used, D3D21.	Further Detail is required within the Construction Documentation
D3D18	**Height of barriers** (1)The height of a barrier *required* by D3D17 must be not less than the following: (a)For stairways or ramps with a gradient of 1:20 or steeper — 865 mm. (b)For *landings* to a stair or ramp where the barrier is provided along the inside edge of the *landing* and does not exceed 500 mm in length — 865 mm.	Further Detail is required within the Construction Documentation

	(c)In front of fixed seating on a *mezzanine* or balcony within an auditorium in a Class 9b building, where the horizontal projection extends not less than 1 m outwards from the top of the barrier — 700 mm. (d)For all other locations — 1 m. (2)For a barrier provided under (1) — (a)barrier heights are measured vertically from the surface beneath, except that for stairways the height must be measured above the nosing line of the stair treads; and (b)a transition zone may be incorporated where the barrier height changes from 865 mm on a stair *flight* or ramp to 1 m at a *landing* or floor.	
D3D19	**Openings in barriers** (1)Except where allowed by (2), openings in a *required* barrier must not allow a 125 mm sphere to pass through. (2)In a *fire-isolated stairway*, *fire-isolated ramp* or other area used primarily for emergency purposes, openings in a *required* barrier— (a)must not allow a 300 mm sphere to pass through; or (b)where rails are used— (i)a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the *landing*, balcony or the like; and (ii)the opening between rails must not be more than 460 mm. (3)In Class 7 (other than *carparks*) and Class 8 buildings, openings in a *required* barrier— (a)must not allow a 300 mm sphere to pass through; or (b)where rails are used— (i)a 150 mm sphere must not be able to pass through the opening between the nosing line of the stair treads and the rail or between the rail and the floor of the *landing*, balcony or the like; and (ii)the opening between the rails must not be more than 460 mm. (4)The requirements of (2) do not apply to external stairways, external ramps, or *fire-isolated*	Further Detail is required within the Construction Documentation

	stairways or *fire-isolated ramps* serving Class 9b *early childhood centres*. (5)For a barrier provided under (1), the maximum 125 mm barrier opening for a stairway, such as a non *fire-isolated stairway*, is measured above the nosing line of the stair treads. (6)Where a *required* barrier is fixed to the vertical face forming an edge of a *landing*, balcony, deck, stairway or the like, the opening formed between the barrier and the face must not exceed 40 mm. (7)For the purposes of (6), the opening is measured horizontally from the edge of the trafficable surface to the nearest internal face of the barrier.	
D3D20	**Barrier climbability** [2019: Table D2.16a] (1)A barrier *required* by D3D17, located on a floor more than 4 m above the surface beneath, must not incorporate horizontal or near horizontal elements that could facilitate climbing between 150 mm and 760 mm above the floor. (2)The requirements of (1) do not apply to— (a)*fire-isolated stairways*, *fire-isolated ramps* and other areas used primarily for emergency purposes, other than— (i)external stairways; and (ii)external ramps; and Class 7 (other than *carparks*) and Class 8 buildings.	Further Detail is required within the Construction Documentation
D3D22	**Handrails** (1)Except for handrails referred to in D3D23, and subject to (2), handrails must— (a)be located along at least one side of the ramp or *flight*; and (b)be located along each side if the total width of the stairway or ramp is 2 m or more; and (c)in a Class 9b building used as a primary *school* or a building that contains an *early childhood centre*— (i)have one handrail fixed at a height of not less than 865 mm; and (ii)in addition to (i), have a handrail— (A)fixed at a height between 665 mm and 750 mm in a primary *school*; and (B)with a cross-sectional dimension not less than 16 mm and not greater than 45 mm as	Further Detail is required within the Construction Documentation

	measured in any direction across its centre, fixed at a height between 450 mm and 700 mm in a Class 9b *early childhood centre*; and (d)in any other case, be fixed at a height of not less than 865 mm; and (e)be continuous between stair *flight* landings and have no obstruction on or above them that will tend to break a hand-hold; and (f)in a *required exit* serving an area *required* to be *accessible*, be designed and constructed to comply with clause 12 of AS 1428.1, except that clause 12(d) does not apply to a handrail *required* by (1)(c)(ii). (2)The height *required* by (1)(c) and (d) is measured above the nosings of stair treads and the floor surface of the ramp, landing or the like. (3)Handrails— (a)in a Class 9a *health-care building* must be provided along at least one side of every passageway or corridor used by patients, and must be— (i)fixed not less than 50 mm clear of the wall; and (ii)where practicable, continuous for their full length; and (b)in a Class 9c *aged care building* must be provided along both sides of every passageway or corridor used by residents, and must be— (i)fixed not less than 50 mm clear of the wall; and (ii)where practicable, continuous for their full length. (4)Handrails *required* to assist people with a disability must be provided in accordance with D4D4. (5)Handrails to a stairway or ramp within a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building must— (a)be located along at least one side of the *flight* or ramp; and (b)be located along the full length of the *flight* or ramp, except in the case where a handrail is associated with a barrier, the handrail may terminate where the barrier terminates; and (c)have the top surface of the handrail not less than 865 mm vertically above the nosings of the stair treads or the floor surface of the ramp; and (d)have no obstruction on or above them that will tend to break a handhold, except for newel	

	posts, ball type stanchions, or the like. (6)The requirements of (5) do not apply to— (a)handrails referred to in D3D23; or (b)a stairway or ramp providing a change in elevation of less than 1 m; or (c)a landing; or a winder where a newel post is installed to provide a handhold.	
D3D26	**Operation of latch** (1)A door in a *required exit*, forming part of a *required exit* or in the path of travel to a *required exit* must be readily openable without a key from the side that faces a person seeking egress, by— (a)a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area *required* to be *accessible* by Part D4— (i)be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and (ii)have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm; or (b)a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor. (2)Where the latch operation device referred to in (1)(b) is not located on the door leaf itself— (a)manual controls to power-operated doors must be at least 25 mm wide, proud of the surrounding surface and located— (i)not less than 500 mm from an internal corner; and (ii)for a hinged door, between 1 m and 2 m from the door leaf in any position; and (iii)for a sliding door, within 2 m of the doorway and clear of a surface mounted door in the open position; and (b)braille and tactile signage complying with S15C3 and S15C6 must identify the latch operation device. (3)The requirements of (1) and (2) do not apply to a door that— (a)serves a vault, strong-room, *sanitary compartment*, or the like; or (b)serves only, or is within— (i)a *sole-occupancy unit* in a Class 2 building or a Class 4 part of a building; or	Further Detail is required within the Construction Documentation

	(ii)a *sole-occupancy unit* in a Class 3 building (other than an entry door to a *sole-occupancy unit* of a boarding house, guest house, hostel, lodging house or backpacker accommodation); or (iii)a *sole-occupancy unit* with a *floor area* not more than 200 m2 in a Class 5, 6, 7 or 8 building; or (iv)a space which is otherwise inaccessible to persons at all times when the door is locked; or (c)complies with (4) and serves— (i)Australian Government Security Zones 4 or 5; or (ii)the secure parts of a bank, *detention centre*, mental health facility, *early childhood centre* or the like; or (d)is fitted with a fail-safe device which *automatically* unlocks the door upon the activation of any sprinkler system (other than a FPAA101D system) complying with Specification 17 or smoke, or any other detector system deemed suitable in accordance with AS 1670.1 installed throughout the building, and is readily openable when unlocked; or (e)is in a Class 9a or 9c building and— (i)is one leaf of a two-leaf door complying with D2D9(1)(a) or D2D9(1)(d) provided that it is not held closed by a locking mechanism and is readily openable; and (ii)the door is not *required* to be a fire door or smoke door. (4)A door referred to in (3)(c) must be able to be immediately unlocked— (a)by operating a fail-safe control switch, not contained within a protective enclosure, to actuate a device to unlock the door; or (b)by hand by a person or persons, specifically nominated by the owner, properly instructed as to the duties and responsibilities involved and available at all times when the building is lawfully occupied so that persons in the building or part may immediately escape if there is a fire. (5)The requirements of (1) and (2) do not apply in a Class 9b building (other than a *school*, an *early childhood centre* or a building used for religious purposes) to a door in a *required exit*, forming part of a *required exit* or in the path of travel to a *required exit* serving a *storey* or room accommodating more than 100 persons, determined in accordance with D2D18, in	

	which case it must be readily openable— (a)without a key from the side that faces a person seeking egress; and (b)by a single hand pushing action on a single device such as a panic bar located between 900 mm and 1.2 m from the floor; and (c)where a two-leaf door is fitted, the provisions of (a) and (b) need only apply to one door leaf if the appropriate requirements of D2D9 are satisfied by the opening of that one leaf.	
D3D29	**Protection of openable windows** (1)A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in— (a)a bedroom in a Class 2 or 3 building or Class 4 part of a building; or (b)a Class 9b *early childhood centre*. (2)Where the lowest level of the window opening is less than 1.7 m above the floor, a window opening covered by (1) must comply with the following: (a)The openable portion of the window must be protected with— (i)a device capable of restricting the window opening; or (ii)a screen with secure fittings. (b)A device or screen *required* by (a) must— (i)not permit a 125 mm sphere to pass through the window opening or screen; and (ii)resist an outward horizontal action of 250 N against the— (A)window restrained by a device; or (B)screen protecting the opening; and (iii)have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden. (3)A barrier with a height not less than 865 mm above the floor is *required* to an openable window— (a)in addition to window protection, when a child resistant release mechanism is *required* by (2)(b)(iii); and (b)where the floor below the window is 4 m or more above the surface beneath if the window is not covered by (1).	Further Detail is required within the Construction Documentation

	(4)A barrier covered by (3) except for (5) must not— (a)permit a 125 mm sphere to pass through it; and (b)have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. (5)A barrier *required* by (3) to an openable window in— (a)*fire-isolated stairways*, *fire-isolated ramps* and other areas used primarily for emergency purposes, excluding external stairways and external ramps; and (b)Class 7 (other than *carparks*) and Class 8 buildings and parts of buildings containing those classes,	
D4D2	**General building access requirements** (1)Buildings and parts of buildings must be *accessible* as *required* by this clause, unless exempted by D4D5. (2)Access requirements for a Class 1b building are as follows: Dwellings located on one allotment and used for short-term holiday accommodation — in accordance with (a)Table (b)A boarding house, bed and breakfast, guest house, hostel or the like, other than those described in (a) — to and within— (i)1 bedroom and associated sanitary facilities; and (ii)not less than 1 of each type of room or space for use in common by the residents or guests, including a cooking facility, sauna, gymnasium, *swimming pool*, laundry, games room, eating area, or the like; and (iii)rooms or spaces for use in common by all residents on a floor to which access by way of a ramp complying with AS 1428.1 or a passenger lift is provided. (3)For the purposes of (2)(a), a community or strata-type subdivision or development is considered to be on a single allotment. (4)For a Class 2 building, common areas are to be *accessible* as follows: From a pedestrian entrance *required* to be *accessible* to at least 1 floor containing *sole-occupancy units* and to the entrance doorway of each *sole-occupancy unit* located on that level. (b)To and within not less than 1 of each type of room or space for use in common by the	Further Detail is required within the Construction Documentation

	residents, including a cooking facility, sauna, gymnasium, *swimming pool*, common laundry, games room, individual shop, eating area, or the like. (c)Where a ramp complying with AS 1428.1 or a passenger lift is installed— (i)to the entrance doorway of each *sole-occupancy unit*; and (ii)to and within rooms or spaces for use in common by the residents. (d)The requirements of (c) only apply where the space referred to in (c)(i) or (ii) is located on the levels served by the lift or ramp. (5)For a Class 3 building, access requirements are as follows: (a)Common areas: (i)From a pedestrian entrance required to be accessible to at least 1 floor containing *sole-occupancy units* and to the entrance doorway of each *sole-occupancy unit* located on that level. (ii)a cooking facility, sauna, gymnasium, *swimming pool*, common laundry, games room, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room, or the like. (iii)Where a ramp complying with AS 1428.1 or a passenger lift is installed— (A)to the entrance doorway of each *sole-occupancy unit*; and (B)to and within rooms or spaces for use in common by the residents. (iv)The requirements of (iii) only apply where the space referred to in (A) and (B) are located on the levels served by the lift or ramp. (b)*Sole-occupancy units* — in accordance with Table D4D2b. (6)For Class 5, 6, 7b, 8 and 9a buildings, access must be provided to and within all areas normally used by the occupants. (7)For a Class 7a building, access must be provided to and within any level containing *accessible* carparking spaces. (8)For a Class 9b building, access requirements are as follows: (a)*Schools* and *early childhood centres* — to and within all areas normally used by the occupants. (b)An *assembly building*, not being a *school* or *early childhood centre*—to and within— (i)wheelchair seating spaces provided in accordance with D4D10; and (ii)all other areas normally used by the occupants, except that access need not be provided to	

	tiers or platforms of seating areas that do not contain wheelchair seating spaces. (9)For a Class 9c building, access requirements are as follows: (a)Common areas: (i)From a pedestrian entrance required to be *accessible* to at least 1 floor containing *sole-occupancy units* and to the entrance doorway of each *sole-occupancy unit* located on that level. (ii)To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, *swimming pool*, common laundry, games room, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room, or the like. (iii)Where a ramp complying with AS 1428.1 or a passenger lift is installed— (A)to the entrance doorway of each *sole-occupancy unit*; and (B)to and within rooms or spaces for use in common by the residents. (iv)The requirements of (iii) only apply where the space referred to in (A) and (B) are located on the levels served by the lift or ramp. (b)*Sole-occupancy units* — in accordance with Table D4D2b. (10)For a Class 10 building, access requirements are as follows: (a)For a Class 10a non-habitable building located in an *accessible* area intended for use by the public and containing a sanitary facility, change room facility or shelter, to and within— an *accessible* sanitary facility; and (ii)a change room facility; and (iii)a public shelter or the like. (b)For Class 10b *swimming pools*, to and into *swimming pools* with a total perimeter greater than 40 m, associated with a Class 1b, 2, 3, 5, 6, 7, 8 or 9 building that is *required* to be *accessible*, but not *swimming pools* for the exclusive use of occupants of a Class 1b building or a *sole-occupancy unit* in a Class 2 or Class 3 building.	
D4D3	**Access to buildings** (1)An *accessway* must be provided to a building *required* to be *accessible*— (a)from the main points of a pedestrian entry at the allotment boundary; and (b)from another *accessible* building connected by a pedestrian link; and from any *required*	Further Detail is required within the Construction Documentation

	accessible carparking space on the allotment. (2)In a building *required* to be *accessible*, an *accessway* must be provided through the principal pedestrian entrance, and— (a)through not less than 50% of all pedestrian entrances including the principal pedestrian entrance; and (b)in a building with a total *floor area* more than 500 m2, a pedestrian entrance which is not *accessible* must not be located more than 50 m from an *accessible* pedestrian entrance, except for pedestrian entrances serving only areas exempted by D4D5. (3)Where a pedestrian entrance *required* to be *accessible* has multiple doorways— (a)if the pedestrian entrance consists of not more than 3 doorways — not less than 1 of those doorways must be *accessible*; and (b)if a pedestrian entrance consists of more than 3 doorways — not less than 50% of those doorways must be *accessible*. (4)For the purposes of (3)— (a)an *accessible* pedestrian entrance with multiple doorways is considered to be one pedestrian entrance where— (i)all doorways serve the same part or parts of the building; and (ii)the distance between each doorway is not more than the width of the widest doorway at that pedestrian entrance (see Figure D4D3); and (b)a doorway is considered to be the clear, unobstructed opening created by the opening of one or more door leaves (see Figure D4D3). (5)Where a doorway on an *accessway* has multiple leaves, (except an automatic opening door) one of those leaves must have a clear opening width of not less than 850 mm in accordance with AS 1428.1.	
D4D4	**Parts of buildings to be accessible** In a building *required* to be *accessible*— (a)every ramp and stairway, except for ramps and stairways in areas exempted by D4D5, must comply with— (i)for a ramp, except a *fire-isolated ramp*, clause 10 of AS 1428.1; and (ii)for a stairway, except a *fire-isolated stairway*, clause 11 of AS 1428.1; and (iii)for a *fire-isolated stairway*, clause 11.1(f) and (g) of AS 1428.1; and	For reference

	(b)every passenger lift must comply with E3D7; and (c)*accessways* must have— (i)passing spaces complying with AS 1428.1 at maximum 20 m intervals on those parts of an *accessway* where a direct line of sight is not available; and (ii)turning spaces complying with AS 1428.1— within 2 m of the end of *accessways* where it is not possible to continue travelling along the *accessway*; and (B)at maximum 20 m intervals along the *accessway*; and (d)an intersection of *accessways* satisfies the spatial requirements for a passing and turning space; and (e)a passing space may serve as a turning space; and (f)a ramp complying with AS 1428.1 or a passenger lift need not be provided to serve a *storey* or level other than the entrance *storey* in a Class 5, 6, 7b or 8 building— (i)containing not more than 3 *storeys*; and (ii)with a *floor area* for each *storey*, excluding the entrance *storey*, of not more than 200 m2; and (g)clause 7.4.1(a) of AS 1428.1 does not apply and is replaced with 'the pile height or pile thickness shall not exceed 11 mm and the carpet backing thickness shall not exceed 4 mm'; and (h)the carpet pile height or pile thickness dimension, carpet backing thickness dimension and their combined dimension shown in Figure 8 of AS 1428.1 do not apply and are replaced with 11 mm, 4 mm and 15 mm respectively.	
D4D7	**Signage** (1)In a building *required* to be *accessible*— (a)braille and tactile signage complying with Specification 15 must— (i)incorporate the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 and identify each— *occupancy unit* in a Class 3 or Class 9c building; and sanitary facility, except a sanitary facility associated with a bedroom in a Class 1b building or a (A)*sole-* (B)space with a hearing augmentation system; and	Further Detail is required within the Construction Documentation

	(ii)identify each door *required* by E4D5 to be provided with an *exit* sign and state— (A)"Exit"; and (B)"Level"; and (C)the floor level number or floor level descriptor, or a combination of the two. (b)signage including the international symbol for deafness in accordance with AS 1428.1 must be provided within a room containing a hearing augmentation system identifying— (i)the type of hearing augmentation; and (ii)the area covered within the room; and (iii)if receivers are being used and where the receivers can be obtained; and (c)signage in accordance with AS 1428.1 must be provided for *accessible* unisex sanitary facilities to identify if the facility is suitable for left or right handed use; and (d) signage to identify an ambulant *accessible* sanitary facility in accordance with AS 1428.1 must be located on the door of the facility; and (e)where a pedestrian entrance is not *accessible*, directional signage incorporating the international symbol of access, in accordance with AS 1428.1, must be provided to direct a person to the location of the nearest *accessible* pedestrian entrance; and (f)where a bank of sanitary facilities is not provided with an *accessible* unisex sanitary facility, directional signage incorporating the international symbol of access in accordance with AS 1428.1 must be placed at the location of the sanitary facilities that are not *accessible*, to direct a person to the location of the nearest *accessible* unisex sanitary facility. (2)In a building that is subject F4D12 and is *required* to be *accessible*, directional signage complying with Specification 15 to direct a person to the location of the nearest *accessible* adult change facility within that building must be provided at the location of each— (a)bank of sanitary facilities; and *accessible* unisex sanitary facility, other than one that incorporates an *accessible* adult change facility.	
D4D9	**Tactile indicators**	Further Detail is required within the

	(1)For a building *required* to be *accessible*, tactile ground surface indicators must be provided to warn people who are blind or have a vision impairment that they are approaching— (a)a stairway, other than a *fire-isolated stairway*; and (b)an escalator; and a passenger conveyor or moving walk; and (d)a ramp other than a *fire-isolated ramp*, step ramp, kerb ramp or *swimming pool* ramp; and (e)in the absence of a suitable barrier— (i)an overhead obstruction less than 2 m above floor level, other than a doorway; and (ii)an *accessway* meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D4D5, if there is no kerb or kerb ramp at that point, except for areas exempted by D4D5. (2)Tactile ground surface indicators *required* by (1) must comply with sections 1 and 2 of AS/NZS 1428.4.1. (3)A hostel for the aged, nursing home for the aged, a *residential aged care building*, Class 3 accommodation for the aged, Class 9a *health-care building* or a Class 9c *aged care building* need not comply with (1)(a) and (d) if handrails incorporating a raised dome button in accordance with AS/NZS 1428.4.1 are provided to warn people who are blind or have a vision impairment that they are approaching a stairway or ramp.	Construction Documentation
D4D13	**Glazing on an accessway** On an *accessway*, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.	Further Detail is required within the Construction Documentation

5.4 SECTION E – SERVICES AND EQUIPMENT

CLAUSE	CLAUSE REQUIREMENT	ACTION/RECOMENDATION
E1D2	**Fire hydrants** (1)A fire hydrant system must be provided to serve a building— (a)having a total *floor area* greater than 500 m2; and (b)where a *fire brigade station* is— (i)no more than 50 km from the building as measured along roads; and (ii)equipped with equipment capable of utilising a fire hydrant. (2)The fire hydrant system must be installed in accordance with AS 2419.1. (3)Notwithstanding (2), a Class 8 *electricity network substation* need not comply with clause 4.2 of AS 2419.1 if— (a)it cannot be connected to a town main supply; and (b)one hour water storage is provided for fire-fighting. (4)Where internal fire hydrants are provided, they must serve only the *storey* on which they are located except that a *sole-occupancy unit*— (a)in a Class 2 or 3 building or Class 4 part of a building may be served by a single fire hydrant located at the level of egress from that *sole-occupancy unit*; or (b)of not more than 2 *storeys* in a Class 5, 6, 7, 8 or 9 building may be served by a single fire hydrant located at the level of egress from that *sole-occupancy unit* provided the fire hydrant can provide coverage to the whole of the *sole-occupancy unit*.	Further Detail is required within the Construction Documentation
E2D3	**General requirements** (1)An air-handling system which does not form part of a smoke hazard management system in accordance with E2D4 to E2D20 and which recycles air from one *fire compartment* to another *fire compartment* or operates in a manner that may unduly contribute to the spread of smoke from one *fire compartment* to another *fire compartment* must, subject to (2), be designed and installed— (a)to operate as a smoke control system in accordance with AS 1668.1; or (b)such that it— *compartments* served; and incorporates smoke dampers where the air-handling ducts penetrate any elements separating the (i)*fire*	Further Detail is required within the Construction Documentation

	(ii)is arranged such that the air-handling system is shut down and the smoke dampers are activated to close *automatically* by smoke detectors complying with clause 7.5 of AS 1670.1. (2)For the purposes of (1), each *sole-occupancy unit* in a Class 2 or 3 building is treated as a separate *fire compartment*. (3)Miscellaneous air-handling systems covered by Sections 5 and 6 of AS 1668.1 serving more than one *fire compartment* (other than a *carpark* ventilation system) and not forming part of a smoke hazard management system must comply with these Sections of the Standard. (4)A smoke detection system must be installed in accordance with S20C6 to operate AS 1668.1 systems that are provided for zone pressurisation and *automatic* air pressurisation for fire-isolated *exits*.	
E2D8	**Buildings not more than 25 m in effective height: Class 2 and 3 buildings and Class 4 part of a building** In a Class 2 and 3 building or part of a building, or Class 4 part of a building, if the building is not more than 25 m in *effective height*— (a)it must be provided with an *automatic* smoke detection and alarm system complying with Specification 20; and (b)where a *required fire-isolated stairway* serving the Class 2 or 3 parts also serves one or more *storeys* of Class 5, 6, 7 (other than an *open-deck carpark*), 8 or 9b parts— (i)the *fire-isolated stairway*, including any associated *fire-isolated passageway* or *fire-isolated ramp*, must be provided with an *automatic* air pressurisation system for fire-isolated *exits* in accordance with AS 1668.1; or (ii)the Class 5, 6, 7 (other than an *open-deck carpark*), 8 and 9b parts must be provided with— (A)an *automatic* smoke detection and alarm system complying with Specification 20; or (B)a sprinkler system (other than a FPAA101D or FPAA101H system) complying with Specification 17; and (c)where a *required fire-isolated stairway* serving the Class 4 part also serves one or more *storeys* of Class 5, 6, 7 (other than an *open-deck carpark*), 8 or 9b parts— (i)a system complying with (b)(i) or (b)(ii) must be installed; or	Further Detail is required within the Construction Documentation

	(ii)a smoke alarm or detector system complying with Specification 20 must be provided except that alarms or detectors need only be installed adjacent to each doorway into each *fire-isolated stairway* (set back horizontally from the doorway by a distance of not more than 1.5 m) to initiate a building occupant warning system for the Class 4 part.	
E3D2	**Lift installations** An *electric passenger lift* installation and an *electrohydraulic passenger lift* installation must comply with Specification 24.	Further Detail is required within the Construction Documentation
E3D4	**Warning against use of lifts in fire** (1)A warning sign must be displayed where it can be readily seen near every call button for a passenger lift or group of lifts throughout a building. (2)The requirements of (1) do not apply to a small lift such as a dumb-waiter or the like that is for the transport of goods only. (3)Each warning sign *required* by (1) must comply with the details and dimensions of Figure E3D4 and consist of— (a)incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall; or letters incised or inlaid directly into the surface of the material forming the wall.	Further Detail is required within the Construction Documentation
E3D6	**Landings** Access and egress to and from lift well landings must comply with the *Deemed-to-Satisfy Provisions* of Parts D2, D3 and D4.	Further Detail is required within the Construction Documentation
E3D7	**Passenger lift types and their limitations** (1)In an *accessible* building, every passenger lift must be one of the following lift types, subject to the limitations (if any) of each lift type: (a)There are no limitations on the use of *electric passenger lifts*, *electrohydraulic passenger lifts* or *inclined lifts*. (b)*Stairway platform lifts* must not— (i)be used to serve a space in a building accommodating more than 100 persons calculated according to D2D18; or (ii)be used in a high traffic public use area such as a theatre, cinema, auditorium, transport	Further Detail is required within the Construction Documentation

	interchange, shopping centre or the like; or (iii)be used where it is possible to install another type of passenger lift; or (iv)connect more than 2 *storeys*; or (v)where more than 1 stairway lift is installed, serve more than 2 consecutive *storeys*; or (vi)when in the folded position, encroach on the minimum width of a stairway *required* by D2D8 to D2D11. (c)A *low-rise platform lift* must not travel more than 1000 mm. (d)A *low-rise, low-speed constant pressure lift* must not— (i)for an enclosed type, travel more than 4 m; or (ii)for an unenclosed type, travel more than 2 m; or (iii)be used in a high traffic public use areas in buildings such as a theatre, cinema, auditorium, transport interchange, shopping complex or the like. (e)A *small-sized, low-speed automatic lift* must not travel more than 12 m. (2)A passenger lift referred to in (1) must not rely on a constant pressure device for its operation if the lift car is fully enclosed.	
E3D8	**Accessible features required for passenger lifts** In an *accessible* building, every passenger lift must have the following features where applicable: (a)A handrail complying with the provisions for a mandatory handrail in AS 1735.12 for all lifts except— (i)a *stairway platform lift*; and (ii)a *low-rise platform lift*. (b)Lift floor dimensions of not less than 1400 mm wide x 1600 mm deep for all lifts which travel more than 12 m. (c)Lift floor dimensions of not less than 1100 mm wide x 1400 mm deep for all lifts which travel not more than 12 m, except a *stairway platform lift*. (d)Lift floor dimensions of not less than 810 mm wide x 1200 mm deep for a *stairway*	Further Detail is required within the Construction Documentation

	platform lift. Minimum clear door opening complying with AS 1735.12 for all lifts except a *stairway platform lift*. (f)Passenger protection system complying with AS 1735.12 for all lifts with power-operated doors. (g)Lift landing doors at the upper landing for all lifts except a *stairway platform lift*. (h)Lift car and landing control buttons complying with AS 1735.12 for all lifts except— (i)a *stairway platform lift*; and (ii)a *low-rise platform lift*. (i)Lighting in accordance with AS 1735.12 for all enclosed lift cars. (j)For all lifts serving more than 2 levels— (i)automatic audible information within the lift car to identify the level each time the car stops; and (ii)audible and visual indication at each lift landing to indicate the arrival of the lift car; and (iii)audible information and audible indication *required* by (i) and (ii) is to be provided in a range of between 20 - 80 dB(A) at a maximum frequency of 1500 Hz. (k)Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received, for all lifts except a *stairway platform lift*.	
E4D2	**Emergency lighting requirements** An emergency lighting system must be installed— (a)in every *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp*; and (b)in every *storey* of a Class 5, 6, 7, 8 or 9 building where the *storey* has an area more than 300 m2— (i)in every passageway, corridor, hallway, or the like, that is part of the path of travel to an *exit*; and (ii)in any room having a *floor area* more than 100 m2 that does not open to a corridor or space that has emergency lighting or to a road or *open space*; and (iii)in any room having a *floor area* more than 300 m2; and	Further Detail is required within the Construction Documentation

	(c)in every passageway, corridor, hallway, or the like, having a length of more than 6 m from the entrance doorway of any *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building to the nearest doorway opening directly to— (i)a *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp*; or (ii)an external stairway serving instead of a *fire-isolated stairway* under D2D13; or (iii)an external balcony leading to a *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp*; or (iv)a road or *open space*; and (d)in every *required* non-*fire-isolated stairway*; and (e)in a *sole-occupancy unit* in a Class 5, 6 or 9 building if— (i)the *floor area* of the unit is more than 300 m2; and (ii)an *exit* from the unit does not open to a road or *open space* or to an external stairway, passageway, balcony or ramp, leading directly to a road or *open space*; and (f)in every room or space to which there is public access in every *storey* in a Class 6 or 9b building if— (i)the *floor area* in that *storey* is more than 300 m2; or (ii)any point on the floor of that *storey* is more than 20 m from the nearest doorway leading directly to a stairway, ramp, passageway, road or *open space*; or (iii)egress from that *storey* involves a vertical rise within the building of more than 1.5 m, or any vertical rise if the *storey* concerned does not admit sufficient light; or (iv)the *storey* provides a path of travel from any other *storey required* by (i), (ii) or (iii) to have emergency lighting; and (g)in a Class 9a *health-care building*— (i)in every passageway, corridor, hallway, or the like, serving a *treatment area* or a *ward area*; and (ii)in every room having a *floor area* of more than 120 m2 in a *patient care area*; and (h)in every Class 9c building excluding within *sole-occupancy units*; and in every *required* fire control centre.	
E4D3	**Measurement of distance** Distances, other than vertical rise, must be measured along the shortest path of travel whether	Further Detail is required within the Construction Documentation

	by straight lines, curves or a combination of both.	
E4D4	**Design and operation of emergency lighting** Every *required* emergency lighting system must comply with AS/NZS 2293.1.	Further Detail is required within the Construction Documentation
E4D5	**Exit signs** An *exit* sign must be clearly visible to persons approaching the *exit*, and must be installed on, above or adjacent to each— (a)door providing direct egress from a *storey* to— (i)an enclosed stairway, passageway or ramp serving as a *required exit*; and (ii)an external stairway, passageway or ramp serving as a *required exit*; and (iii)an external access balcony leading to a *required exit*; and (b)door from an enclosed stairway, passageway or ramp at every level of discharge to a road or *open space*; and (c)*horizontal exit*; and (d)door serving as, or forming part of, a *required exit* in a *storey required* to be provided with emergency lighting in accordance with E4D2.	Further Detail is required within the Construction Documentation
E4D6	**Direction signs** If an *exit* is not readily apparent to persons occupying or visiting the building then *exit* signs must be installed in appropriate positions in corridors, hallways, lobbies, and the like, indicating the direction to a *required exit*.	Further Detail is required within the Construction Documentation
E4D8	**Design and operation of exit signs** Every *required exit* sign must— (a)comply with— (i)AS/NZS 2293.1; or (ii)for a photoluminescent *exit* sign, Specification 25; and (b)be clearly visible at all times when the building is occupied by any person having the right of legal entry to the building.	Further Detail is required within the Construction Documentation

5.5 SECTION F – HEALTH AND AMENITY

CLAUSE	CLAUSE REQUIREMENT	ACTION/RECOMENDATION
F1D3	**Stormwater drainage** Stormwater drainage must be designed and constructed in accordance with AS/NZS 3500.3.	Further Detail is required within the Construction Documentation
F1D4	**Exposed joints** [New for 2022] Exposed joints in the drainage surface on a roof, balcony, podium or similar horizontal surface part of a building must— (a)be protected in accordance with Section 2.9 of AS 4654.2; and (b) not be located beneath or run through a planter box, water feature or similar part of the building.	Further Detail is required within the Construction Documentation
F1D5	**External waterproofing membranes** A roof, balcony, podium or similar horizontal surface part of a building must be provided with a *waterproofing membrane*— (a)consisting of materials complying with AS 4654.1; and designed and installed in accordance with AS 4654.2.	Further Detail is required within the Construction Documentation
F1D6	**Damp-proofing** (1)Except for a building covered by (3), moisture from the ground must be prevented from reaching— (a)the lowest floor timbers and the walls above the lowest floor joists; and (b)the walls above the *damp-proof course*; and (c)the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders. (2)Where a *damp-proof course* is provided, it must consist of— (a)a material that complies with AS/NZS 2904; or	Further Detail is required within the Construction Documentation

	(b)impervious sheet material in accordance with AS 3660.1. (3)The following buildings need not comply with (1): (a)A Class 7 or 8 building where in the particular case there is no necessity for compliance. (b)A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for other purposes. An *open spectator stand* or *open-deck carpark*.	
F1D7	**Damp-proofing of floors on the ground** (1)If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870. (2)The requirements of (1) do not apply where— (a)weatherproofing is not *required*; or the floor is the base of a stair, lift or similar *shaft* which is adequately drained by gravitation or mechanical means.	Further Detail is required within the Construction Documentation
F2D2	**Wet area construction** (1)In a Class 2 and 3 building and a Class 4 part of a building, building elements in *wet areas* must— (a)be *water resistant* or *waterproof* in accordance with Specification 26; and (b)comply with AS 3740. (2)In a Class 5, 6, 7, 8 or 9 building, building elements in a bathroom or shower room, a slop hopper or sink compartment, a laundry or *sanitary compartment* must— (a)be *water resistant* or *waterproof* in accordance with Specification 26; and (b)comply with AS 3740, as if they were in a Class 2 or 3 building or a Class 4 part of a building.	Further Detail is required within the Construction Documentation
F2D4	**Floor wastes** (1)In a Class 2 or 3 building or Class 4 part of a building, a bathroom or laundry located at any level above a *sole-occupancy unit* or public space must have a *floor waste*. (2)Where a *floor waste* is installed— (a)the minimum continuous fall of a floor plane to the waste must be 1:80; and the maximum continuous fall of a floor plane to the waste must be 1:50.	Further Detail is required within the Construction Documentation

F3D1	**Deemed-to-Satisfy Provisions** (1)Where a *Deemed-to-Satisfy Solution* is proposed, *Performance Requirement* F3P1 is satisfied by complying with F3D2 to F3D5. (2)Where a *Performance Solution* is proposed, the relevant *Performance Requirements* must be determined in accordance with A2G2(3) and A2G4(3) as applicable. A roof must be covered with— (a)roof tiles complying with AS 2049, fixed in accordance with AS 2050; or (b)metal sheet roofing complying with AS 1562.1; or (c)plastic sheet roofing designed and installed in accordance with AS 1562.3; or (d)terracotta, fibre-cement and timber slates and shingles designed and installed in accordance with AS 4597, except in cyclonic areas; or an external waterproofing *membrane* complying with F1D5.	Further Detail is required within the Construction Documentation
F3D3	**Sarking** *Sarking-type material* used for weatherproofing of roofs and walls must comply with AS 4200.1 and AS 4200.2.	Further Detail is required within the Construction Documentation
F3D4	**Glazed assemblies** (1)Subject to (2) and (3), the following glazed assemblies in an *external wall*, must comply with AS 2047 requirements for resistance to water penetration: (a)Windows. (b)Sliding and swinging glazed doors with a frame, including French and bi-fold doors with a frame. (c)Adjustable louvres. (d)Shopfronts. (e)Window walls with one piece framing. (2)The following buildings need not comply with (1): (a)A Class 7 or 8 building where in the particular case there is no necessity for compliance. (b)A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for	Further Detail is required within the Construction Documentation

	other purposes, except where the construction of the garage, tool shed, *sanitary compartment* or the like contributes to the weatherproofing of the other part of the building. (c)An *open spectator stand* or *open-deck carpark*. (3)The following glazed assemblies need not comply with (1): (a)All glazed assemblies not in an *external wall*. (b)Revolving doors. (c)Fixed louvres. (d)Skylights, roof lights and windows in other than the vertical plane. (e)Sliding and swinging glazed doors without a frame. (f)Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047. (g)Second-hand windows, re-used windows and recycled windows. Heritage windows.	
F3D5	**Wall cladding** (1)External wall cladding must comply with one or a combination of the following: (a)Masonry, including masonry veneer, unreinforced and reinforced masonry: AS 3700. (b)Autoclaved aerated concrete: AS 5146.3. (c)Metal wall cladding: AS 1562.1. (2)The following buildings need not comply with (1): (a)A Class 7 or 8 building where in the particular case there is no necessity for compliance. (b)A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for other purposes, except where the construction of the garage, tool shed, *sanitary compartment* or the like contributed to the weatherproofing of another part of the building that is *required* to be weatherproofed. An *open spectator stand* or *open deck carpark*.	Further Detail is required within the Construction Documentation
F4D8	**Construction of sanitary compartments** [2019: F2.5] (1)Other than in an *early childhood centre*, *sanitary compartments* must have doors and	For Reference

	partitions that separate adjacent compartments and extend— (a)from floor level to the ceiling in the case of a unisex facility; or (b)to a height of not less than 1.5 m above the floor if primary *school* children are the principal users; or (c)1.8 m above the floor in all other cases. (2)The door to a fully enclosed *sanitary compartment* must— (a)open outwards; or (b)slide; or (c)be readily removable from the outside of the *sanitary compartment*, unless there is a clear space of at least 1.2 m, measured in accordance with Figure F4D8, between the closet pan within the *sanitary compartment* and the doorway. (3)In an *early childhood centre*, facilities for use by children must have each *sanitary compartment* screened by a partition which, except for the doorway, is opaque for a height of at least 900 mm but not more than 1200 mm above the floor level.	
F6D2	**Provision of natural light** Natural light must be provided in: (a)A Class 2 building and a Class 4 parts of a building — to all *habitable rooms*. (b)A Class 3 building — to all bedrooms and dormitories. (c)Class 9a and 9c buildings — to all rooms used for sleeping purposes. (d)A Class 9b building — to all general purpose classrooms in primary or secondary *schools* and all playrooms or the like for the use of children in an *early childhood centre*.	Further Detail is required within the Construction Documentation
F6D3	**Methods and extent of natural light** (1)*Required* natural light must be provided by— (a)*windows*, excluding *roof lights*, that— (i)have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 10% of the *floor area* of the room; and	Further Detail is required within the Construction Documentation

	(ii)are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (b)*roof lights*, that— (i)have an aggregate light transmitting area measured exclusive of framing members, glazing bars or other obstructions of not less than 3% of the *floor area* of the room; and (ii)are open to the sky; or a proportional combination of *windows* and *roof lights required* by (a) and (b). (2)Except in a Class 9c *aged care building*, in a Class 2, 3 or 9 building or Class 4 part of a building, a *required window* that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of— (a)generally — 1 m; and (b)in a *patient care area* or other room used for sleeping purposes in a Class 9a building — 3 m; and (c)50% of the square root of the exterior height of the wall in which the *window* is located, measured in metres from its sill. (3)In a Class 9c *aged care building*, a *required window* must be transparent and located— (a)in an *external wall* with the *window* sill not more than 1 m above the floor level; and (b)where the *window* faces an adjoining allotment, another building or another wall of the same building, it must not be less than a horizontal distance of 3 m from the adjoining allotment, other building or wall. (4)In a Class 9b *early childhood centre*, the sills of 50% of *windows* in children's rooms must be located not more than 500 mm above the floor level.	
F6D4	**Natural light borrowed from adjoining room** (1)Natural light to a room in a Class 2 building or Class 4 part of a building or in a *sole-occupancy unit* of a Class 3 building, may come through one or more glazed panels or openings from an adjoining room (including an enclosed verandah) if— (a)both rooms are within the same *sole-occupancy unit* or the enclosed verandah is on	For Reference

	common property; and (b)the glazed panels or openings have an aggregate light transmitting area of not less than 10% of the *floor area* of the room to which it provides light; and (c)the adjoining room has— (i)*windows*, excluding *roof lights*, that— (A)have an aggregate light transmitting area of not less than 10% of the combined *floor areas* of both rooms; and (B)are open to the sky or face a court or other space open to the sky or an open verandah, carport or the like; or (ii)*roof lights*, that— (A)have an aggregate light transmitting area of not less than 3% of the combined *floor areas* of both rooms; and (B)are open to the sky; or (iii)a proportional combination of *windows* and *roof lights required* by (i) and (ii). (2)The areas specified in (1)(b) and (c) may be reduced as appropriate if direct natural light is provided from another source.	
F6D5	**Artificial lighting** (1)Artificial lighting must be provided— (a)in *required* stairways, passageways, and ramps; and (b)if natural light of a standard equivalent to that *required* by F6D3 is not available, and the periods of occupation or use of the room or space will create undue hazard to occupants seeking egress in an emergency, in— (i)a Class 4 part of a building — to *sanitary compartments*, bathrooms, shower rooms, airlocks and laundries; and (ii)a Class 2 building — to *sanitary compartments*, bathrooms, shower rooms, airlocks, laundries, common stairways and other spaces used in common by the occupants of the building; and (iii)Class 3, 5, 6, 7, 8 and 9 buildings — to all rooms that are frequently occupied, all spaces *required* to be *accessible*, all corridors, lobbies, internal stairways, other circulation spaces and paths of egress.	Further Detail is required within the Construction Documentation

	(2)The artificial lighting system must comply with AS/NZS 1680.0. (3)The system may provide a lesser level of illumination to the following spaces during times when the level of lighting would be inappropriate for the use: (a)A theatre, cinema or the like, when performances are in progress, with the exception of aisle lighting *required* by Part I1. (b)A museum, gallery or the like, where sensitive displays require low lighting levels. (c)A discotheque, nightclub or the like, where to create an ambience and character for the space, low lighting levels are used.	
NSW F6D6	**Ventilation of rooms** A *habitable room*, office, shop, factory, workroom, *sanitary compartment*, bathroom, shower room, laundry and any other room occupied by a person for any purpose must have— (a)natural ventilation complying with F6D7; or a mechanical ventilation or air-conditioning system complying with AS 1668.2.	Further Detail is required within the Construction Documentation
F6D7	**Natural ventilation** (1)Natural ventilation provided in accordance with F6D6(a) must consist of openings, *windows*, doors or other devices which can be opened— (a)with a ventilating area not less than 5% of the *floor area* of the room *required* to be ventilated; and (b)open to— (i)a suitably sized court, or space open to the sky; or (ii)an open verandah, carport, or the like; or (iii)an adjoining room in accordance with F6D8. (2)The requirements of (1)(a) do not apply to a Class 8 *electricity network substation*.	Further Detail is required within the Construction Documentation
F6D8	**Ventilation borrowed from adjoining room** Natural ventilation to a room may come through a *window*, opening, door or other device from an adjoining room (including an enclosed verandah) if both rooms are within the same *sole-occupancy unit* or the enclosed verandah is common property, and— (a)in a Class 2 building, a *sole-occupancy unit* of a Class 3 building or Class 4 part of a building— (i)the room to be ventilated is not a *sanitary compartment*; and	For Reference

	(ii)the *window*, opening, door or other device has a ventilating area of not less than 5% of the *floor area* of the room to be ventilated; and (iii)the adjoining room has a *window*, opening, door or other device with a ventilating area of not less than 5% of the combined *floor areas* of both rooms; and (b)in a Class 5, 6, 7, 8 (except a Class 8 *electricity network substation*) or 9 building— (i)the *window*, opening, door or other device has a ventilating area of not less than 10% of the *floor area* of the room to be ventilated, measured not more than 3.6 m above the floor; and (ii)the adjoining room has a *window*, opening, door or other device with a ventilating area of not less than 10% of the combined *floor areas* of both rooms; and (c)the ventilating areas specified in (a) and (b) may be reduced as appropriate if direct natural ventilation is provided from another source.	
F6D9	**Restriction on location of sanitary compartments** A *sanitary compartment* must not open directly into— (a)a kitchen or pantry; or (b)a public dining room or restaurant; or (c)a dormitory in a Class 3 building; or (d)a room used for public assembly (which is not an *early childhood centre*, primary *school* or *open spectator stand*); or (e)a workplace normally occupied by more than one person.	For Reference
F6D10	**Airlocks** If a *sanitary compartment* is prohibited under F6D9 from opening directly to another room— (a)in a *sole-occupancy unit* in a Class 2 or 3 building or Class 4 part of a building— (i)access must be by an airlock, hallway or other room; or (ii)the *sanitary compartment* must be provided with mechanical exhaust ventilation; and *stand*)— in a Class 5, 6, 7, 8 or 9 building (which is not an *early childhood centre*, primary *school* or (b)*open spectator* (i)access must be by an airlock, hallway or other room with a *floor area* of not less than 1.1 m2 and fitted with *self-closing* doors at all access doorways; or	For Reference

	(ii)the *sanitary compartment* must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.	
F7D3	**Determination of airborne sound insulation ratings** A form of construction *required* to have an airborne sound insulation rating must— (a)have the *required* value for weighted sound reduction index (Rw) or weighted sound reduction index with spectrum adaptation term (Rw + Ctr) determined in accordance with AS/NZS ISO 717.1 using results from laboratory measurements; or comply with Specification 28.	Further Detail is required within the Construction Documentation
F7D4	**Determination of impact sound insulation ratings** (1)A floor in a building *required* to have an impact sound insulation rating must— (a)have the *required* value for weighted normalised impact sound pressure level (Ln,w) determined in accordance with AS ISO 717.2 using results from laboratory measurements; or (b)comply with Specification 28. (2)A wall in a building *required* to have an impact sound insulation rating must— (a)for a Class 2 or 3 building be of discontinuous construction and (b)for a Class 9c building, must— (i)for other than masonry, be two or more separate leaves without rigid mechanical connection except at the periphery; or (ii)be identical with a prototype that is no less resistant to the transmission of impact sound when tested in accordance with Specification 29 than a wall listed in S28C4 to S28C7. (3)For the purposes of this Part, discontinuous construction means a wall having a minimum 20 mm cavity between 2 separate leaves, and— (a)for masonry, where wall ties are required to connect leaves, the ties are of the resilient type; and for other than masonry, there is no mechanical linkage between leaves except at the periphery.	Further Detail is required within the Construction Documentation
F7D5	**Sound insulation rating of floors** (1)A floor in a Class 2 or 3 building must have an Rw + Ctr (airborne) not less than 50 and an Ln,w (impact) not more than 62 if it separates— (a)*sole-occupancy units*; or (b)a *sole-occupancy unit* from a plant room, lift *shaft*, stairway, *public corridor*, public lobby or the like, or parts of a different classification. (2)A floor in a Class 9c building separating *sole-occupancy units* must have an Rw not less than 45.	Further Detail is required within the Construction Documentation

F7D6	**Sound insulation rating of walls** (1)A wall in a Class 2 or 3 building must— (a)have an Rw + Ctr (airborne) not less than 50, if it separates *sole-occupancy units*; and (b)have an Rw (airborne) not less than 50, if it separates a *sole-occupancy unit* from a plant room, lift *shaft*, stairway, *public corridor*, public lobby or the like, or parts of a different classification; and (c)comply with F7D4(2) if it separates— (i)a bathroom, *sanitary compartment*, laundry or kitchen in one *sole-occupancy unit* from a *habitable room* (other than a kitchen) in an adjoining unit; or (ii)a *sole-occupancy unit* from a plant room or lift *shaft*. (2)A door may be incorporated in a wall in a Class 2 or 3 building that separates a *sole-occupancy unit* from a stairway, *public corridor*, public lobby or the like, provided the door assembly has an Rw not less than 30. (3)A wall in a Class 9c building must have an Rw not less than 45 if it separates— (a)*sole-occupancy units*; or (b)a *sole-occupancy unit* from a kitchen, bathroom, *sanitary compartment* (not being an associated ensuite), laundry, plant room or utilities room. (4)In addition to (3), a wall separating a *sole-occupancy unit* in a Class 9c building from a kitchen or laundry must comply with F7D4(2). (5)Where a wall *required* to have sound insulation has a floor above, the wall must continue to— (a)the underside of the floor above; or (b)a ceiling that provides the sound insulation *required* for the wall. (6)Where a wall *required* to have sound insulation has a roof above, the wall must continue to— (a)the underside of the roof above; or a ceiling that provides the sound insulation *required* for the wall.	Further Detail is required within the Construction Documentation
F7D7	**Sound insulation rating of internal services** (1)If a duct, soil, waste or water supply pipe, including a duct or pipe that is located in a wall or floor cavity, serves or passes through more than one *sole-occupancy unit*, the duct or pipe must be separated from the rooms of any *sole-occupancy unit* by construction with an Rw +	Further Detail is required within the Construction Documentation

	Ctr (airborne) not less than— (a)40 if the adjacent room is a *habitable room* (other than a kitchen); or (b)25 if the adjacent room is a kitchen or non-*habitable room*. (2)If a stormwater pipe passes through a *sole-occupancy unit*, it must be separated in accordance with (1)(a) and (b).	
F7D8	**Sound isolation of pumps** A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.	Further Detail is required within the Construction Documentation

5.5 SECTION J – ENERGY EFFICIENCY

CLAUSE	CLAUSE REQUIREMENT	ACTION/RECOMENDATION
Consistent with the decision of Building Ministers, NCC 2022 is now available for those who wish to use the new provisions. NCC 2022 will be adopted by the states and territories on **1 May 2023.** Building Ministers also agreed to transitional arrangements for the following specific requirements: • New energy efficiency and condensation mitigation requirements commence **1 October 2023**		
NSW J1P1	**Introduction to this Part** (1)For a Class 2 building or a Class 4 part of a building, where a relevant development consent or an application for a complying development certificate requires compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under Version 3.0 or earlier, NSW Section J of NCC 2019 Amendment 1 applies. (2)For a Class 2 building or a Class 4 part of a building, where a relevant development consent or an application for a complying development certificate requires compliance with a BASIX Single Dwelling or Multi Dwelling Certificate issued under Version 4.0 or later, Section J of NCC 2022 applies.	BASIX and NatHers Certificates are required Further Detail will be required within the Construction Certificate documentation
NSW J1P2	**Thermal performance of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building** [New for 2022] This clause has deliberately been left blank. J1P2 does not apply in NSW as thermal performance of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building is regulated by BASIX.	BASIX and NatHers Certificates are required Further Detail will be required within the Construction Certificate documentation
NSW J1P3	**Energy usage of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building** [New for 2022] This clause has deliberately been left blank. J1P3 does not apply in NSW as the thermal performance of a sole-occupancy unit of a Class 2 building or a Class 4 part of a building is regulated by BASIX.	BASIX and NatHers Certificates are required Further Detail will be required within the Construction Certificate documentation

J3.1	**Application of Part** The *Deemed-to-Satisfy Provisions* of this Part apply 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; or (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; or (c)a building or space where the mechanical ventilation *required* by Part F4 provides sufficient pressurisation to prevent infiltration.	Further Detail will be required within the Construction Certificate documentation
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.	Further Detail will be required within the Construction Certificate documentation
J3.3	**Roof lights** (a)A *roof light* must be sealed, or capable of being sealed, when serving— (i)a *conditioned space*; or (ii)a *habitable room* in *climate zones* 4, 5, 6, 7 or 8. (b)A *roof light required* by (a) to be sealed, or capable of being sealed, must be constructed with— (i)an imperforate ceiling diffuser or the like installed at the ceiling or internal lining level; or (ii)a weatherproof seal; or (iii)a shutter system readily operated either manually, mechanically or electronically by the occupant.	Further Detail will be required within the Construction Certificate documentation
J3.4	Windows and Doors a)A door, openable *window* or the like must be sealed— (i)when forming part of the *envelope*; or (ii)in *climate zones* 4, 5, 6, 7 or 8. b)The requirements of (a) do not apply to— (i)a *window* complying with AS 2047; or (ii)a fire door or smoke door; or	Further Detail will be required within the Construction Certificate documentation

	(iii)a roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security. (c)A seal to restrict air infiltration— (i)for the bottom edge of a door, must be a draft protection device; and (ii)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. (d)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— (i)where the *conditioned space* has a *floor area* of not more than 50 m2; or (ii)where a café, restaurant, open front shop or the like has— (A)a 3 m deep un-conditioned zone between the main entrance, including an open front, and the *conditioned space*; and (B)at all other entrances to the café, restaurant, open front shop or the like, *self-closing* doors. (e)A loading dock entrance, if leading to a *conditioned space*, must be fitted with a *rapid roller door* or the like.	
J3.5	**Exhaust fans** (a)An exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving— (i)a *conditioned space*; or (ii)a *habitable room* in *climate zones* 4, 5, 6, 7 or 8.	Further Detail will be required within the Construction Certificate documentation
J3.6	**Construction of ceilings, walls and floors** (a)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 zones* 4, 5, 6, 7 or 8. (b)Construction *required* by (a) must be— (i)enclosed by internal lining systems that are close fitting at ceiling, wall and floor junctions; or	Further Detail will be required within the Construction Certificate documentation

	(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. (c)The requirements of (a) do not apply to openings, grilles or the like *required* for smoke hazard management.	
J3.7	**Evaporative coolers** An evaporative cooler must be fitted with a self-closing damper or the like— (a)when serving a heated space; or (b)in *climate zones* 4, 5, 6, 7 or 8.	Further Detail will be required within the Construction Certificate documentation
J5.2	**Air-conditioning system control** (a)An *air-conditioning* system— (i)must be capable of being deactivated when the building or part of a building served by that system is not occupied; and (ii)when serving more than one *air-conditioning* zone or area with different heating or cooling needs, must— (A)thermostatically control the temperature of each zone or area; and (B)not control the temperature by mixing actively heated air and actively cooled air; and (C)limit reheating to not more than— (aa)for a fixed supply air rate, a 7.5 K rise in temperature; and (bb)for a variable supply air rate, a 7.5 K rise in temperature at the nominal supply air rate but increased or decreased at the same rate that the supply air rate is respectively decreased or increased; and (iii)which provides the *required* mechanical ventilation, other than in *climate zone* 1 or where dehumidification control is needed, must have an *outdoor air economy cycle* if the total air flow rate of any airside component of an *air-conditioning* system is greater than or equal to the figures in Table J5.2; and (iv)which contains more than one water heater, chiller or coil, must be capable of stopping the flow of water to those not operating; and (v)with an airflow of more than 1000 L/s, must have a variable speed fan when its supply air	Further Detail will be required within the Construction Certificate documentation

	quantity is capable of being varied; and (vi)when serving a *sole-occupancy unit* in a Class 3 building, must not operate when any external door of the *sole-occupancy unit* that opens to a balcony or the like, is open for more than one minute; and (vii)must have the ability to use direct signals from the control components responsible for the delivery of comfort conditions in the building to regulate the operation of central plant; and (viii)must have a control dead band of not less than 2°C, except where a smaller range is *required* for specialized applications; and (ix)must be provided with balancing dampers and balancing valves that ensure the maximum design air or fluid flow is achieved but not exceeded by more than 15% above design at each— (A)component; or (B)group of components operating under a common control in a system containing multiple components, as *required* to meet the needs of the system at its maximum operating condition; and (x)must ensure that each independently operating space of more than 1 000 m2 and every separate floor of the building has (b)When two or more *air-conditioning* systems serve the same space they must use control sequences that prevent the systems from operating in opposing heating and cooling modes. (c)**Time switches—** (i)A time switch must be provided to control— (A)an *air-conditioning* system of more than 2 kWr; and (B)a heater of more than 1 kWheating used for *air-conditioning*. (ii)The time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days. (iii)The requirements of (i) and (ii) do not apply to— (A)an *air-conditioning* system that serves— (aa)only one *sole-occupancy unit* in a Class 2, 3 or 9c building; or (bb)a Class 4 part of a building; or (B)a *conditioned space* where *air-conditioning* is needed for 24 hour continuous use.	

	provision to terminate airflow independently of the remainder of the system sufficient to allow for different operating times; and (xi)must have automatic variable temperature operation of heated water and chilled water circuits; and (xii)when deactivated, must close any motorised outdoor air or return air damper that is not otherwise being actively controlled. (b)When two or more *air-conditioning* systems serve the same space they must use control sequences that prevent the systems from operating in opposing heating and cooling modes. (c)**Time switches—** (i)A time switch must be provided to control— (A)an *air-conditioning* system of more than 2 kWr; and (B)a heater of more than 1 kWheating used for *air-conditioning*. (ii)The time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days. (iii)The requirements of (i) and (ii) do not apply to— (A)an *air-conditioning* system that serves— (aa)only one *sole-occupancy unit* in a Class 2, 3 or 9c building; or (bb)a Class 4 part of a building; or (B)a *conditioned space* where *air-conditioning* is needed for 24 hour continuous use.	
J5.3	**Mechanical ventilation system control** (a)**General —** A mechanical ventilation system, including one that is part of an *air-conditioning* system, except where the mechanical system serves only one *sole-occupancy unit* in a Class 2 building or serves only a Class 4 part of abuilding, must— (i)be capable of being deactivated when the building or part of the building served by that system is not occupied; and (ii)when serving a *conditioned space*, except in periods when evaporative cooling is being used— (A)where specified in Table J5.3, have— (aa)an energy reclaiming system that preconditions outdoor air at a minimum sensible heat	Further Detail will be required within the Construction Certificate documentation

	transfer effectiveness of 60%; or (bb)demand control ventilation in accordance with AS 1668.2 if appropriate to the application; and (B)not exceed the minimum outdoor air quantity *required* by Part F4 by more than 20%, except where— (aa)additional unconditioned outdoor air is supplied for free cooling; or (bb)additional mechanical ventilation is needed to balance the *required* exhaust or process exhaust; or (cc)an energy reclaiming system preconditions all the outdoor air; and (b)**Exhaust systems —** An exhaust system with an air flow rate of more than 1000 L/s must be capable of stopping the motor when the system is not needed, except for an exhaust system in a *sole-occupancy unit* in a Class 2, 3 or9c building. (c)***Carpark* exhaust systems —** *Carpark* exhaust systems must have a control system in accordance with— (i)4.11.2 of AS 1668.2; or (ii)4.11.3 of AS 1668.2. (d)**Time switches—** (i)A time switch must be provided to a mechanical ventilation system with an air flow rate of more than 1000 L/s. (ii)The time switch must be capable of switching electric power on and off at variable pre-programmed times and on variable pre-programmed days. (iii)The requirements of (i) and (ii) do not apply to— (A)a mechanical ventilation system that serves— (aa)only one *sole-occupancy unit* in a Class 2, 3 or 9c building; or (bb)a Class 4 part of a building; or (B)a building where mechanical ventilation is needed for 24 hour occupancy.	
J5.4	Fans, ductwork and duct components that form part of an *air-conditioning* system or mechanical ventilation system must— (i) separately comply with (b), (c), (d) and (e); or (ii) achieve a fan motor input power per unit of flowrate lower than the fan motor input power per	Further Detail will be required within the Construction Certificate documentation

	unit of flowrate achieved when applying (b), (c), (d) and (e) together. **Fans—** (i) Fans in systems that have a static pressure of not more than 200 Pa must have an efficiency at the full load operating point not less than the efficiency calculated with the Clause F.4 (b) formula **Ductwork—** (i)The pressure drop in the index run across all straight sections of rigid ductwork and all sections of flexible ductwork must not exceed 1 Pa/m when averaged over the entire length of straight rigid duct and flexible duct. The pressure drop of flexible ductwork sections may be calculated as if the flexible ductwork is laid straight. (ii)Flexible ductwork must not account for more than 6 m in length in any duct run. (iii)The upstream connection to ductwork bends, elbows and tees in the index run must have an equivalent diameter to the connected duct. (iv)Turning vanes must be included in all rigid ductwork elbows of 90° or more acute than 90° in the index run except where— (A)the inclusion of turning vanes presents a fouling risk; or (B)a long radius bend in accordance with AS 4254.2 is used. (d)**Ductwork components in the index run—** (i)The pressure drop across a coil must not exceed the value specified in Table J5.4d. (ii)A high efficiency particulate arrestance (HEPA) air filter must not exceed the higher of— (A)a pressure drop of 200 Pa when clean; or (B)the filter design pressure drop when clean at an air velocity of 1.5 m/s. (iii)Any other air filter must not exceed— (A)the pressure drop specified in Table J5.4e when clean; or (B)the filter design pressure drop when clean at an air velocity of 2.5 m/s. (iv)The pressure drop across intake louvres must not exceed the higher of— (A)for single stage louvres, 30 Pa; and (B)for two stage louvres, 60 Pa; and (C)for acoustic louvres, 50 Pa; and (D)for other non-weatherproof louvres, 30 Pa. (v)The pressure drop across a variable air volume box, with the damper in the fully open	

	position, must not exceed— (A)for units with electric reheat, 100 Pa; and (B)for other units, 25 Pa not including coil pressure losses. (vi)Rooftop cowls must not exceed a pressure drop of 30 Pa. (vii)Attenuators must not exceed a pressure drop of 40 Pa. (viii)Fire dampers must not exceed a pressure drop of 15 Pa when open. (ix)Balancing and control dampers in the index run must not exceed a pressure drop of 25 Pa when in the fully open position. (x)Supply air diffusers and grilles must not exceed a pressure drop of 40 Pa. (xi)Exhaust grilles must not exceed a pressure drop of 30 Pa. (xii)Transfer ducts must not exceed a pressure drop of 12 Pa. (xiii)Door grilles must not exceed a pressure drop of 12 Pa. (xiv)Active chilled beams must not exceed a pressure drop of 150 Pa. (e)The requirements of (a), (b), (c) and (d) do not apply to— (i)fans in unducted *air-conditioning* systems with a supply air capacity of less than 1000 L/s; and (ii)smoke spill fans, except where also used for *air-conditioning* or ventilation; and (iii)the power for process-related components; and (iv)kitchen exhaust systems.	
J5.5	**Ductwork insulation** (a)Ductwork and fittings in an *air-conditioning* system must be provided with insulation— (i)complying with AS/NZS 4859.1; and (ii)having an insulation *R-Value* greater than or equal to— (A)for flexible ductwork, 1.0; or (B)for cushion boxes, that of the connecting ductwork; or (C)that specified in Table J5.5. (b)Insulation must— (i)be protected against the effects of weather and sunlight; and (ii)be installed so that it—	Further Detail will be required within the Construction Certificate documentation

	(A)abuts adjoining insulation to form a continuous barrier; and (B)maintains its position and thickness, other than at flanges and supports; and (iii)when conveying cooled air— (A)be protected by a vapour barrier on the outside of the insulation; and (B)where the vapour barrier is a membrane, be installed so that adjoining sheets of the membrane— (aa)overlap by at least 50 mm; and (bb)are bonded or taped together. (c)The requirements of (a) do not apply to— (i)ductwork and fittings located within the only or last room served by the system; or (ii)fittings that form part of the interface with the *conditioned space*; or (iii)return air ductwork in, or passing through, a *conditioned space*; or (iv)ductwork for *outdoor air* and exhaust air associated with an *air-conditioning* system; or (v)the floor of an in-situ air-handling unit; or (vi)packaged air conditioners, split systems, and variable refrigerant flow *air-conditioning* equipment complying with *MEPS*; or (vii)flexible fan connections. (d)For the purposes of (a), (b) and (c), fittings— (i)include non-active components of a ductwork system such as cushion boxes; and (ii)exclude active components such as air-handling unit components.	
J5.6	**Ductwork sealing** Ductwork in an *air-conditioning* system with a capacity of 3000 L/s or greater, not located within the only or last room served by the system, must be sealed against air loss in accordance with the duct sealing requirements of AS 4254.1 and AS 4254.2 for the static pressure in the system.	Further Detail will be required within the Construction Certificate documentation
J5.8	**Pipework insulation** (a)*Piping*, vessels, heat exchangers and tanks containing heating or cooling fluid, where the fluid is held at a heated or cooled temperature, that are part of an *air-conditioning* system, other than in appliances covered by *MEPS*, must be provided with insulation—	Further Detail will be required within the Construction Certificate documentation

	(i)complying with AS/NZS 4859.1; and (ii)for *piping* of heating and cooling fluids, having an insulation *R-Value* in accordance with Table J5.8a; and (iii)for vessels, heat exchangers or tanks, having an insulation *R-Value* in accordance with Table J5.8b; and (iv)for refill or pressure relief *piping*, having an insulation *R-Value* equal to the *required* insulation *R-Value* of the connected pipe, vessel or tank within 500 mm of the connection. (b)Insulation must— (i)be protected against the effects of weather and sunlight; and (ii)be able to withstand the temperatures within the *piping*, vessel, heat exchanger or tank. (c)Insulation provided to *piping*, vessels, heat exchangers or tanks containing cooling fluid must be protected by a vapour barrier on the outside of the insulation. (d)The requirements of (a) and (b) do not apply to *piping*, vessels or heat exchangers— (i)located within the only or last room served by the system and downstream of the control device for the regulation of heating or cooling service to that room; or (ii)encased within a concrete slab or panel which is part of a heating or cooling system; or (iii)supplied as an integral part of a chiller, boiler or unitary air-conditioner complying with the requirements of J5.9,J5.10 and J5.11; or (iv)inside an air-handling unit, fan-coil unit, or the like. (e)For the purposes of (a), (b), (c) and (d)— (i)heating fluids include refrigerant, heated water, steam and condensate; and (ii)cooling fluids include refrigerant, chilled water, brines and glycol mixtures, but do not include condenser cooling water.	
J5.9	**Space heating** (a)A heater used for *air-conditioning* or as part of an *air-conditioning* system must be— (i)a solar heater; or (ii)a gas heater; or (iii)a heat pump heater; or (iv)a heater using reclaimed heat from another process such as reject heat from a refrigeration	Further Detail will be required within the Construction Certificate documentation

	plant; or (v)an electric heater if— (A)the heating capacity is not more than— (aa)10 W/m2 of the *floor area* of the *conditioned space* in *climate zone* 1; or (bb)40 W/m2 of the *floor area* of the *conditioned space* in *climate zone* 2; or (cc)the value specified in Table J5.9 where reticulated gas is not available at the allotment boundary; or (B)the annual energy consumption for heating is not more than 15 kWh/m2 of the *floor area* of the *conditioned space* in *climate zones* 1, 2, 3, 4 and 5; or (C)the in-duct heater complies with J5.2(a)(ii)(C); or (vi)any combination of (i) to (v). (b)An electric heater may be used for heating a bathroom in a Class 2, 3, 9a or 9c building if the heating capacity is not more than 1.2 kW and the heater has a timer. (c)A fixed heating or cooling appliance that moderates the temperature of an outdoor space must be configured to automatically shut down when— (i)there are no occupants in the space served; or (ii)a period of one hour has elapsed since the last activation of the heater; or (iii)the space served has reached the design temperature. (d)A gas water heater, that is used as part of an *air-conditioning* system, must— (i)if rated to consume 500 MJ/hour of gas or less, achieve a minimum gross thermal efficiency of 86%; or (ii)if rated to consume more than 500 MJ/hour of gas, achieve a minimum gross thermal efficiency of 90%	
J5.11	**Unitary air-conditioning equipment** Unitary *air-conditioning* equipment including packaged air-conditioners, split systems, and variable refrigerant flow systems must comply with *MEPS* and for a capacity greater than or equal to 65 kWr— (a)where water cooled, have a minimum energy efficiency ratio of 4.0 Wr / Winput power for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input	Further Detail will be required within the Construction Certificate documentation

	power includes both compressor and fan input power; or (b)where air cooled, have a minimum energy efficiency ratio of 2.9 Wr / Winput power for cooling when tested in accordance with AS/NZS 3823.1.2 at test condition T1, where input power includes both compressor and fan input power	
J5.12	**Heat rejection equipment** (a)The motor rated power of a fan in a cooling tower, closed circuit cooler or evaporative condenser must not exceed the allowances in Table J5.12. (b)The fan in an air-cooled condenser must have a motor rated power of not more than 42 W for each kW of heat rejected from the refrigerant, when determined in accordance with AHRI 460 except for— (i)a refrigerant chiller in an *air-conditioning* system that complies with the energy efficiency ratios in J5.10; or (ii)packaged air-conditioners, split systems, and variable refrigerant flow *air-conditioning* equipment that complies with the energy efficiency ratios in J5.11.	Further Detail will be required within the Construction Certificate documentation
J6.2	**Artificial lighting** (a)In a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building— (i)the *lamp power density* or *illumination power density* of artificial lighting must not exceed the allowance of— (A)5 W/m2 within a *sole-occupancy unit*; and (B)4 W/m2 on a verandah, balcony or the like attached to a *sole-occupancy unit*; and (ii)the *illumination power density* allowance in (i) may be increased by dividing it by the *illumination power density* adjustment factor for a control device in Table J6.2b as applicable; and (iii)when designing the *lamp power density* or *illumination power density*, the power of the proposed installation must be used rather than nominal allowances for exposed batten holders or luminaires; and (iv)halogen lamps must be separately switched from fluorescent lamps. (b)In a building other than a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building—	Further Detail will be required within the Construction Certificate documentation

	(i)for artificial lighting, the aggregate design illumination power load must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum *illumination power density* in Table J6.2a; and (ii)the aggregate design illumination power load in (i) is the sum of the design illumination power loads in each of the spaces served; and (iii)where there are multiple lighting systems serving the same space, the design illumination power load for (ii)is— (A)the total illumination power load of all systems; or (B)where a control system permits only one system to operate at a time— (aa)based on the highest illumination power load; or (bb)determined by the J5.2 (b) (iii) (B) (bb) formula (c)The requirements of (a) and (b) do not apply to the following: (i)Emergency lighting provided in accordance with Part E4. (ii)Signage, display lighting within cabinets and display cases that are fixed in place. (iii)Lighting for accommodation within the residential part of a *detention centre*. (iv)A heater where the heater also emits light, such as in bathrooms. (v)Lighting of a specialist process nature such as in a surgical operating theatre, fume cupboard or clean workstation. (vi)Lighting of performances such as theatrical or sporting. (vii)Lighting for the permanent display and preservation of works of art or objects in a museum or gallery other than for retail sale, purchase or auction. (viii)Lighting installed solely to provide photosynthetically active radiation for indoor plant growth on green walls and the like. (d)For the purposes of Table J6.2b, the following control devices must comply with Specification J6: (i)Lighting timers. (ii)Motion detectors. (iii)Daylight sensors and dynamic lighting control devices.	
J6.3	**Interior artificial lighting and power control**	Further Detail will be required within the Construction Certificate documentation

	(a)All artificial lighting of a room or space must be individually operated by– (i)a switch; or (ii)other control device; or (iii)a combination of (i) and (ii). (b)An occupant activated device, such as a room security device, a motion detector in accordance with SpecificationJ6, or the like, must be provided in the *sole-occupancy unit* of a Class 3 building, 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 *sole-occupancy unit* is unoccupied. (c)An artificial lighting switch or other control device in (a) must— (i)if an artificial lighting switch, be located in a visible and easily accessed position— (A)in the room or space being switched; or (B)in an adjacent room or space from where 90% of the lighting being switched is visible; and (ii)for other than a single functional space such as an auditorium, theatre, *swimming pool*, sporting stadium or warehouse— (A)not operate lighting for an area of more than 250 m2 if in a Class 5 building or a Class 8 laboratory; or (B)not operate lighting for an area of more than— (aa)250 m2 for a space of not more than 2000 m2; or (bb)1000 m2 for a space of more than 2000 m2, if in a Class 3, 6, 7, 8 (other than a laboratory) or 9 building. (d)95% of the light fittings in a building or *storey* of a building, other than a Class 2 or 3 building or a Class 4 part of abuilding, of more than 250 m2 must be controlled by— (i)a time switch in accordance with Specification J6; or (ii)an occupant sensing device such as— (A)a security key card reader that registers a person entering and leaving the building; or (B)a motion detector in accordance with Specification J6. e)In a Class 5, 6 or 8 building of more than 250 m2, artificial lighting in a natural lighting zone adjacent to *windows* must be separately controlled from artificial lighting not in a natural lighting zone in the same *storey* except where—	

	(i)the room containing the natural lighting zone is less than 20 m2; or (ii)the room's natural lighting zone contains less than 4 luminaires; or (iii)70% or more of the luminaires in the room are in the natural lighting zone. (f)Artificial lighting in a *fire-isolated stairway*, *fire-isolated passageway* or *fire-isolated ramp*, must be controlled by amotion detector in accordance with Specification J6. (g)Artificial lighting in a foyer, corridor and other circulation spaces— (i)of more than 250 W within a single zone; and (ii)adjacent to *windows*, must be controlled by a daylight sensor and dynamic lighting control device in accordance with Specification J6. (h)Artificial lighting for daytime travel in the first 19 m of travel in a *carpark* entry zone must be controlled by a daylight sensor in accordance with Specification J6. (i)The requirements of (a), (b), (c), (d), (e), (f), (g) and (h) do not apply to the following: (i)Emergency lighting in accordance with Part E4. (ii)Where artificial lighting is needed for 24 hour occupancy such as for a manufacturing process, parts of a hospital, an airport control tower or within a *detention centre*. (j)The requirements of (d) do not apply to the following: (i)Artificial lighting in a space where the sudden loss of artificial lighting would cause an unsafe situation such as— (A)in a *patient care area* in a Class 9a building or in a Class 9c building; or (B)a plant room or lift motor room; or (C)a workshop where power tools are used. (ii)A heater where the heater also emits light, such as in bathrooms.	
J6.5	**Exterior artificial lighting** Exterior artificial lighting attached to or directed at the facade of a building, must— (i)be controlled by— (A)a daylight sensor; or (B)a time switch that is capable of switching on and off electric power to the system at variable pre-programmed times and on variable pre-programmed days; and	Further Detail will be required within the Construction Certificate documentation

	(ii)when the total lighting load exceeds 100 W— (A)use LED luminaires for 90% of the total lighting load; or (B)be controlled by a motion detector in accordance with Specification J6; or (C)when used for decorative purposes, such as façade lighting or signage lighting, have a separate time	
J7.2	**Heated water supply** A heated water supply system for food preparation and sanitary purposes must be designed and installed in accordance with Part B2 of NCC Volume Three — Plumbing Code of Australia	Further Detail will be required within the Construction Certificate documentation

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