Date: 8 April 2020
Our Ref: P20004

Mr. Lindsay Henry
Gardner Wetherill & Associates
Suite 201, Level 2,
460 Pacific Hwy,
St Leonards NSW 2065

Dear Lindsay

RE: BROKEN HILL POLICE STATION ,
51 Bromide St, Broken Hill
DESIGN COMPLIANCE ASSESSMENT

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

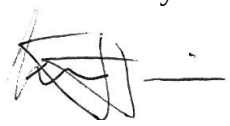
In reviewing the content of this Report, particular attention is drawn to the content of Parts 3 and 4, as: –

- Part 3 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 4 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 insufficient (design) detail, as applicable.

  This commentary enables the project team to readily identify and understand the nature and extent of information required within the Building Permit (or other) 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

DESIGN COMPLIANCE ASSESSMENT

PREPARED FOR

NSW POLICE SERVICE
C/- Gardner Wetherill & Associates

REGARDING
BROKEN HILL POLICE STATION ,
51 Bromide St, Broken Hill

Prepared By

BCA vision

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
P20004	1	Design Compliance Assessment	8 April 2020

CONTENTS PAGE

1.0 INTRODUCTION

1.1 GENERAL

This "BCA Compliance Assessment" report has been prepared at the request of The NSW Police Service C/- Gardner Wetherill & Associates and relates to the proposed new Police Station at 51 Bromide St, Broken Hill.

This report is based upon, and limited to, the information depicted in the documentation provided for assessment, and does not make assumptions regarding "design intention" or the like.

1.2 REPORT BASIS

The content of this report reflects –

(a) The principles and provisions of BCA 2019 Parts B, C, D, E & F,

(b) Preliminary Architectural Documentation prepared by Gardner Wetherill Associates

Numbered	Titled	Date of issue
A0003	Ground Floor Plan	Undated
A0004	First Floor Plan	Undated

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 (i.e. passenger lifts);

(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);

1.4 REPORT PURPOSE

The purpose of this report is to identify in accordance with Section 6.28 of E, P & A Regulation the extent to which the architectural design documentation complies with the relevant prescriptive provisions of BCA 2016 (Amendment1) Parts B, C, D, E & F.

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 insufficient detail exists, summary of the information required from the project team for inclusion within future applications (i.e. Building Permit) shall also be outlined in Part 4.

2.0 BUILDING DESCRIPTION

2.1 GENERAL

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

2.2 RISE IN STOREYS (CLAUSE C1.2)

The building is proposed to have a rise in storeys of Two (2)

2.3 BUILDING CLASSIFICATION (CLAUSE A3.2)

The entire building incorporates the following classifications:-

Class	Description
Class 5	an office building used for professional or commercial purposes, excluding buildings of Class 6, 7, 8 or 9.
Class 7b	Storage Vehicle Inspection
Class 8	A Laboratory
Class 10a	A Van dock

2.4 EFFECTIVE HEIGHT (CLAUSE A1.1)

The building has an effective height Not exceeding 12 metres.

Specification C1.1 - Type C Construction

Building Element	Distance to Fire Source Feature	FRL Class 5, 6, 7a or 9
External Wall	Less than 1.5m	90/90/90
	1.5 to less than 3m	60/60/60
	3m or more	-/-/-
External Column	Less than 1.5m	90/-/-
	1.5m to 3m	60/-/-
Common Walls & Fire Walls	N/A	90/90/90
Fire Resisting Lift or Stair Shaft	N/A	60/60/60
Internal Wall Bounding Public Corridor	N/A	-/-/-
Internal Wall Bounding SOU	N/A	-/-/-
Roof	N/A	-/-/-

2.5 GENERAL FLOOR AREA LIMITATIONS (TABLE C2.2)

Compartmentation requirements for Type C Construction apply and are achieved within the subject building.

Table C2.2 – Maximum size of Fire Compartments				
Building Class		Type A	Type B	**Type C**

5, 9b, 9c	Max Floor area Max Volume	8000 m^2 48,000 m^3	5,500 m^2 33,000 m^3	**3000 m^2** **18,000 m^3**
6, 7, 8, 9a	Max Floor area Max Volume	5000 m^2 30,000 m^3	3500 m^2 21,000 m^3	**2000 m^2** **12,000 m^3**

2.6 CONSTRUCTION IN BUSHFIRE AREAS (BCA PART G5)

A search within the RFS website indicates that the site is not considered to be Bushfire affected land

3.0 BCA ASSESSMENT – SUMMARY

3.1. GENERAL

The tables contained within items 3.2 – 3.9 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 "insufficient detail", a detailed analysis and commentary is provided within Part 4.

3.2. SECTION B – STRUCTURE

BCA reference	Complies	Does not comply	Detail required	Not relevant
B1.1 – resistance to actions			✓	
B1.2 – determination of individual actions			✓	
B1.4 – Determination of structural resistance of materials and forms of construction			✓	
B1.5 – Structural software			✓	
B1.6 - Construction of buildings in flood hazard areas				✓

3.3. SECTION C – FIRE RESISTANCE

BCA reference	Complies	Does not comply	Detail required	Not relevant
Spec. C1.1 – fire resisting construction			✓	
C1.3 – buildings of multiple classification				✓
C1.4 – mixed types of construction				✓
C1.5 – two storey Class 2 or 3 buildings				✓
C1.6 – Class 4 parts of a building				✓
C1.7 – open spectator stands & indoor sports stadiums				✓
C1.8 – lightweight construction				✓
C1.9 – non-combustible materials				✓
C1.10 – fire hazard properties			✓	
C1.11 – performance of external walls				✓
C2.2 – general floor area & volume limits	✓			
C2.3 – large isolated buildings				✓
C2.4 – requirements for open spaces & vehicular access				✓
C2.5 – Class 9a and 9c buildings				✓
C2.6 – vertical separation of openings in external walls				✓
C2.7 – separation of firewalls				✓
C2.8 – separation of classifications in same storey			✓	
C2.9 – separation of classifications in different storeys				✓
C2.10 – separation of lift shafts				✓
C2.11 – stairways and lifts in one shaft				✓
C2.12 – separation of equipment			✓	
C2.13 – electricity supply system			✓	
C2.14 – public corridors in Class 2 and 3 buildings				✓
C3.2 – openings in external walls			✓	
C3.3 – separation of external walls & associated openings				
C3.4 – acceptable methods of protection			✓	
C3.5 – doorways in firewalls				✓
C3.6 – sliding fire doors				✓
C3.7 – doorways in horizontal exits				✓
C3.8 – openings in fire-isolated exits				✓
C3.9 – service penetrations in fire-isolated exits				✓
C3.10 – openings in fire-isolated lift shafts				✓
C3.11 – bounding construction: Class 2, 3, 4 and 9 buildings				✓
C3.12 – openings in floors & ceilings for services				✓
C3.13 – openings in shafts				✓
C3.15 – openings for service installations			✓	
C3.16 – construction joints			✓	
C3.17 – columns protected with f/r lightweight construction				✓

3.4. SECTION D – ACCESS AND EGRESS

BCA reference	Complies	Does not comply	Detail required	Not relevant
D1.2 – number of exits required			✓	
D1.3 – when fire-isolated exits are required				✓
D1.4 – exit travel distances			✓	
D1.5 – distance between alternative exits			✓	
D1.6 – dimensions of exits and paths of travel to exits			✓	
D1.7 – travel via fire-isolated exits				✓
D1.8 – external stairways or ramps in lieu of fire-isolated exits				✓
D1.9 – travel via non-fire isolated stairways or ramps			✓	✓
D1.10 – discharge from exits			✓	
D1.11 – horizontal exits				✓
D1.12 – non-required stairways or ramps				✓
D1.13 – number of persons accommodated	✓			
D1.16 – plant rooms and lift motor rooms: concession				✓
D1.17 – access to lift pits			✓	
D2.2 – fire-isolated stairways and ramps				✓
D2.3 – non-fire isolated stairways and ramps				✓
D2.4 – separation of rising and descending stair flights				✓
D2.5 – open access ramps and balconies				✓
D2.6 – smoke lobbies				✓
D2.7 – installations in exits and paths of travel			✓	
D2.8 – enclosure of space under stairs and ramps			✓	
D2.9 – width of stairways				✓
D2.10 – pedestrian ramps				✓
D2.11 – fire-isolated passageways				✓
D2.12 – roof as open space			✓	
D2.13 – goings and risers			✓	
D2.14 – landings			✓	
D2.15 – thresholds			✓	
D2.16 – balustrades			✓	
D2.17 – handrails			✓	
D2.18 – fixed platforms, walkways, stairways and ladders				✓
D2.19 – doorways and doors			✓	
D2.20 – swinging doors	✓			
D2.21 – operation of latch			✓	
D2.22 – re-entry from fire-isolated exits				✓
D2.23 – signs on doors				✓
D3.2 – general building access requirements			✓	
D3.3 – parts of buildings to be accessible			✓	
D3.4 – concessions				✓
D3.5 – car parking			✓	
D3.6 – signage			✓	
D3.7 – hearing augmentation services and features				✓
D3.8 – tactile indicators			✓	
D3.9 – Wheelchair Seating				✓
D3.10 – Swimming Pools				✓
D3.11 - Ramps			✓	
D3.12 – Glazing on Accessaways			✓	

3.5. SECTION E – SERVICES AND EQUIPMENT

BCA reference	Complies	Does not comply	Detail required	Not relevant
E1.3 – fire hydrants			✓	
E1.4 – fire hose reels			✓	
E1.5 – sprinklers				✓
E1.6 – portable fire extinguishers			✓	
E1.8 – fire control centres				✓
E1.9 – fire precautions during construction				✓
E1.10 – provision for special hazards				✓
E2.2a – general provisions				✓
E2.2b – specific provisions				✓
E2.3 – provision for special hazards				✓
E3.2 – stretcher facility in lifts				✓
E3.3 – warning against use of lifts in fire			✓	
E3.4 – emergency lifts				✓
E3.5 – landings			✓	
E3.6 – facilities for people with disabilities			✓	
E3.7 – fire service controls				✓
E3.8 – aged care buildings				✓
E4.2 – emergency lighting			✓	
E4.4 – design and operation of emergency lighting			✓	
E4.5 – exit signs			✓	
E4.6 – direction signs			✓	
E4.7 – Class 2 and 3 buildings and Class 4 parts: exemptions				✓
E4.8 – design and operation of exit signs			✓	
E4.9 – emergency warning and intercommunication systems				✓

3.6. SECTION F – HEALTH AND AMENITY

BCA reference	Complies	Does not comply	Detail required	Not relevant
F1.1 – stormwater drainage			✓	
F1.5 – roof coverings			✓	
F1.6 – sarking			✓	
F1.7 – water proofing of wet areas			✓	
F1.9 – damp proofing			✓	
F1.10 – damp proofing of floors on ground			✓	
F1.11 – floor wastes				✓
F1.12 – sub-floor ventilation				✓
F1.13 – glazed assemblies			✓	
F2.1 – facilities in residential buildings				✓
F2.3 – facilities in Class 3 to 9 buildings	✓			
F2.4 – facilities for people with disabilities		✓		
F2.5 – construction of sanitary compartments			✓	
F2.7 – microbial (legionella) control				✓
F2.8 – waste management				✓
F3.1 – height of rooms			✓	
F4.1 – provision of natural light				✓
F4.2 – methods and extent of natural lighting				✓
F4.3 – natural lighting borrowed from adjoining room				✓
F4.4 – artificial lighting			✓	
F4.5 – ventilation of rooms			✓	
F4.6 – natural ventilation				✓
F4.7 – ventilation borrowed from an adjoining room				✓
F4.8 – restriction on position of water closets and urinals	✓			
F4.9 – airlocks				✓
F4.11 – car parks				✓
F4.12 – kitchen local exhaust ventilation				✓
F5.2 – sound transmission class: interpretation				✓
F5.3 – sound transmission of floors between units				✓
F5.4 – sound insulation of walls between units				✓
F5.5 – sound insulation rating of walls				✓
F5.6 – sound insulation rating of services				✓
F5.7 – sound insulation of pumps				✓

3.7. SECTION G – ANCILLARY PROVISIONS

BCA reference	Complies	Does not comply	Detail required	Not relevant
G1.1 – swimming pools				✓
G1.2 – refrigerated chambers, strong-rooms & vaults				✓
G2.2 – installation of appliances				✓
G2.3 – open fireplaces				✓
G2.4 – incinerator rooms				✓
G3.2 – dimensions of atrium well				✓
G3.3 – separation of atrium bounding walls				✓
G3.4 – construction of bounding walls				✓
G3.5 – construction at balconies				✓
G3.6 – separation at roofs				✓
G3.7 – means of egress				✓
G3.8 – fire and smoke control systems				✓
G4.3 – external doorways				✓
G4.4 – emergency lighting				✓
G4.5 – external ramps				✓
G4.6 – discharge of exits				✓
G4.7 – external trafficable structures				✓
G4.8 – fire-fighting services and equipment				✓
G4.9 – fire orders				✓
G5.2 – protection (in bushfire prone areas)				✓

3.8. SECTION J – ENERGY EFFICIENCY

BCA reference	Complies	Does not comply	Detail required	Not relevant
J1.2 – thermal construction general			✓	
J1.3 – roof and ceiling construction			✓	
J1.4 – roof lights				✓
J1.5 – walls			✓	
J1.6 – floors				✓
J2.4 – glazing			✓	
J2.5 – shading			✓	
J3.1 – Application of Part			✓	
J3.2 – chimneys and flues			✓	
J3.3 – roof lights				✓
J3.4 – external windows and doors			✓	
J3.5 – exhaust fans			✓	
J3.6 – construction of roofs, walls and floors			✓	
J3.7 – Evaporative coolers				✓
J5.2 – air conditioning and ventilation systems			✓	
J5.3 – time switch			✓	
J5.4 – heating and cooling systems			✓	
J5.5 – ancillary exhaust systems			✓	
J6.2 – interior artificial lighting			✓	
J6.3 – interior artificial lighting and power control			✓	
J6.4 – Interior and decorative lighting			✓	
J6.5 – Artificial lighting around perimeter of building			✓	
J6.6 – Building water and chilled storage units			✓	
J7.2 – hot water supply			✓	
J8.2 – access for maintenance			✓	

4.0 BCA ASSESSMENT – DETAILED ANALYSIS

4.1 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.

4.2 SECTION B – STRUCTURE

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. B1.1	Resistance to actions The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions, where— (a) the most critical action effect on a building or structure is determined in accordance with B1.2 and the general design procedures contained in AS/NZS 1170.0; and (b) the resistance of a building or structure is determined in accordance with B1.4.	Further detail is required within the construction plans and specifications.
Cl. B1.2	Determination of individual actions The magnitude of individual actions must be determined in accordance with the following: (a) Permanent actions:	Further detail is required within the construction plans and specifications.

	(i) the design or known dimensions of the building or structure; and (ii) the unit weight of the construction; and (iii) AS/NZS 1170.1. (b) Imposed actions: (i) the known loads that will be imposed during the occupation or use of the building or structure; and (ii) *construction activity actions*; and (iii) AS/NZS 1170.1. (c) Wind, snow and ice and earthquake actions: (i) the applicable annual probability of design event for safety, determined by— (A) assigning the building or structure an Importance Level in accordance with Table B1.2a; and (B) determining the corresponding annual probability of exceedance in accordance with Table B1.2b; and (ii) (A) AS/NZS 1170.2 (2002); or (B) AS/NZS 1170.2 (2011) except that clause 2.3 Design Wind Speed and Figure 3.1(A) Wind Regions do not apply and are replaced by clause 2.3 and Figure 3.1 of AS/NZS 1170.2 (2002); and (iii) AS/NZS 1170.3 and AS 1170.4 as appropriate; and (iv) in cyclonic areas, metal roof cladding, its connections and immediate supporting members must comply with Specification B1.2; and (v) for the purposes of (iv), cyclonic areas are those determined as being located in wind regions C and D in accordance with AS/NZS 1170.2 (2002). (d) Actions not covered in (a), (b) and (c) above:	

	(i) the nature of the action; and (ii) the nature of the building or structure; and (iii) the Importance Level of the building or structure determined in accordance with Table B1.2a; and (iv) AS/NZS 1170.1. (e) For the purposes of (d) the actions include but are not limited to— (i) liquid pressure action; and (ii) ground water action; and (iii) rainwater action (including ponding action); and (iv) earth pressure action; and (v) differential movement; and (vi) time dependent effects (including creep and shrinkage); and (vii) thermal effects; and (viii) ground movement caused by— (A) swelling, shrinkage or freezing of the subsoil; and (B) landslip or subsidence; and (C) *site works* associated with the building or structure; and (ix) *construction activity actions*.	
Cl. B1.4	Determination of structural resistance of materials and forms of construction The structural resistance of materials and forms of construction must be determined in accordance with the following, as appropriate: (a) Masonry (including masonry-veneer, unreinforced masonry and reinforced masonry): AS 3700. (b) Concrete construction (including reinforced and prestressed concrete): AS 3600.	Further detail is required within the construction plans and specifications.

	(c) Steel construction— (i) Steel structures: AS 4100. (ii) Cold-formed steel structures: AS/NZS 4600. (iii) Residential and low-rise steel framing: NASH Standard. (d) Composite steel and concrete: AS 2327.1. (e) Aluminium construction: AS/NZS 1664.1 or AS/NZS 1664.2. (f) Timber construction: (i) Design of timber structures: AS 1720.1. (ii) * * * * * (iii) Timber structures: AS 1684 Part 2, Part 3 or Part 4. (g) Piling: AS 2159. (h) Glazed assemblies: (i) The following glazed assemblies in an *external wall* must comply with AS 2047: (A) Windows excluding those listed in (ii). (B) Sliding doors with a frame. (C) Adjustable louvres. (D) Shopfronts. (E) Window walls with one piece framing. (ii) All glazed assemblies not covered by (i) and the following glazed assemblies must comply with AS 1288: (A) All glazed assemblies not in an *external wall*. (B) Hinged doors, including French doors and bi-fold doors. (C) Revolving doors.	

	(D) Fixed louvres. (E) Skylights, roof lights and windows in other than the vertical plane. (F) Sliding doors without a frame. (G) Shopfront doors. (H) Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047. (I) Second-hand windows, re-used windows, recycled windows and replacement windows. (J) Heritage windows. (K) Glazing used in balustrades and sloping overhead glazing. (i) Termite Risk Management: Where a *primary building element* is subject to attack by subterranean termites: AS 3660.1, and— (i) for the purposes of this provision, a *primary building element* consisting entirely of, or a combination of, any of the following materials is considered not subject to termite attack: (A) Steel, aluminium or other metals. (B) Concrete. (C) Masonry. (D) Fibre-reinforced cement. (E) Timber — naturally termite resistant in accordance with Appendix C of AS 3660.1. (F) Timber — preservative treated in accordance with Appendix D of AS 3660.1; and (ii) a durable notice must be permanently fixed to the building in a prominent location, such as a meter box or the like, indicating— (A) the method of termite risk management; and	

	(B) the date of installation of the system; and (C) where a chemical barrier is used, its life expectancy as listed on the National Registration Authority label; and (D) the installer's or manufacturer's recommendations for the scope and frequency of future inspections for termite activity. (j) Roof construction (except in cyclone areas): (i) Plastic sheeting: AS/NZS 1562.3, AS/NZS 4256 Parts 1, 2, 3 and 5. (ii) Roofing tiles: AS 2049, AS 2050. (iii) Cellulose cement corrugated sheets: AS/NZS 2908.1 with safety mesh installed in accordance with AS/NZS 1562.3 clause 2.4.3.2 except for sub clause (g) for plastic sheeting. (iv) Metal roofing: AS 1562.1. (v) Asphalt shingles: ASTM D3018-90, Class A. (k) Particleboard structural flooring: AS 1860.2. (l) * * * * * (m) Lift *shafts* which are not *required* to have an FRL: AS 1735.2 Clause 11.1.2.	
Cl. B1.5	Structural Software (a) Structural software used in computer aided design of a building or structure, that uses design criteria based on the *Deemed-to-Satisfy Provisions* of the BCA, including its referenced documents, must comply with the ABCB Protocol for Structural Software. (b) The requirements of (a) only apply to structural software used to design steel or timber trussed roof and floor systems and framed building systems for buildings within the following geometrical limits: (i) The distance from ground level to the underside of eaves must not exceed 6 m.	For Reference

	(ii) The distance from ground level to the highest point of the roof, neglecting chimneys must not exceed 8.5 m. (iii) The building width including roofed verandahs, excluding eaves, must not exceed 16 m. (iv) The building length must not exceed five times the building width. (v) The roof pitch must not exceed 35 degrees. (c) The requirements of (a) do not apply to design software for individual frame members such as electronic tables similar to those provided in AS 1684.	

4.3 SECTION C – FIRE RESISTANCE

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. C1.1	Type of construction required (a) The minimum Type of fire-resisting construction of a building must be that specified in Table C1.1 and Specification C1.1	The Building is required to be Type C Construction (refer to Table, Clause 2.4, page 3 of report Further detail is required within the construction plans and specifications.
Cl. C1.10	The general materials of construction must have fire hazard properties calculated in accordance with AS 1530.3, and must not: – ❑ Have a spread of flame index exceeding 9 ❑ Have a smoke developed index exceeding 8, if the spread of flame index exceeds 5 Floor, wall and ceiling linings must have fire hazard properties accordant with BCA Specification C1.10a, which specifies that: – ❑ <u>Floor materials / coverings</u> (i) The critical radiant flux is not less than 2.2	Further detail is required within the construction plans and specifications.
Cl. C2.8	Separation of classifications in the same storey If a building has parts of different classifications located alongside one another in the same storey— (a) each building element in that storey must have the higher FRL prescribed in Specification C1.1 for that element for the classifications concerned; or (b) the parts must be separated in that storey by a fire wall having— (i) the higher FRL prescribed in Table 3 or 4; or (ii) the FRL prescribed in Table 5, of Specification C1.1 as applicable, for that	For Reference

	element for the Type of construction and the classifications concerned; or (c) where one part is a carpark complying with Table 3.9, 4.2 or 5.2 of Specification C1.1, the parts may be separated by a fire wall complying with the appropriate Table.	
Cl. C2.12	Separation of Equipment ▪ Lift motors, control panels, generators and boilers, etc. are to be 120/120/120 separated from the building. ▪ Any doorway to be a self-closing – /120/30 fire door. ▪ The following equipment is excluded – (i) Spec. E2.2b high temperature operation smoke control exhaust fans located in the air stream; or (ii) AS/NZS 1668.1 complying stair pressurising equipment; or (iii) Equipment adequately separated from the remainder of the building. ▪ Separation of on-site fire pumps must comply with E1.3.	Further detail is required within the construction plans and specifications.
Cl. C2.13	Electricity Supply System ▪ A main switchboard or electricity substation in the building sustaining emergency equipment operating in the emergency mode must – (i) be 120/120/120 separated from the building; and (ii) fitted with –/120/30 self-closing fire doors. ▪ Electrical conductors in the building supplying a main switchboard must have a AS/NZS 3013 classification not less than – (i) if the location could be damaged by motor vehicles – WS53W; (ii) otherwise – WS52W; or (iii) be enclosed or protected by 120/120/120 construction.	Further detail is required within the construction plans and specifications.
Cl. C3.2	Protection of openings in external walls Openings in an external wall that is required to have an FRL must—	Further detail is required within the construction plans and specifications

	(a) if the distance between the opening and the fire-source feature to which it is exposed is less than— (i) 3 m from a side or rear boundary of the allotment; or (ii) 6 m from the far boundary of a road, river, lake or the like adjoining the allotment, if not located in a storey at or near ground level; or (iii) 6 m from another building on the allotment that is not Class 10, be protected in accordance with C3.4 and if wall-wetting sprinklers are used, they are located externally; and (b) if required to be protected under (a), not occupy more than 1/3 of the area of the external wall of the storey in which it is located unless they are in a Class 9b building used as an open spectator stand.	
Cl. C3.4	Acceptable methods of protection (a) Where protection is required, doorways, windows and other openings must be protected as follows: (i) Doorways— (A) internal or external wall-wetting sprinklers as appropriate used with doors that are self-closing or automatic closing; or (B) –/60/30 fire doors that are self-closing or automatic closing. (ii) Windows— (A) internal or external wall-wetting sprinklers as appropriate used with windows that are automatic closing or permanently fixed in the closed position; or (B) –/60/– fire windows that are automatic closing or permanently fixed in the closed position; or (C) –/60/– automatic closing fire shutters. (iii) Other openings— (A) excluding voids — internal or external wall-wetting sprinklers, as appropriate; or (B) construction having an FRL not less than –/60/–. (b) Fire doors, fire windows and fire shutters must comply with Specification C3.4.	Further detail is required within the construction plans and specifications

Cl. C3.15	Openings for service installations Where an electrical, electronic, plumbing, mechanical ventilation, air-conditioning or other service penetrates a building element (other than an *external wall* or roof) that is *required* to have an FRL with respect to *integrity* or *insulation* or a *resistance to the incipient spread of fire*, that installation must comply with any one of the following: (a) Tested systems (i) The service, building element and any protection method at the penetration are identical with a prototype assembly of the service, building element and protection method which has been tested in accordance with AS 4072.1 and AS 1530.4 and has achieved the *required* FRL or *resistance to the incipient spread of fire*. (ii) It complies with (i) except for the *insulation* criteria relating to the service if— (A) the service is a pipe system comprised entirely of metal (excluding pipe seals or the like); and (B) any *combustible* building element is not located within 100 mm of the service for a distance of 2 m from the penetration; and (C) *combustible* material is not able to be located within 100 mm of the service for a distance of 2 m from the penetration; and (D) it is not located in a *required exit*. (b) Ventilation and air-conditioning — In the case of ventilating or air-conditioning ducts or equipment, the installation is in accordance with AS/NZS 1668.1. (c) Compliance with Specification C3.15 (i) The service is a pipe system comprised entirely of metal (excluding pipe seals or the like) and is installed in accordance with Specification C3.15 and it— (A) penetrates a wall, floor or ceiling, but not a ceiling *required* to have a	Further detail is required within the construction plans and specifications.

	resistance to the incipient spread of fire; and (B) connects not more than 2 *fire compartments* in addition to any *fire-resisting* service *shafts*; and (C) does not contain a flammable or combustible liquid or gas. (ii) The service is sanitary plumbing installed in accordance with Specification C3.15 and it— (A) is of metal or UPVC pipe; and (B) penetrates the floors of a Class 5, 6, 7, 8 or 9b building; and (C) is in a *sanitary compartment* separated from other parts of the building by walls with the FRL *required* by Specification C1.1 for a stair *shaft* in the building and a *self-closing* –/60/30 fire door. (iii) The service is a wire or cable, or a cluster of wires or cables installed in accordance with Specification C3.15 and it— (A) penetrates a wall, floor or ceiling, but not a ceiling *required* to have a *resistance to the incipient spread of fire*; and (B) connects not more than 2 *fire compartments* in addition to any *fire-resisting* service *shafts*. (iv) The service is an electrical switch, outlet, or the like, and it is installed in accordance with Specification C3.15.	
Cl. C3.16	Construction joints Construction joints, spaces and the like in and between building elements *required* to be *fire-resisting* with respect to *integrity* and *insulation* must be protected in a manner identical with a prototype tested in accordance with AS 1530.4 to achieve the *required* FRL.	Further detail is required within the construction plans and specifications.

4.4 SECTION D – ACCESS AND EGRESS

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. D1.2	Number of exits required (a) All buildings — Every building must have at least one exit from each storey. (b) Class 2 to 8 buildings — In addition to any horizontal exit, not less than 2 exits must be provided from the following: (i) Each storey if the building has an effective height of more than 25 m. (ii) A Class 2 or 3 building subject to C1.5.	For Reference
Cl. D1.4	Exit travel distances Class 5, 6, 7, 8 or 9 buildings — (i) no point on a floor must be more than 20 m from an exit, or a point from which travel in different directions to 2 exits is available, in which case the maximum distance to one of those exits must not exceed 40 m; and (ii) in a Class 5 or 6 building, the distance to a single exit serving a storey at the level of access to a road or open space may be increased to 30 m.	Egress from the plant room area is unclear Egress within the first floor will rely on travel through the "Listening room" to ensure travel distance to a point of choice can be achieved within 20m from:- • Crime Manager Office • PDM • District Commander • Administration • Detectives • Interview Room • Equipment Room • Investigations Manager
Cl. D1.5	Distance between alternative exits Exits that are required as alternative means of egress must be— (a) distributed as uniformly as practicable within or around the storey served and in positions where unobstructed access to at least 2 exits is readily available from all points on the floor including lift lobby areas; and	Further detail is required within the construction plans and specifications.

	(b) not less than 9 m apart; and (c) not more than 60 m apart; and located so that alternative paths of travel do not converge such that they become less than 6 m apart.	
Cl. D1.6	Dimensions of exits and paths of travel to exits In a required exit or path of travel to an exit— (a) the unobstructed height throughout must be not less than 2 m, except the unobstructed height of any doorway may be reduced to not less than 1980 mm; and (b) the unobstructed width of each exit or path of travel to an exit, except for doorways, must be not less than 1m.	Further detail is required within the construction plans and specifications.
Cl. D1.10	Discharge from Exits ▪ Where necessary, suitable barriers must be provided to prevent vehicles from blocking the exit or access to it. ▪ The path of travel to the road from the discharge in open space must be no less than the minimum width of the required exit or 1 m, whichever is the greater. ▪ Where the discharge to open space is at a different level to the road, the path of travel to the road must be by a ramp or the like having a gradient no less than 1:8, or 1:14 if required by the Part D3; ▪ The discharge point of alternative exits must be located as far apart as practical.	Further detail is required within the construction plans and specifications.
Cl. D1.17	Access to lift pits Access to lift pits must— (a) where the pit depth is not more than 3 m, be through the lowest landing doors; or (b) where the pit depth is more than 3 m, be provided through an access doorway complying with the following: (i) In lieu of D1.6, the doorway must be level with the pit floor and not be less than 600 mm wide by 1980 mm high clear opening, which may be reduced to 1500 mm where it is necessary to comply with (ii).	Further detail is required within the construction plans and specifications.

	(ii) No part of the lift car or platform must encroach on the pit doorway entrance when the car is on a fully compressed buffer. (iii) Access to the doorway must be by a stairway complying with AS 1657. (iv) In lieu of D2.21, doors fitted to the doorway must be— (A) of the horizontal sliding or outwards opening hinged type; and (B) self-closing and self-locking from the outside; and (C) marked on the landing side with the letters not less than 35 mm high: "DANGER LIFTWELL − ENTRY OF UNAUTHORIZED PERSONS PROHIBITED − KEEP CLEAR AT ALL TIMES"	
Cl. D2.7	Installations in exits and paths of travel (a) 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*. (b) 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*. (c) Gas or other fuel services must not be installed in a *required exit*. (d) Services or equipment comprising— (i) electricity meters, distribution boards or ducts; or (ii) central telecommunications distribution boards or equipment; or (iii) electrical motors or other motors serving equipment in the building, may be installed in— (iv) a *required exit*, except for fire-isolated *exits* specified in (a); or (v) in any corridor, hallway, lobby or the like leading to a *required exit*, if the services or equipment are enclosed by *non-combustible* construction or a	Further detail is required within the construction plans and specifications.

	fire-protective covering with doorways or openings suitably sealed against smoke spreading from the enclosure. (e) Electrical wiring may be installed in a fire-isolated *exit* if the wiring is associated with— (i) a lighting, detection, or pressurisation system serving the *exit*; or (ii) a security, surveillance or management system serving the *exit*; or (iii) an intercommunication system or an audible or visual alarm system in accordance with D2.22; or (iv) the monitoring of hydrant or sprinkler isolating valves.	
Cl. D2.13	Goings and risers (a) A stairway must have— (i) not more than 18 and not less than 2 risers in each flight; and (ii) going (G), riser (R) and quantity (2R + G) in accordance with Table D2.13, except as permitted by (b) and (c); and (iii) constant goings and risers throughout each flight, except as permitted by (b) and (c), and the dimensions of goings (G) and risers (R) in accordance with (a)(ii) are considered constant if the variation between— (A) adjacent risers, or between adjacent goings, is no greater than 5 mm; and (B) the largest and smallest riser within a flight, or the largest and smallest going within a flight, does not exceed 10 mm; and (iv) risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and (v) treads which have— (A) a surface with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; or (B) a nosing strip with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586; and (vi) treads of solid construction (not mesh or other perforated material) if the	Further detail is required within the construction plans and specifications.

<table>
<tr><td></td><td>stairway is more than 10 m high or connects more than 3 storeys; and
(vii) in a Class 9b building, not more than 36 risers in consecutive flights without a change in direction of at least 30°; and
(viii) in the case of a required stairway, no winders in lieu of a landing.</td><td></td></tr>
<tr><td>Cl. D2.14</td><td>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 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 D2.14 when tested in accordance with AS 4586; or
(B) a strip at the edge of the landing with a slip-resistance classification not less than that listed in Table D2.14 when tested in accordance with AS 4586, where the edge leads to a flight below
Table D2.14 Slip-resistance classification
<table>
<tr><th>Application</th><th>Dry surface conditions</th><th>Wet surface conditions</th></tr>
<tr><td>Ramp steeper than 1:14</td><td>P4 or R11</td><td>P5 or R12</td></tr>
<tr><td>Ramp steeper than 1:20 but not steeper than 1:14</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Tread or landing surface</td><td>P3 or R10</td><td>P4 or R11</td></tr>
<tr><td>Nosing or landing edge strip</td><td>P3</td><td>P4</td></tr>
</table>
</td><td>Further detail is required within the construction plans and specifications.</td></tr>
<tr><td>Cl. D2.15</td><td>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—
(c) in a building required to be accessible by Part D3, the doorway—
(i) opens to a road or open space; and
(ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or</td><td>Further detail is required within the construction plans and specifications.</td></tr>
</table>

	(d) in a Class 9b building used as an *entertainment venue*, the door sill of a doorway opening to a road, *open space*, external stair landing or external balcony is not more than 50 mm above the finished floor level to which the doorway opens; or (e) 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.	
Cl. D2.16	Barriers to prevent falls (a) A continuous barrier must be provided along the side of— (i) a roof to which general access is provided; and (ii) a stairway or ramp; and (iii) a floor, corridor, hallway, balcony, deck, verandah, mezzanine, access bridge or the like; and (iv) any delineated path of access to a building, if the trafficable surface is 1 m or more above the surface beneath. (c) A barrier required by (a) must be constructed in accordance with Table D2.16a.	Further detail is required within the construction plans and specifications.
Cl. D2.17	Handrails (a) Except for handrails referred to in D2.18, handrails must be— (i) located along at least one side of the ramp or flight; and (ii) located along each side if the total width of the stairway or ramp is 2 m or more; and (iv) Fixed at a height of not less than 865 mm measured above the nosings of stair treads and the floor surface of the ramp, landing, or the like; and (v) continuous between stair flight landings and have no obstruction on or above them that will tend to break a hand-hold; and (vi) in a required exit serving an area required to be accessible, designed and constructed to comply with clause 12 of AS 1428.1, except that clause 12(d) does not	Further detail is required within the construction plans and specifications.

	apply to a handrail required by (a)(iii)(B). (c) Handrails required to assist people with a disability must be provided in accordance with D3.3.	
Cl. D2.19	Doorways and Doors A doorway in, or forming part of, a required exit – (i) Must not be fitted with a revolving door, roller shutter, or tilt-up door unless it serves a class 6, 7 or 8 building or part not more than 200 m², is the only required exit from the building or part, and is open while the building or part is occupied. (ii) must not be fitted with a sliding door unless it leads directly to a road or open space, and it can open manually with a force not more than 110N. (iii) if the door is power-operated it can be manually opened with a 110 N force if there is a malfunction or failure of the power source, and if leading to a road or open space, opens automatically upon power failure, or on fire or smoke alarm activation anywhere in the fire compartment served by the door. (iv) a sliding door may be fitted where it leads directly to a road or open space, forms a main entrance, is capable of swinging in the direction of egress when inside pressure is applied, and has signage indicating the swinging potential in an emergency	Further detail is required in regard to the foyer door within the construction plans and specifications.
Cl. D2.20	winging doors A swinging door in a required exit or forming part of a required exit— (a) must not encroach— (i) at any part of its swing by more than 500 mm on the required width (including any landings) of a required— (A) stairway; or (B) ramp; or	For Reference

	(C) passageway, if it is likely to impede the path of travel of the people already using the exit; and (ii) when fully open, by more than 100 mm on the required width of the required exit, and the measurement of encroachment in each case is to include door handles or other furniture or attachments to the door; and (b) must swing in the direction of egress unless— (i) it serves a building or part with a floor area not more than 200 m2, it is the only required exit from the building or part and it is fitted with a device for holding it in the open position; or (ii) it serves a sanitary compartment or airlock (in which case it may swing in either direction); and (c) must not otherwise impede the path or direction of egress.	
Cl. D2.21	All doors in a required exit, forming part of a required exit or in the path of travel to a required exit must be readily provided with door hardware located between 900-1100-mm above floor level and be readily openable without a key from the side facing a person seeking egress by a single downward action.	Further detail is required within the construction plans and specifications.
Cl. D3.1	General building access requirements Buildings and parts of buildings must be *accessible* as *required* by Table D3.1, unless exempted by D3.4. Access within the building is therefore required to and within all areas to and within all areas used by occupants.	Further detail is required within the construction plans and specifications.
Cl. D3.2	Access to buildings (1) An access way must be provided: (a) to a building required to be accessible; (b) from the main points of a pedestrian entry at the allotment boundary; and (i) from another accessible building connected by a pedestrian link;	Further detail is required within the construction plans and specifications.

	and (ii) from any required accessible car parking space on the allotment. (2) In a building required to be accessible, an access way 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 clause D3.4. (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 one of those doorways must be accessible; and (b) if the pedestrian entrance consists of more than 3 doorways — not less than 50% of those doorways must be accessible. (4) For the purposes of subclause (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 D3.2); and (b) a doorway is considered to be the clear, unobstructed opening created by the opening of one or more door leaves (see Figure D3.2). (5) Where a doorway on an access way 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.	
Cl. D3.3	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	Further detail is required within the construction plans and specifications.

	exempted by clause D3.4, 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; (iii) for a fire-isolated stairway, clause 11.1(f) and (g) of AS 1428.1; (b) every passenger lift must comply with clause E3.6; (c) access ways must have: (i) passing spaces complying with AS 1428.1 at maximum 20 m intervals on those parts of an access way where a direct line of sight is not available; and (ii) turning spaces complying with AS 1428.1: (A) within 2 m of the end of access ways where it is not possible to continue travelling along the access way; and (B) at maximum 20 m intervals along the access way; (d) an intersection of access ways satisfies the spatial requirements for a passing and turning space; (e) a passing space may serve as a turning space; (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.	
Cl. D3.5	Accessible car parking spaces: (a) subject to (b), must be provided in accordance with Table D3.5 in: (i) a Class 7a building required to be accessible; and (ii) a car parking area on the same allotment as a building required to	Further detail is required within the construction plans and specifications

	be accessible; and (b) need not be provided in a Class 7a building or a car parking area where a parking service is provided and direct access to any of the car parking spaces is not available to the public; and (c) subject to (d), must comply with AS 2890.6; and (d) need not be designated where there is a total of not more than 5 car parking spaces, so as to restrict the use of the car parking space only for people with a disability.	
Cl. D3.6	Signage In a building required to be accessible: (a) braille and tactile signage complying with Part D4 and incorporating the international symbol of access or deafness, as appropriate, in accordance with AS 1428.1 must identify each: (i) sanitary facility, except a sanitary facility within a sole-occupancy unit in a Class 1b or Class 3 building; and (i) space with a hearing augmentation system; and 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	Further detail is required within the construction plans and specifications.

	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.	
Cl. D3.8	Tactile indicators (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; (b) an escalator; (c) a passenger conveyor or moving walk; (d) a ramp other than a fire-isolated ramp, a step ramp, a kerb ramp or a 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 access way meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in clause D3.4, if there is no kerb or kerb ramp at that point; except for areas exempted by clause D3.4. (2) Tactile ground surface indicators required by subclause (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 paragraphs (1) (a) and (d) if handrails	Further detail is required within the construction plans and specifications.

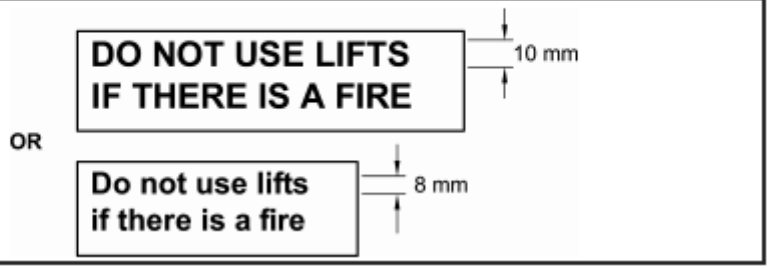
	incorporating a raised dome button in accordance with the requirements for stairway handrails in AS 1428.1 are provided to warn people who are blind or have a vision impairment that they are approaching a stairway or ramp.	
Cl. D3.12	Glazing on an access way On an access way, where there is no chair 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 plans and specifications.

4.5 SECTION E – SERVICES AND EQUIPMENT

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. E1.3	Fire Hydrants must:- Be provided to a building more than 500 m² and where fire brigades can attend. Be AS 2419.1 installed, meet the operational requirements of the Brigades for flows and pressures, and when internal, serve only the storey on which they are located except a – (i) Class 2, 3, 4 sole-occupancy unit may be served by a single hydrant at the level of egress from that unit (ii) Class 5, 6, 7, 8, 9 sole-occupancy unit 2 or less storeys may be served by a single hydrant at the level of egress from that unit provided the hydrant can cover the whole unit On-site pump sets provided to achieve the AS 2419.1 performance requirements must comprise – (i) two pumps, at least one driven by a compression ignition engine or electric motor supplied from an emergency power generator; or (ii) two electric motor pumps connected to independent power sources; or (iii) if connected to a reticulated water supply and in a building not greater than 25 m, one pump driven by – (a) a compression ignition engine; or (b) an electric motor supplied from an emergency power generator; or (c) an electric motor connected to two independent power sources through an automatic change-over facility Internal fixed on-site pump sets must be in a clearly indicated room having direct	Further detail is required within the construction plans and specifications.

	egress to a road or open space and, if the building is not sprinkled, separated by construction having an FRL of that required for a fire wall for the classification occupied. External fixed on-site pump sets are to be in clearly indicated weatherproof enclosures with direct egress to a road or open space, and if within 6 m of the building – (i) each wall of the enclosure exposed to the building; or (ii) that part of the building external wall 2 m each side and 3 m above the enclosure; or (iii) a wall between the building and enclosure extending 2 m each side and 3 m above the enclosure, (iv) has an FRL of that required for a fire wall for the classification occupied Where the supply system is from a static source, suitable connections and vehicular access must permit Brigade personnel to draw water, and a fire-service booster connection is provided adjacent to allow boosting of the system	
Cl. E1.4	Fire Hose Reels Be provided to the whole building when internal hydrants are installed or, if not installed, to any fire compartment more than 500 m² (a Class 2, 3, 4 unit is a fire compartment) Be AS 2441 installed and serve only the storey at which they are located, except a – (i) Class 2, 3, 5 sole-occupancy unit may be served by a single hose reel at the level of egress from the unit (ii) Class 5, 6, 7, 8, 9 sole-occupancy unit, not more than 2 storeys, may be served by a single hose reel at the level of egress from that unit provided is achieved to the whole unit Be provided so the nozzle of a fire hose fitted to the reel, laid to avoid partitions or	Further detail is required within the construction plans and specifications.

	the like, will reach every part of the floor of the storey Be located externally, internally within 4 m of an exit, or internally adjacent to a fire hydrant (except in a fire-isolated exit), so the hose does not pass through fire or smoke doors (except doors in C2.12, C2.13, C3.11, C3.13) Where connected to a metered water supply – (i) maintain the required flow rate and at the most hydraulically disadvantaged fire hose reel (ii) the water meter and street supply to the allotment have a minimum 25 mm nominal diameter (iii) have a Fig. E1.4 water supply pipework reticulation arrangement (iv) have any system valve which can isolate flow in the water supply main – (a) secured in the open position by a padlocked metal strap (b) labelled with an engraved non-ferrous metal tag with 8 mm words: FIRE SERVICE VALVE – CLOSE ONLY TO SERVICE FIRE HOSE REELS Where supplied by a main more than 25 mm nominal bore, connected to a fire hydrant main, have a flow isolating system valve at the connection to that main and, where practical, be in a fire-isolated stairway, passageway or ramp, or external.	
Cl. E1.6	Portable Fire Extinguishers Must be selected, located, and installed under AS 2444 ▪ Class A (E) or (E) fire risks associated with emergency services switchboards. ▪ Class F fire risks involving kitchen cooking oils and fats ▪ Class B fire risks where more than 50 litres of flammable liquids are stored or used (except fuel tanks in vehicles)	Further detail is required within the construction plans and specifications.

Cl. E3.3	Warning against use of lifts in fire A warning sign must— (a) be displayed where it can be readily seen— (i) near every call button for a passenger lift or group of lifts throughout a building; except (ii) a small lift such as a dumb-waiter or the like that is for the transport of goods only; and (b) comply with the details and dimensions of Figure E3.3 and consist of— (i) incised, inlaid or embossed letters on a metal, wood, plastic or similar plate securely and permanently attached to the wall; or (ii) letters incised or inlaid directly into the surface of the material forming the wall. Figure E3.3 WARNING SIGN FOR PASSENGER LIFTS 	Further detail is required within the construction plans and specifications
Cl. E3.5	Landings Access and egress to and from liftwell landings must comply with the Deemed-to-Satisfy Provisions of Section D.	Further detail is required within the construction plans and specifications
Cl. E3.6	Passenger lifts In an accessible building, every passenger lift must— (a) be one of the types identified in Table E3.6a, subject to the limitations on use specified in the Table; and	Further detail is required within the construction plans and specifications

	(b) have accessible features in accordance with Table E3.6b; and (c) not rely on a constant pressure device for its operation if the lift car is fully enclosed.	
Cl. E4.2	Emergency lighting requirements Must be installed in – (i) every fire-isolated stairway, ramp or passageway (ii) every storey of Class 5, 6, 7, 8 or 9 more than 300 m² (a) a passageway, corridor, or the like forming a path of travel to an exit (b) any room more than 100 m² that does not open to an area with emergency lighting or to a road or open space (c) any room more than 300 m² (iii) every publicly accessible room or space in every storey in Class 6 or 9b if – (a) the unit is more than 300 m²; or (b) any point in that storey is more than 20 m from a doorway opening directly to a stairway, ramp, passageway, road or open space; or (c) egress involves a vertical rise in the building more than 1.5 m, or any vertical rise if the storey does not admit sufficient light; or (d) the storey provides a path of travel from another storey required to have emergency lighting	Further detail is required within the construction plans and specifications.
Cl. E4.4	Design and operation of emergency lighting must comply with AS/NZS 2293.1	Further detail is required within the construction plans and specifications.

Cl. E4.5	Exit signs Clearly visible above or adjacent to a – (i) door egressing from a storey to an – (a) enclosed required exit (b) external required exit (c) external access balcony leading to a required exit (ii) horizontal exit (iii) door from an enclosed exit discharging to a road or open space (iv) door serving as, or forming part of, a required exit from a storey with emergency lighting.	Further detail is required within the construction plans and specifications.
Cl. E4.6	Direction signs If an exit is not readily apparent to occupants, then exit signs must be installed in – (i) corridors, hallways, lobbies, etc., indicating the direction to a required exit	Further detail is required within the construction plans and specifications.
Cl. E4.8	Design and operation of exit signs ▪ Must Comply with AS/NZS 2293.1 and be clearly visible to all occupants when the building is lawfully occupied.	Further detail is required within the construction plans and specifications.

4.6 SECTION F – HEALTH AND AMENITY

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. F1.1	Stormwater drainage must be AS/NZS 3500.3.2 compliant.	Further detail is required within the construction plans and specifications.
Cl. F1.5	Roof coverings must be installed in accordance with AS 2049 concrete or terracotta tiles fixed under AS 2050 (except cyclonic areas)	Further detail is required within the construction plans and specifications.
Cl. F1.7	Wet areas must be water proofed in accordance with AS 3740	Further detail is required within the construction plans and specifications.
Cl. F1.9	Damp-proofing ▪ Except in Class 7/8 where compliance is unnecessary, or a garage, tool shed, toilet, or the like forming part of a building used for other purposes, or an open spectator stand or open-deck car park, moisture must be prevented from reaching the – (i) lowest floor timbers and walls above the lowest floor joists. (ii) walls above damp proof course. (iii) underside of a suspended floor (except timber) and the supporting beams and girders. ▪ Must consist of an AS/NZS 2904 material or AS 3660.1 impervious termite shields.	Further detail is required within the construction plans and specifications.
Cl. F1.10	Damp-proofing of floors on the ground ▪ Ground moisture must be prevent reaching the upper floor surface and adjacent walls by AS 2870 water vapour insertion, except damp-proofing is not required if weatherproofing is not required or the floor is a stair/lift	Further detail is required within the construction plans and specifications.

	or other shaft base, adequately drained by gravitational or mechanical means.	
Cl. F1.13	Glazed assemblies (a) Subject to (b) and (c), the following glazed assemblies in an *external wall*, must comply with AS 2047 requirements for resistance to water penetration: (i) Windows. (ii) Sliding and swinging glazed doors with a frame, including french and bi-fold doors with a frame. (iii) Adjustable louvres. (iv) Shopfronts. (v) Window walls with one piece framing.	Further detail is required within the construction plans and specifications.
Cl. F2.4	Accessible sanitary facilities In a building required to be accessible— (a) accessible unisex sanitary compartments must be provided in accessible parts of the building in accordance with Table F2.4(a); (b) accessible unisex showers must be provided in accordance with Table F2.4(b); and (c) at each bank of toilets where there is one or more toilets in addition to an accessible unisex sanitary compartment at that bank of toilets, a sanitary compartment suitable for a person with an ambulant disability in accordance with AS 1428.1 must be provided for use by males and females; and (d) an accessible sanitary compartment must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary products; and (e) the circulation spaces, fixtures and fittings of all accessible sanitary facilities provided in accordance with Table F2.4(a) and Table F2.4(b) must comply with the requirements of AS 1428.1; and (f) an accessible unisex sanitary facility must be located so that it can be entered	An Accessible sanitary facility has not been provided at the Bank of toilets within the ground floor

	without crossing an area reserved for one sex only; and (g) where two or more of each type of accessible unisex sanitary facility are provided, the number of left and right handed mirror image facilities must be provided as evenly as possible; and (h) where male sanitary facilities are provided at a separate location to female sanitary facilities, accessible unisex sanitary facilities are only required at one of those locations; and (i) an accessible unisex sanitary compartment or an accessible unisex shower need not be provided on a storey or level that is not required by D3.3(f) to be provided with a passenger lift or ramp complying with AS 1428.1.	
Cl. F2.5	Construction of sanitary compartments Other than early childhood centres, must have doors and partitions that separate adjacent compartments and extend– (i) from floor to ceiling in a unisex facility. (ii) to 1.5 m above the floor if principally used by primary school children. (iii) 1.8 m above the floor otherwise. The door to a fully enclosed sanitary compartment must open outwards, slide, or be readily removable from the outside unless having a 1.2 m clear space in the compartment between the closet pan and the nearest part of the doorway.	Further detail is required within the construction plans and specifications.
Cl. F3.1	Height of rooms and other spaces The height of rooms and other spaces must be not less than 2.4 m; and a corridor, passageway, or the like — 2.1 m; and above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like.	Further detail is required within the construction plans and specifications.
Cl. F4.4	Artificial lighting must be AS 1680 compliant.	Further detail is required within the construction plans and specifications.

Cl. F4.5	Ventilation to rooms and spaces must be either natural or AS 1668.2 compliant mechanical ventilation.	Further detail is required within the construction plans and specifications.
Cl. F4.8	A room containing a closet pan must not open directly into • A kitchen or pantry; or • A room used for Public Assembly • A work place normally occupied by more than 1 person	For Reference
Cl. F4.9	A room not complying with Clause F4.8 must be provided with an air lock; or The room containing the closet pan must be provided with mechanical exhaust ventilation and the doorway to the room adequately screened from view.	For Reference

4.9 **Section J – Building Fabric**

CLAUSE	CLAUSE REQUIREMENT	Comments/Recommendations
Cl. J1.2	Thermal construction — general (a) Where *required*, insulation must comply with AS/NZS 4859.1 and be installed so that it— (i) abuts or overlaps adjoining insulation other than at supporting members such as studs, noggings, joists, furring channels and the like where the insulation must be against the member; and (ii) forms a continuous barrier with ceilings, walls, bulkheads, floors or the like that inherently contribute to the thermal barrier; and (iii) does not affect the safe or effective operation of a *service* or fitting. (b) Where *required*, *reflective insulation* must be installed with— (i) the necessary airspace to achieve the *required R-Value* between a reflective side of the *reflective insulation* and a building lining or cladding; and (ii) the *reflective insulation* closely fitted against any penetration, door or *window* opening; and (iii) the *reflective insulation* adequately supported by framing members; and (iv) each adjoining sheet of roll membrane being— (A) overlapped not less than 50 mm; or (B) taped together. (c) Where *required*, bulk insulation must be installed so that— (i) it maintains its position and thickness, other than where it is compressed between cladding and supporting members, water pipes, electrical cabling or the like; and (ii) in a ceiling, where there is no bulk insulation or *reflective insulation* in the wall beneath, it overlaps the wall by not less than 50 mm.	Further detail is required within the construction plans and specifications.

	(d) Roof, ceiling, wall and floor materials, and associated surfaces are deemed to have the thermal properties listed in Specification J1.2.	
Cl. J1.3	Roof and ceiling construction (a) A roof or ceiling that is part of the *envelope*, other than of a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building, must achieve the *Total R-Value* specified in Table J1.3a for the direction of heat flow. (b) For compliance with Table J1.3a, roof and ceiling construction is deemed to have the thermal properties listed in Specification J1.3. (c) Where, for operational or safety reasons associated with exhaust fans, flues or recessed downlights, the area of *required* ceiling insulation is reduced, the loss of insulation must be compensated for by increasing the *R-Value* of the insulation in the remainder of the ceiling in accordance with Table J1.3b. (d) A roof that— (i) is *required* to achieve a minimum *Total R-Value*; and (ii) has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and (iii) does not have a ceiling lining or has a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see Specification J1.3 Figure 2(c) and (f)), must have a thermal break, consisting of a material with an *R-Value* of not less than R0.2, installed between the metal sheet roofing and its supporting metal purlins, metal rafters or metal battens.	Further detail is required within the construction plans and specifications.
Cl. J1.4	Roof lights *Roof lights*, including any associated shaft and diffuser, that form part of the *envelope*, other than of a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building, must—	Further detail is required within the construction plans and specifications.

	(a) if the *roof lights* are not *required* for compliance with Part F4, comply with Table J1.4; or (b) if the *roof lights* are *required* for compliance with Part F4— (i) have an area not more than 150% of the minimum area *required* by F4.6; and (ii) have transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of not more than— (A) 0.29 *SHGC*; and (B) 2.9 *Total U-Value*.	
Cl. J1.5	Walls (a) Each part of an *external wall* that is part of the *envelope*, other than of a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building, must satisfy one of the options in Table J1.5a except for— (i) opaque non-glazed openings in *external walls* such as doors (including garage doors), vents, penetrations, shutters and the like; and (ii) *glazing*; and (iii) an earth retaining wall or earth-berm, in other than *climate zone* 8. (b) Any wall, other than an *external wall*, that is part of the *envelope* must achieve the *Total R-Value* in Table J1.5b. c) A wall that— (i) is *required* to achieve a minimum *Total R-Value*; and (ii) has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and (iii) does not have a wall lining or has a wall lining that is fixed directly to the same metal frame, must have a thermal break, consisting of a material with an *R-Value* of not less than	Further detail is required within the construction plans and specifications.

	R0.2, installed between the external cladding and the metal frame. (d) For compliance with Table J1.5a and Table J1.5b, wall construction is deemed to have the thermal properties listed in Specification J1.5.	
Cl. J1.6	Floors (a) A floor that is part of the *envelope* of a building, other than a *sole-occupancy unit* of a Class 2 building or a Class 4 part of a building, including a floor above or below a *carpark* or a plant room— (i) must achieve the *Total R-Value* specified in Table J1.6; and (ii) with an in-slab heating or cooling system, must be insulated around the vertical edge of its perimeter with insulation having an *R-Value* of not less than 1.0. (b) In *climate zones* 1 to 6, the minimum *Total R-Value required* in (a) may be reduced by R0.5 provided R0.75 is added to the *Total R-Value required* for the roof and ceiling construction. (c) A concrete slab-on-ground— (i) with an in-slab heating or cooling system; or (ii) located in *climate zone* 8, must have insulation installed around the vertical edge of its perimeter. (d) Insulation *required* by (c) must— (i) have an *R-Value* of not less than 1.0; and (ii) be water resistant; and (iii) be continuous from the adjacent finished ground level— (A) to a depth of not less than 300 mm; or (B) for the full depth of the vertical edge of the concrete slab-on-ground. (e) Floor construction is deemed to have the thermal properties listed in Specification J1.6.	Further detail is required within the construction plans and specifications.

Cl. J2.4	Glazing (a) The *glazing* in each *storey*, including any *mezzanine*, of a building must be assessed separately in accordance with (b) and (c) for— (i) *glazing* in the external *fabric* facing each orientation; and (ii) *glazing* with a P/H value of not less than 2 in the internal *fabric* using the south orientation sector energy constants in Table J2.4b and shading multipliers in Table J2.4c and Table J2.4d. (b) The aggregate *air-conditioning* energy value attributable to the *glazing* must not exceed the allowance obtained by multiplying the facade area that is exposed to the *conditioned space* for the orientation by the energy index in Table J2.4a. (c) The aggregate *air-conditioning* energy value must be calculated by adding the *air-conditioning* energy value through each *glazing* element in accordance with the following formula: $A_1[SHGC_1(C_A x S_{H1}+C_B x S_{C1})+C_C x U_1] + A_2[SHGC_2(C_A x S_{H2}+C_B x S_{C2})+C_C x U_2] + ...$ where— $A_{1, 2, etc}$ = the area of each *glazing* element; and $C_{A, B and C}$ = the energy constants A, B and C for the specific orientation from Table J2.4b; and $SHGC_{1, 2, etc}$ = the *SHGC* of each *glazing* element; and $S_{H1, 2, etc}$ = the heating shading multiplier for each *glazing* element obtained from Table J2.4c; and $S_{C1, 2, etc}$ = the cooling shading multiplier for each *glazing* element obtained from Table J2.4d; and	Further detail is required within the construction plans and specifications.

	$U_{1, 2, etc}$ = the *Total U-Value* of each *glazing* element. (d) For the purposes of (c), where the *air-conditioning* energy value of a *glazing* element is calculated to be negative, it must be taken to be zero.	
Cl. J2.5	Shading Where shading is *required* to comply with J2.4, it must— (a) be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves or shading hood, which— (i) extends horizontally on both sides of the *glazing* for the same projection distance P in Figure J2.4; or (ii) provides the equivalent shading to (i) with a reveal or the like; or (b) be provided by an external shading device, such as a shutter, blind, vertical or horizontal building screen with blades, battens or slats, which— (i) is capable of restricting at least 80% of summer solar radiation; and (ii) if adjustable, is operated automatically in response to the level of solar radiation.	Further detail is required within the construction plans and specifications.
Cl. 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 and 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 is required within the construction plans and specifications.

Cl. J3.4	Windows and doors (a) A seal to restrict air infiltration must be fitted to each edge of a door, openable *window* or the like forming part of— (i) the *envelope* of a *conditioned space*; or (ii) the external fabric of a *habitable room* or public area in *climate zones* 4, 5, 6, 7 and 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 (iii) a roller shutter door, roller shutter grille or other security door or device installed only for out-of-hours security. (c) A seal *required* by (a)— (i) for the bottom edge of an external swing door, must be a draft protection device; and (ii) for the other edges of an external 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, revolving door or the like, other than— (i) where the *conditioned space* has a *floor area* of not more than 50 m^2; 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.	Further detail is required within the construction plans and specifications.

Cl. J3.5	Exhaust fans A miscellaneous exhaust fan, such as a bathroom or domestic kitchen exhaust fan, must be fitted with a sealing device such as a self-closing damper or the like when serving— (a) a *conditioned space*; or (b) a *habitable room* in *climate zones* 4, 5, 6, 7 and 8.	Further detail is required within the construction plans and specifications.
Cl. J3.6	Construction of roofs, walls and floors (a) Roofs, 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) the external *fabric* of a *habitable room* or a public area in *climate zones* 4, 5, 6, 7 and 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 (ii) sealed by caulking, skirting, architraves, cornices or the like. (c) The requirements of (a) do not apply to openings, grilles or the like *required* for smoke hazard management.	Further detail is required within the construction plans and specifications.
Cl. J3.6	Evaporative coolers An evaporative cooler must be fitted with a self-closing damper or the like when serving— (a) a heated space; or (b) a *habitable room* or a public area of a building in *climate zones* 4, 5, 6, 7 and 8.	Further detail is required within the construction plans and specifications.

Cl. J5.2	Air-conditioning and ventilation systems J5.2 amended by BCA 2011 (a) An *air-conditioning* unit or system must— (i) be capable of being deactivated when the *sole-occupancy unit*, building or part of the building served is not occupied; and (ii) where the *air-conditioning* unit or system has motorised outside air and return dampers, close the dampers when the *air-conditioning* unit or system is deactivated; and (iii) when serving a *sole-occupancy unit* of a Class 3 building, not operate when any external door including a door opening to a balcony, patio, courtyard or the like is open for more than 1 minute; and (iv) have any supply and return ductwork sealed and insulated in accordance with Specification J5.2; and (v) when serving more than one *air-conditioning* zone or area with different heating and cooling needs— (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 (vi) other than where a packaged *air-conditioning* unit is used, have a variable speed fan when its supply air quantity is varied; and (vii) where the *air-conditioning* system provides the *required* mechanical ventilation, in other than an application where humidity control is needed such as a laboratory, a	Further detail is required within the construction plans and specifications.

	paper store, a frozen food area of a supermarket or the like, have an *outdoor air economy cycle*— (A) in *climate zone* 2 and 3, when the *air-conditioning* unit capacity is over 50 kWr; and (B) in *climate zones* 4, 5, 6, 7 and 8, when the *air-conditioning* unit capacity is over 35 kWr; and (viii) in a Class 3 building, be capable of controlling the temperature of a *sole-occupancy unit* at a different temperature during sleeping periods than during other periods; and (ix) be designed so that the total *fan power* of the *air-conditioning* supply air and return air fans in the building, divided by the *floor area* served by those fans is, in accordance with Table J5.2, except the following need not comply with this requirement: (A) fans in unducted *air-conditioning* units with a supply air capacity of less than 1000 L/s, (B) The power for a fan in an energy reclaiming system that preconditions outdoor air. (C) The power for process related components such as high efficiency particulate air filters. (b) A system that provides mechanical ventilation to other than a *sole-occupancy unit* in a Class 2 building or a Class 4 part of a building, either as part of an *air-conditioning* system or as a separate ventilation system, 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*— (A) not provide mechanical ventilation in excess of the minimum quantity *required* by Part F4 for a mechanical ventilation system, where relevant, by more than 20%	

	other than where there is— (aa) additional unconditioned outside air supplied to provide free cooling or to balance process exhaust such as from a *health-care building* or laboratory; or (bb) additional exhaust ventilation needed to balance the *required* mechanical ventilation; or (cc) an energy reclaiming system that preconditions all the outside air; and (B) in other than *climate zone* 2, where the number of square metres per person is 1 or less as specified in D1.13 and the air flow rate is more than 1000 L/s, have— (aa) an energy reclaiming system that preconditions outside air; or (bb) the ability to automatically modulate the mechanical ventilation *required* by Part F4 in proportion to the number of occupants; and (iii) when the mechanical ventilation is provided by means other than an *air-conditioning* system and the air flow rate is more than 1000 L/s— (A) have a *fan power* to air flow rate ratio of 0.5 W/(L/s) without filters or 0.75 W/(L/s) with filters for a general mechanical ventilation system; and (B) for *carpark* exhaust, when serving over 40 vehicles— (aa) be controlled by an atmospheric contaminant monitoring system in accordance with AS 1668.2; and (bb) maintain an average minimum air-change rate of 0.5 air changes per hour other than when the *carpark* is not occupied for a period of more than 2 hours. (c) The requirements of (a) and (b) must not inhibit— (i) the smoke hazard management operation of *air-conditioning* and mechanical ventilation systems; and (ii) essential ventilation such as for a garbage room, lift motor room, gas meter enclosure or gas regulator enclosure or the like. (d) The provisions of (b)(iii) do not apply to the following:	

	(i) The power for an energy reclaiming system that preconditions outside air. (ii) The power for process related components such as high efficiency particulate air filters. (iii) The power for a miscellaneous exhaust system complying with J5.5.	
Cl. J5.3	Time switch (a) A time switch in accordance with Specification J6 must be provided to control each of the following: (i) An *air-conditioning* system of more than 10 kWr. (ii) A ventilation system with an air flow rate of more than 1000 L/s. (iii) A heating system of more than 10 $kW_{heating}$. (b) The requirements of (a) do not apply to— (i) an *air-conditioning* system or ventilation system that serves only one *sole-occupancy unit* of— (A) a Class 2 or 3 building; or (B) a Class 4 part of a building; or (C) a Class 9c *aged care building*; or (ii) a building where *air-conditioning* or ventilation is needed for 24 hour occupancy such as a manufacturing process or emergency services.	Further detail is required within the construction plans and specifications.
Cl. J5.4	Heating and cooling systems J5.4 amended by BCA 2011 (a) Systems that provide heating or cooling for *air-conditioning* systems must— (i) have any *piping*, vessels, heat exchangers or tanks containing heated or chilled fluid, other than those with insulation levels covered by Minimum Energy Performance Standards (MEPS), insulated in accordance with Specification J5.4; and (ii) where water is circulated by pumping at greater than 2 L/s—	Further detail is required within the construction plans and specifications.

	(A) be designed so that the total of the *pump power* to the pump is in accordance with Table J5.4a; and (B) have the pump capable of varying its speed in response to varying load when it is rated at more than 3 kW of *pump power*, except where the pump is needed to run at full speed for safe or efficient operation; and (iii) if the system contains more than one water heater used for heating a building, chiller or coil, be capable of stopping the flow of water to those not operating. (b) A heater— (i) for heating a space via water, such as a boiler, that is part of an *air-conditioning* system, must— (A) achieve a thermal efficiency complying with Table J5.4b when tested in accordance with BS 7190 ; and (B) use reticulated gas where it is available at the allotment boundary; and (ii) for heating a space other than via water, must be— (A) a solar heater; or (B) a gas heater; or (C) an oil heater, but only if reticulated gas is not available at the allotment boundary; or (D) a heat pump heater; or (E) a solid-fuel burning heater; or (F) a heater using reclaimed heat from another process such as reject heat from a refrigeration plant; or (G) a combination of (A) to (F); or (H) electric only— (aa) if the heating capacity is not more than— (AA) 10 W/m^2 of the *floor area* of the *conditioned space* in *climate zone* 1; or	

	(BB) 40 W/m^2 of the *floor area* of the *conditioned space* in *climate zone* 2; or (CC) the value specified in Table J5.4c where reticulated gas is not available at the allotment boundary; or (bb) if the annual energy consumption for heating is not more than 15 kWh/m^2 of the *floor area* of the *conditioned space* in *climate zones* 1 to 5; or (cc) if for an in-duct heater complying with J5.2(a)(v)(C); and (iii) that is a fixed space heating appliance installed outdoors, must be controlled to automatically turn off when not needed by an outdoor air temperature sensor, timer, motion detector, or the like. (c) Package *air-conditioning* equipment with a capacity of not less than 65 kWr, including a split unit and a heat pump, must have an energy efficiency ratio when cooling complying with Table J5.4d when tested in accordance with AS/NZS 3823.1.2 at test condition T1. (d) A refrigerant chiller up to 350 kWr capacity that is part of an *air-conditioning* system, must have an energy efficiency ratio complying with Table J5.4e when determined in accordance with ARI 550/590 or AHRI 550/590. (e) The fan motor of an air cooled condenser that is part of an *air-conditioning* system, other than one that is part of package *air-conditioning* equipment in (c) or that is part of a Liquid Chilling Package, using the vapour compression cycle in (d), must not use more than 42 W of *fan power*, for each kW of heat rejected from the refrigerant when determined in accordance with ARI 460 or AHRI 460. (f) The fan of a cooling tower that is part of an *air-conditioning* system must not use more than— (i) if a propeller or axial fan, 310 W of *fan power* for each L/s of cooling water circulated; or (ii) if a centrifugal fan, 590 W of *fan power* for each L/s of cooling water circulated.	

	(g) The fan of a closed circuit cooler that is part of an *air-conditioning* system must not use more than— (i) if a propeller or axial fan, 500 W of *fan power* for each L/s of cooled fluid circulated; and (ii) if a centrifugal fan, 670 W of *fan power* for each L/s of cooled fluid circulated. (h) The fan of an evaporative condenser that is part of an *air-conditioning* system must not use more than— (i) if a propeller or axial fan, 18 W of *fan power* for each kW of heat rejected; and (ii) if a centrifugal fan, 22 W of *fan power* for each kW of heat rejected. (i) The spray water pump of a closed circuit cooler or evaporative condenser that is part of an *air-conditioning* system must not use more than 150 W of *pump power* for each L/s of spray water circulated.	
Cl. J5.5	Miscellaneous exhaust systems (a) A miscellaneous exhaust system with an air flow rate of more than 1000 L/s, that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory, must— (i) have the means for the operator to— (A) reduce the energy used, such as by a variable speed fan, and (B) stop the motor when the system is not needed; and (ii) be designed to minimise the exhausting of conditioned air. (b) The requirements of (a) do not apply— (i) within a *sole-occupancy unit* of a Class 2 or 3 building, Class 4 part of a building or Class 9c *aged care building*; or (ii) where additional exhaust ventilation is needed to balance the *required* outside air for ventilation; or	Further detail is required within the construction plans and specifications.

	(iii) where air flow must be maintained for safe operation.	
Cl. J6.2	Artificial lighting J6.2 amended by BCA 2011 (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— (A) within the building, 5 W/m^2; and (B) on a verandah or balcony of the building 4 W/m^2; and (ii) the *illumination power density* in (i) may be increased by dividing it by the *illumination power density* adjustment factor for a control device in Table J6.2b; 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— (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) in determining the design illumination power load for (ii) the following must be used: (A) Where there are multiple lighting systems serving the same space— (aa) the total illumination power load of all systems; or (bb) for a control system that permits only one system to operate at a time, the design	Further detail is required within the construction plans and specifications.

	illumination power load is— (AA) based on the highest illumination power load; or (BB) determined by the formula— **[H x T/2 + P x (100 - T/2)] / 100** Where: H = the highest illumination power load; and T = the time for which the maximum illumination power load will occur, expressed as a percentage; and P= the predominant illumination power load. (B) Where there is adjustable position lighting such as trapeze lighting or track lighting other than trunking systems that accept fluorescent lamps— (aa) the rating of the circuit breaker protecting the track; or (bb) of extra low voltage, 80% of the power rating of the transformer; or (cc) of mains voltage, 100 W per metre of track. (c) The requirements of (a) and (b) do not apply to the following: (i) Emergency lighting in accordance with Part E4. (ii) Signage and 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 an 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.	

Cl. J6.3	Interior artificial lighting and power control J6.3 amended by BCA 2011 (a) Artificial lighting of a room or space must be individually operated by a switch or other control device. (b) An occupant activated device, such as a room security device, a motion detector in accordance with Specification J6, 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 position— (A) in the room or space being switched; or (B) in an adjacent room or space from where 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 m^2 if in a Class 5 building or a Class 8 laboratory; or (B) not operate lighting for an area of more than— (aa) 250 m^2 for a space of not more than 2000 m^2; or (bb) 1000 m^2 for a space of more than 2000 m^2, 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 more than 250 m^2 must be controlled by— (i) a time switch in accordance with Specification J6; or	Further detail is required within the construction plans and specifications.

	(ii) an occupant sensing device such as— (A) a security key card reader; or (B) a motion detector in accordance with Specification J6. (e) In a Class 5, 6 or 8 building of more than 250 m^2, 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 m^2; 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) The requirements of (a), (b), (c), (d) and (e) 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*. (g) 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 in a *patient care area* in a Class 9a building or in a Class 9c *aged care building*. (ii) A heater where the heater also emits light, such as in bathrooms.	
Cl. J6.4	Interior decorative and display lighting (a) Interior decorative and display lighting, such as for a foyer mural or art display, must be controlled— (i) separately from other artificial lighting; and (ii) by a manual switch for each area other than when the operating times of the displays are the same in a number of areas such as in a museum, art gallery or the	Further detail is required within the construction plans and specifications.

	like, in which case they may be combined; and (iii) by a time switch in accordance with Specification J6 where the display lighting exceeds 1 kW. (b) Window display lighting must be controlled separately from other display lighting.	
Cl. J6.5	Artificial lighting around the perimeter of a building (a) Artificial lighting around the perimeter 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 (ii) when the total perimeter lighting load exceeds 100 W— (A) have an average *light source efficacy* of not less than 60 Lumens/W; or (B) be controlled by a motion detector in accordance with Specification J6; and (iii) when used for decorative purposes, such as facade lighting or signage lighting, have a separate time switch in accordance with Specification J6. (b) The requirements of (a)(ii) do not apply to the following: (i) Emergency lighting in accordance with Part E4. (ii) Lighting around a *detention centre*.	Further detail is required within the construction plans and specifications.
Cl. J6.6	Boiling water and chilled water storage units Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.	Further detail is required within the construction plans and specifications.
Cl. J7.2	Certification is required that any hot water system used for food preparation and sanitary purposes will be designed and installed as per Section 8 of AS/NZS 3500.4.	Further detail is required within the construction plans and specifications.

Cl. J8.2 (NSW)	Access for maintenance must be provided to: - ❑ Time switches and motion detectors. ❑ Room temperature thermostats. ❑ Plant thermostats such as on boilers or refrigeration units. ❑ Outside air dampers. ❑ Reflectors, lenses and diffusers of light fittings. ❑ Heat transfer equipment. ❑ all adjustable or motorized shading devices.	Further detail is required within the construction plans and specifications.

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