Date: 27 October 2022
Our Ref: P220058 (4)

Crawford Architects Pty Ltd
Suite 301, Level 3, 80 Mount St
North Sydney NSW 2060
Att: Mr Tony Gray

Dear Tony,

**RE: Rissalah College - 54 - 72 Hampden Rd, Lakemba**
**BCA COMPLIANCE ASSESSMENT**

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

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

- Part 3 Provides a Key point summary

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

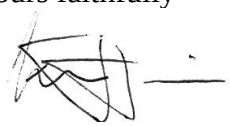
  The inclusion of this summary enables an immediate understanding of the compliance status of the proposed design to be obtained.

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

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

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

Yours faithfully



**Kieran Tobin**
**Director**

# BCA COMPLIANCE ASSESSMENT

## PREPARED FOR

## Crawford Architects Pty Ltd

## REGARDING
## Rissalah College
## 54 - 72 Hampden Rd, Lakemba

**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 |
|---|---|---|---|
| P220058 | 4 | Design Compliance Report | 27 October 2022 |
| | | | |
| Author | | Kieran Tobin<br>Senior NCC Consultant<br>Registered Building Surveyor - Fair Trading no 0409<br>Grad Dip Building Surveying UWS | |

# CONTENTS PAGE

# 1.0 INTRODUCTION

## 1.1 GENERAL

This "BCA Compliance Assessment" report has been prepared at the request of Crawford Architects Pty Ltd, and relates to the premises located at Rissalah College - 54 - 72 Hampden Rd, Lakemba.

The project proposal is for construction of a new two storey School Building.

## 1.2 REPORT BASIS

The content of this report reflects –

(a) The principles and provisions of BCA 2019 (amendment 1), Parts B, C, D, E & F;

(b) Architectural documentation provided by Crawford Architects

| Plan Reference | Plan Description | Dated |
|---|---|---|
| A000 | Cover Page | 26/10/22 |
| A010 | Proposed Location Plan | 26/10/22 |
| A100 | Proposed Site Plan | 26/10/22 |
| A200 | Proposed Ground Floor Plan | 26/10/22 |
| A201 | Proposed First Floor Plan | 26/10/22 |
| A202 | Proposed Roof Plan | 26/10/22 |

## 1.3 EXCLUSIONS

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

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

(p) A site inspection of the existing building has only partially been undertaken by BCA Vision (Due to Covid restrictions),the internal portions were not accessed and assumptions have been made in regard to the condition, layout and construction of the internal portions of the existing building.

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

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

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

## 1.4 REPORT PURPOSE

The purpose of this report is to identify the extent to which the change of use within the existing building may comply with the relevant prescriptive provisions of BCA 2019 (amendment 1), 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 preliminary only detail exists, summary of the information required from the project team for inclusion within future applications (i.e. Construction Certificate) shall also be outlined in Part 4.

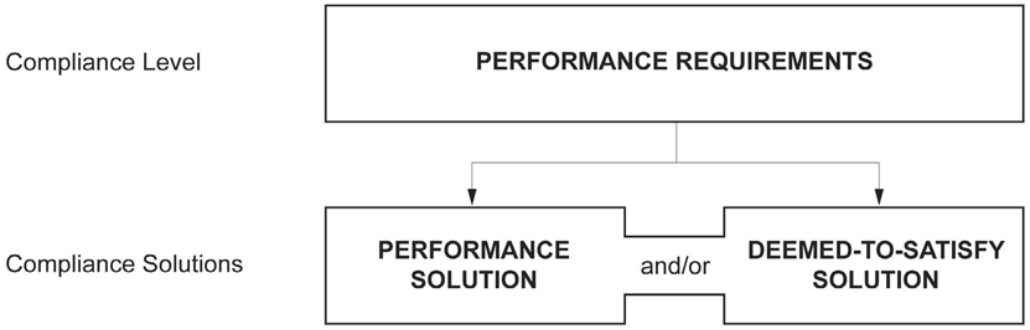
# 2.0 MATTERS IDENTIFIED / RECOMMENDATIONS

## 2.1 COMPLIANCE PATHWAYS WITHIN THE BCA

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

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

**Figure 1: NCC compliance option structure**




## 2.2 KEY COMPLIANCE ISSUES IDENTIFIED

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

| Recommended Deemed-To-Satisfy Compliance Solutions | | |
|---|---|---|
| | **BCA Clause** | **Comment** |
| 1 | C1.1<br>Spec C1.1 | The required Fire-Resistant Levels (FRLs) are detailed on page 4 of this report.<br>Generally, the existing masonry external walls provide a compliant Fire Resistance Level (FRL);<br>Wall sections and materials will be required within the CC Documentation to illustrate how the Fire Resistance Levels (FRLs) will be achieved in regard to the external walls |
| 2 | C1.9<br>C1.14 | External Walls and Cladding<br>AS 1530 Fire Test Certificates will be required for the proposed External wall systems to confirm non combustibility |
| 3 | Cl. C3.2 and C3.4 | Protection of window openings will be required to the south east side |

<table>
<tr><td>4</td><td>F2.3</td><td>The sanitary facilities as designed allow for the following occupancy<table><tr><td>Staff</td><td>10</td></tr><tr><td>Male Students</td><td>300</td></tr><tr><td>Female Students</td><td>300</td></tr></table></td></tr>
<tr><td>5</td><td>Part J</td><td>A Section J assessment report will be required prior to issue of a Construction Certificate</td></tr>
</table>

## 2.3 REQUIRED PERFORMANCE SOLUTIONS

The following table provides a list of building elements or conditions which will not meet the Deemed to Satisfy Requirements of the BCA and will require development of a Performance Solution Report - prepared by an appropriately Accredited Building Professional

| Item No. | BCA Clause | Comment |
|---|---|---|
| 1. | Clause FP1.4 | The Design Architect (or similarly qualified person) will need to prepare a Performance Solution demonstrating that the external walls and roof will comply with the requirements of FP1.4 |

# 3.0 BUILDING DESCRIPTION

## 3.1 GENERAL

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

### 3.1 RISE IN STOREYS (CLAUSE C1.2)

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

## 2.3 BUILDING CLASSIFICATION (CLAUSE A3.2)

The entire building incorporates the following classifications:-

| CLASS | DESCRIPTION |
|---|---|
| Class 9b | an *assembly building*, including a trade workshop, laboratory or the like in a primary or secondary *school*, but excluding any other parts of the building that are of another Class |

## 2.4 EFFECTIVE HEIGHT (CLAUSE A1.1)

The building has an effective height Not exceeding 12m.

## 2.5 TYPE OF CONSTRUCTION (TABLE C1.1)

**Specification C1.1 - Type B Construction**

External walls, common walls flooring and floor framing of lift pits must be non-combustible.

Any internal wall having an FRL must extend to –

(i) the underside of the floor above; or

(ii) the underside of a complying roof; or

(iii) if the roof is not required to comply, the underside of the non-combustible roof covering and must not be crossed by combustible building elements (except 75 x 50 mm roof battens); or

(iv) a ceiling immediately below the roof having a resistance to the incipient spread of fire to the roof space of not less than 60 minutes.

A loadbearing internal wall and fire wall (including part of a loadbearing shaft) must be of concrete or masonry.

Non-loadbearing fire-resisting internal walls, fire and non-fire rated lift, ventilating, pipe, garbage, or similar shaft not for the discharge of hot products of combustion, must be of non-combustible construction.

External column FRL's apply to any internal columns that face and are within 1.5 m of a window and are exposed through that window to a fire-source feature.

2.4 Attachments not to impair fire-resistance

(a) A combustible material may be used as a finish or lining to a wall or roof, or in a sign, sunscreen or blind, awning, or other attachment to a building element which has the required FRL if—

(i) the material is exempted under C1.10 or complies with the fire hazard properties prescribed in Specification C1.10; and

(ii) it is not located near or directly above a required exit so as to make the exit unusable in a fire; and

(iii) it does not otherwise constitute an undue risk of fire spread via the facade of the building.

(b) The attachment of a facing or finish, or the installation of ducting or any other service, to a part of a building required to have an FRL must not impair the required FRL of that par

**Table 4 TYPE B CONSTRUCTION: FRL OF BUILDING ELEMENTS**

| Building element | Class of building—FRL: (in minutes) |
|---|---|
| | ***Structural adequacy*/ *Integrity*/ *Insulation*** |
| | **5, 7a or 9** |
| **EXTERNAL WALL** (including any column and other building element incorporated therein) or other external building element, where the distance from any *fire-source feature* to which it is exposed is— | |
| For *loadbearing* parts— | |
| less than 1.5 m | 120/120/120 |
| 1.5 to less than 3 m | 120/ 90/ 60 |
| 3 to less than 9 m | 120/ 30/ 30 |
| 9 to less than 18 m | 120/ 30/– |
| 18 m or more | –/–/– |
| For non- *loadbearing* parts— | |
| less than 1.5 m | –/120/120 |
| 1.5 to less than 3 m | –/ 90/ 60 |
| 3 m or more | –/–/– |
| **EXTERNAL COLUMN** not incorporated in an *external wall*, where the distance from any *fire-source feature* to which it is exposed is— | |
| For *loadbearing* columns— | |
| less than 18 m | 120/–/– |
| 18 m or more | –/–/– |
| For non- *loadbearing* columns— | |
| | –/–/– |
| **COMMON WALLS and FIRE WALLS—** | 120/120/120 |
| **INTERNAL WALLS—** | |
| *Fire-resisting* lift and stair *shafts*— | |
| *Loadbearing* | 120/120/120 |
| *Fire-resisting* stair *shafts*— | |
| Non- *loadbearing* | –/120/120 |
| Bounding *public corridors*, public lobbies and the like— | |
| *Loadbearing* | 120/–/– |
| Non- *loadbearing* | –/–/– |
| Between or bounding *sole-occupancy units*— | |
| *Loadbearing* | 120/–/– |
| Non- *loadbearing* | –/–/– |
| **OTHER LOADBEARING INTERNAL WALLS and COLUMNS—** | 120/–/– |
| **ROOFS** | –/–/– |

| **External wall FRLs** as applied to the subject site | | |
|---|---|---|
| Boundary | Approximate Distance | FRL Required |
| North/West | <9m | 120/ 30/ 30 |
| South/East | <3m | 120/ 90/ 60 |
| East | <9m | 120/ 30/ 30 |
| West | <9m | 120/ 30/ 30 |
| Note:-<br>Setback requirements are regardless of orientation | | |
| **External wall FRLs** Columns | | 120/–/– |

### 3.5 GENERAL FLOOR AREA LIMITATIONS (TABLE C2.2)

Floor area = Approximately 735m2
Compartment size = Approximately 1964m3
Subject to the following maximum fire compartment floor area and volume limits for Construction: –

| Table C2.2 – Maximum size of Fire Compartments | | | | |
|---|---|---|---|---|
| Building Class | | Type A | **Type B** | Type C |
| 5, 9b, 9c | Max Floor area<br>Max Volume | 8000 $m^2$<br>48,000 $m^3$ | **5,500 $m^2$**<br>**33,000 $m^3$** | 3000 $m^2$<br>18,000 $m^3$ |

### 3.5 COVERED WALKWAYS (PART A.07)

It is noted that the subject buildings are proposed to have interconnection through a covered walkway.

Explanatory information:

It is not unusual for authorities to receive plans proposing the connecting of two or more buildings.

Connecting buildings could be achieved by breaking openings through walls, or by joining the buildings by a tunnel, bridge or covered walkway.

When connected, if the buildings jointly comply with all the requirements of the NCC applying as if they were a single building, they become a united building. United buildings are not required to comply with additional NCC provisions. For example, any new openings do not require any form of fire protection not required of a single building.

Note, however, an external wall, which as a result of an interconnection becomes an internal wall, must comply with the requirements for an internal wall. Interconnected buildings that do not jointly comply with all the requirements applicable to a single building, remain as separate buildings. This raises the possible need for fire doors, or other forms of protection to be fitted to connecting openings."

Possible solutions may include

1. Fire Engineered solution (FES)s. Requiring a report that will likely advise for walkways to be ‘sterile’, no fire loads, no storage of materials within/under, etc, possible signage to alert occupants of this – additional Fire services may also be required
2. Asses the design as United buildings. Covered walkways risk joining all buildings onsite, which is then viewed as united building.
   This would require/trigger items such as;

a. Linked fire services throughout

3. As alternative the buildings may be treated as separate buildings and have walls may be protected by providing a Fire resistance of 90/90/90 and openings within 6m of interconnecting structures will require protection in accordance with Clauses C3.2 and C3.4

### 3.6 PART B1 - STRUCTURAL PROVISIONS

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

- AS 1170.0 – 2002 – General Principles
- AS 1170.1 – 2002 – Certification of Barriers to Prevent Falls (Dead and Live Loads)
- AS 1170.2 – 2011 – Wind Loads
- AS 1170.4 – 2007 – Earthquake Actions
- AS 3700 – 2018 – Masonry Structures
- AS 3600 – 2018 – Concrete Structures
- AS 4100 – 1998 – Steel Structures
- AS 4600 – 2018 – Cold Formed Steel Structures
- AS 2519- 2009 – Piling Design and Installation
- AS 1720.1 – 2010 – Design of Timber Structures
- AS/NZS 1664.1 and 1664.2 – 1997 – Aluminium Construction
- AS 2047 – 2014 – Windows and External Glazed Doors in Buildings
- AS 1288 – 2006 – Glass In Buildings Selection and Installation

# 4.0 BCA ASSESSMENT – SUMMARY

## 4.1 GENERAL

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

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

NOTE PERF – REFERS TO A REQUIREMENT FOR PERFORMANCE ASSESSMENT

## 4.2 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 | | | | ✓ |
| C3.1 – application of part | | | | ✓ |
| 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 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 | | | ✓ | |

## 4.3 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 | | | | ✓ |
| D1.16 – 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 | | | ✓ | |
| D2.24 – Protection of Openable windows | | | ✓ | |
| D3.1 – General Building Access requirements | | | ✓ | |
| D3.2 – Access to Buildings | | | ✓ | |
| 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 Access ways | | | ✓ | |

## 4.4 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 | | | | ✓ |
| E3.9 – Fire Service Recall Switch | | | | ✓ |
| E3.10 – Lift Car Fire Service Drive Control Switch | | | | ✓ |
| 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 – Sound Systems & Intercom Systems for Emergencies | | | | ✓ |

## 3.1. SECTION F – HEALTH AND AMENITY

| BCA reference | Complies | Does not comply | PERF | Detail required | Not relevant |
|---|---|---|---|---|---|
| F1.1 – storm water 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 | | | | ✓ | |
| F2.8 – 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 –Determination – airborne sound insulation | | | | | ✓ |
| F5.3 Determination – impact sound insulation | | | | | ✓ |
| F5.4 – sound insulation of floors | | | | | ✓ |
| F5.5 – sound insulation rating of walls | | | | | ✓ |
| F5.6 – sound insulation rating of services | | | | | ✓ |
| F5.7 – sound insulation of pumps | | | | | ✓ |
| F6.2 - Pliable building membrane | | | | | ✓ |
| F6.3 - Flow rate and discharge of exhaust systems | | | | | ✓ |
| F6.4 - Ventilation of roof spaces | | | | | ✓ |
| | | | | | |

# 5.0 BCA ASSESSMENT – DETAILED ANALYSIS

## 5.1 GENERAL

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

This commentary is formulated to enable the design documentation to be further progressed, for the purpose of evidencing the attainment of compliance with the relevant provisions of the BCA.
In our opinion compliance with the Building Code of Australia 2019 amendment 1, Volume 1, can be achieved subject to the implementation of the following details into the Construction documentation.

## 4.1 SECTION C – FIRE RESISTANCE

| CLAUSE | CLAUSE REQUIREMENT | ACTION/RECOMENDATION |
|---|---|---|
| **Cl. C1.1** | Type of construction required<br>(a) The minimum Type of *fire-resisting construction* of a building must be that specified in Table C1.1 and Specification C1.1,<br>(b) Type A construction is the most fire-resistant and Type C the least fire-resistant of the Types of construction. | Generally the building construction must achieve the minimum FRL requirements specified within clause 2.3 (page 3, 4 & 5) of this report for Type B Construction.<br><br>Details of the method and type of construction will be required within the Construction documentation. |
| **Cl. C1.10** | Fire Hazard Properties<br>(a) The *fire hazard properties* of the following linings, materials and assemblies in a Class 2 to 9 building must comply with Specification C1.10 | Confirmation of the Fire Hazard properties will be required with the Construction Certificate Documentation.<br>Floor linings and floor coverings |

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| | | A floor lining or floor covering must have—<br>(a) a *critical radiant flux* not less than a grouping of 2.2; and<br>(b) in a building not protected by a sprinkler system complying with Specification E1.5, a maximum *smoke development rate* of 750 percent-minutes; and<br>(c) a group number complying with Clause 6(a)(ii), for any portion of the floor covering that is continued more than 150 mm up a wall.<br>Wall and ceiling linings – requires groupings as follows<br>Fire Isolated Exit = Grouping of 1<br>Public Corridors = a grouping of 1,2<br>Other areas = a grouping of 1,2,3<br>(a) For the purposes of this Clause, the *group number* of a material is determined by either—<br>(i) physical testing in accordance with AS ISO 9705; or<br>(ii) prediction in accordance with Clause 3 of Specification A2.4 using data obtained by testing the material at 50 kW/$m^2$ irradiance in the horizontal orientation with edge frame in accordance with AS/NZS 3837.<br>(b) The *group number* of a material is as follows when tested or predicted in |

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| | | accordance with sub-clause (a):<br>(i) A Group 1 material is one that does not reach *flashover* when exposed to 100 kW for 600 seconds followed by exposure to 300 kW for 600 seconds.<br>(ii) A Group 2 material is one that reaches *flashover* following exposure to 300 kW within 600 seconds after not reaching *flashover* when exposed to 100 kW for 600 seconds.<br>(iii) A Group 3 material is one that reaches *flashover* in more than 120 seconds but within 600 seconds when exposed to 100 kW.<br>(iv) A Group 4 material is one that reaches *flashover* within 120 seconds when exposed to 100 kW.<br>(c) A material used as a finish, surface, lining or attachment to a wall or ceiling must be a Group 1, Group 2 or Group 3 material used in accordance with Table 3 and for buildings not fitted with a sprinkler system complying with Specification E1.5, have—<br>(i) a *smoke growth rate index* not more than 100; or<br>(ii) an *average specific extinction area* less than 250 $m^2/kg$.<br>Lift cars<br>(a) Materials used as— |

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| | | (i) floor linings and floor coverings must have a *critical radiant flux* not less than 2.2; and<br>(ii) wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with Clause 4(b).<br>(a) Materials, other than those referenced in (a), used in the construction of a lift car in a Class 2 to 9 building must comply with the *fire hazard properties required* by AS 1735.2. |
| **Cl. C1.9** | Non-combustible building elements<br>(a) In a building required to be of Type A or B construction, the following building elements and their components must be non-combustible:<br>(i) External walls and common walls, including all components incorporated in them including the facade covering, framing and insulation.<br>(ii) The flooring and floor framing of lift pits.<br>(iii) Non-loadbearing internal walls where they are required to be fire-resisting.<br>(b) A shaft, being a lift, ventilating, pipe, garbage, or similar shaft that is not for the discharge of hot products of combustion, that is non-loadbearing, must be of non-combustible construction in—<br>(i) a building required to be of Type A construction; and<br>(ii) a building required to be of Type B construction, subject to C2.10, in—<br>(A) a Class 2, 3 or 9 building; and<br>(B) a Class 5, 6, 7 or 8 building if the shaft connects more than 2 storeys.<br>(c) A loadbearing internal wall and a loadbearing fire wall, including those that are part of a loadbearing shaft, must comply with Specification C1.1.<br>(d) The requirements of (a) and (b) do not apply to the following:<br>(i) Gaskets. | An AS 1530.1 Fire Test Certificates must be obtained for:-<br>Any proposed wall cladding<br>Wall insulation<br>An AS 1530.3 Fire Test Certificates must be obtained for:-<br>Wall sarking |

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| | (ii) Caulking.<br>(iii) Sealants.<br>(iv) Termite management systems.<br>(v) Glass, including laminated glass.<br>(vi) Thermal breaks associated with glazing systems.<br>(vii) Damp-proof courses.<br>(e) The following materials may be used wherever a non-combustible material is required:<br>(i) Plasterboard.<br>(ii) Perforated gypsum lath with a normal paper finish.<br>(iii) Fibrous-plaster sheet.<br>(iv) Fibre-reinforced cement sheeting.<br>(v) Pre-finished metal sheeting having a combustible surface finish not exceeding 1 mm thickness and where the Spread-of-Flame Index of the product is not greater than 0.<br>(vi) Sarking-type materials that do not exceed 1 mm in thickness and have a Flammability Index not greater than 5.<br>(vii) Bonded laminated materials where—<br>(A) each lamina, including any core, is non-combustible; and<br>(B) each adhesive layer does not exceed 1 mm in thickness and the total thickness of the adhesive layers does not exceed 2 mm; and<br>(C) the Spread-of-Flame Index and the Smoke-Developed Index of the bonded laminated material as a whole do not exceed 0 and 3 respectively | |
| **Cl. C1.14** | Ancillary elements<br>An *ancillary element* must not be fixed, installed or attached to the internal parts or external face of an *external wall* that is *required* to be *non-combustible* unless it is one of the following:<br>(a)An *ancillary element* that is *non-combustible*.<br>(b)A gutter, downpipe or other plumbing fixture or fitting.<br>(c)A flashing.<br>(d)A grate or grille not more than 2 m2 in area associated with a building service.<br>(e)An electrical switch, socket-outlet, cover plate or the like. | Details of the method and type of construction will be required within the Construction documentation |

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| | (f)A light fitting.<br>(g)A *required* sign.<br>(h)A sign other than one provided under (a) or (g) that—<br>(i)achieves a *group number* of 1 or 2; and<br>(ii)does not extend beyond one *storey*; and<br>(iii)does not extend beyond one *fire compartment*; and<br>(iv)is separated vertically from other signs permitted under (h) by at least 2 *storeys*.<br>(i)An awning, sunshade, canopy, blind or shading hood other than one provided under (a) that—<br>(i)meets the relevant requirements of Table 4 of Specification C1.10 as for an internal element; and<br>(ii)serves a *storey*—<br>(A)at ground level; or<br>(B)immediately above a *storey* at ground level; and<br>(iii)does not serve an *exit*, where it would render the *exits* unusable in a fire.<br>(j)A part of a security, intercom or announcement system.<br>(k)Wiring.<br>(l)A paint, lacquer or a similar finish.<br>(m)A gasket, caulking, sealant or adhesive directly associated with (a) to (k). | |
| **Cl. C2.12** | Separation of equipment<br>(a) Equipment other than that described in (b) and (c) must be separated from the remainder of the building with construction complying with (d), if that equipment comprises—<br>(i) lift motors and lift control panels; or<br>(ii) emergency generators used to sustain emergency equipment operating in the emergency mode; or<br>(iii) central smoke control plant; or<br>(iv) boilers; or | Verification will be required within the CC Documentation. |

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| | (v) a battery or batteries installed in the building that have a voltage exceeding 24 volts and a capacity exceeding 10 ampere hours.<br>(b) Equipment need not be separated in accordance with (a) if the equipment comprises—<br>(i) smoke control exhaust fans located in the air stream which are constructed for high temperature operation in accordance with Specification E2.2b; or<br>(ii) stair pressurising equipment installed in compliance with the relevant provisions of AS/NZS 1668.1; or<br>(iii) a lift installation without a machine-room; or<br>(iv) equipment otherwise adequately separated from the remainder of the building.<br>(c) Separation of on-site fire pumps must comply with the requirements of AS 2419.1.<br>(d) Separating construction must have—<br>(i) except as provided by (ii)—<br>(A) an FRL as *required* by Specification C1.1, but not less than 120/120/120; and<br>(B) any doorway protected with a *self-closing* fire door having an FRL of not less than –/120/30; or<br>(ii) when separating a lift *shaft* and lift motor room, an FRL not less than 120/–/–. | |
| **Cl. C2.13** | Electricity supply system<br>(a) An electricity substation located within a building must—<br>(i) be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and<br>(ii) have any doorway in that construction protected with a *self-closing* fire door having an FRL of not less than –/120/30.<br>(b) A main switchboard located within the building which sustains emergency equipment operating in the emergency mode must— | Verification will be required within the CC Documentation. |

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| | (i) be separated from any other part of the building by construction having an FRL of not less than 120/120/120; and<br>(ii) have any doorway in that construction protected with a *self-closing* fire door having an FRL of not less than –/120/30.<br>(c) Electrical conductors located within a building that supply—<br>(i) a substation located within the building which supplies a main switchboard covered by **(b)**; or<br>(ii) a main switchboard covered by **(b)**,<br>must—<br>(iii) have a classification in accordance with AS/NZS 3013 of not less than—<br>(A) if located in a position that could be subject to damage by motor vehicles — WS53W; or<br>(B) otherwise — WS52W; or<br>(iv) be enclosed or otherwise protected by construction having an FRL of not less than 120/120/120.<br>(d) Where emergency equipment is *required* in a building, all switchboards in the electrical installation, which sustain the electricity supply to the emergency equipment, must be constructed so that emergency equipment switchgear is separated from non-emergency equipment switchgear by metal partitions designed to minimise the spread of a fault from the non-emergency equipment switchgear.<br>(e) For the purposes of **(d)**, emergency equipment includes but is not limited to the following:<br>(i) Fire hydrant booster pumps.<br>(ii) Pumps for *automatic* sprinkler systems, water spray, chemical fluid suppression systems or the like.<br>(iii) Pumps for fire hose reels where such pumps and fire hose reels form the sole means of fire protection in the building.<br>(iv) Air handling systems designed to exhaust and control the spread of fire and smoke.<br>(v) Emergency lifts.<br>(vi) Control and indicating equipment. | |

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| | (vii) Sound systems and intercom systems for emergency purposes. | |
| **Cl. C3.12** | Service openings through any floors in the building must be either fire sealed or enclosed in a fire rated shaft, using materials having an FRL not less than the floor concerned. | Verification will be required with the Construction Documentation |
| **Cl. C3.13** | Openings to shafts must be self-closing and 1-hour fire rated (i.e. access panels, doors, hoppers). | Verification will be required with the Construction Documentation |
| **Cl. C3.15** | Openings for service installations<br>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:<br>(a) **Tested systems**<br>(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*.<br>(ii) It complies with (i) except for the *insulation* criteria relating to the service if—<br>(A) the service is a pipe system comprised entirely of metal (excluding pipe seals or the like); and<br>(B) any *combustible* building element is not located within 100 mm of the service for a distance of 2 m from the penetration; and<br>(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<br>(D) it is not located in a *required exit*.<br>(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.<br>(c) **Compliance with Specification C3.15**<br>(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—<br>(A) penetrates a wall, floor or ceiling, but not a ceiling *required* to have a *resistance to the* | Verification will be required with the Construction Documentation |

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| | *incipient spread of fire*; and<br>(B) connects not more than 2 *fire compartments* in addition to any *fire-resisting* service *shafts*; and<br>(C) does not contain a flammable or *combustible* liquid or gas.<br>(ii) The service is sanitary plumbing installed in accordance with Specification C3.15 and it—<br>(A) is of metal or UPVC pipe; and<br>(B) penetrates the floors of a Class 5, 6, 7, 8 or 9b building; and<br>(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.<br>(iii) The service is a wire or cable, or a cluster of wires or cables installed in accordance with Specification C3.15 and it—<br>(A) penetrates a wall, floor or ceiling, but not a ceiling *required* to have a *resistance to the incipient spread of fire*; and<br>(B) connects not more than 2 *fire compartments* in addition to any *fire-resisting* service *shafts*.<br>(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 between fire resistant elements must be fire sealed with a material having a fire resistance level not less than the elements being joined. | Verification will be required with the Construction Documentation |

## 4.4 SECTION D – ACCESS AND EGRESS

| CLAUSE | CLAUSE REQUIREMENT | ACTION/RECOMENDATION |
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| **Cl. D1.6** | Dimensions of exits and paths of travel to exits<br>In a *required exit* or path of travel to an *exit*—<br>(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<br>(b) the unobstructed width of each *exit* or path of travel to an *exit*, except for doorways, must be not less than 1m | For Reference. |
| **Cl. D1.10** | Discharge from exits<br>**(a)** An *exit* must not be blocked at the point of discharge and where necessary, suitable barriers must be provided to prevent vehicles from blocking the *exit*, or access to it.<br>**(b)** If a *required exit* leads to an *open space*, the path of travel to the road must have an unobstructed width throughout of not less than 1m | For Reference |
| **Cl. D1.17** | Access to lift pits<br>Access to lift pits must—<br>(a) where the pit depth is not more than 3 m, be through the lowest landing doors | Verification will be required with the Construction Documentation |
| **Cl. D2.7** | Electrical ducts, meter or distribution boards, and communication boards or equipment, and electrical motors, must be separated from an exit or path of travel by smoke sealed non-combustible construction. | Verification will be required with the Construction Documentation |
| **Cl. D2.8** | Enclosure of space under stairs and ramps<br>(b) Non fire-isolated stairways and ramps — The space below a *required* non *fire-isolated* | For Reference |

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| | *stairway* (including an external stairway) or non *fire-isolated ramp* must not be enclosed to form a cupboard or other enclosed space unless—<br>(i) the enclosing walls and ceilings have an FRL of not less than 60/60/60; and<br>(ii) any access doorway to the enclosed space is fitted with a *self-closing* –/60/30 fire door. | |
| **Cl. D2.13** | Goings and risers<br>(a) A stairway must have—<br>(i) not more than 18 nor less than 2 risers in each *flight*; and<br>(ii) except as permitted by (b) and (c), going (G), riser (R) and quantity (2R + G) in accordance with Table D2.13; and<br>(iii) except as permitted by (b) and (c), goings and risers that are constant throughout in one *flight*; and<br>(iv) risers which do not have any openings that would allow a 125 mm sphere to pass through between the treads; and<br>(v) treads which have—<br>(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<br>(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<br>(vi) treads of solid construction (not mesh or other perforated material) if the stairway is more than 10 m high or connects more than 3 *storeys*; and<br>(viii) in the case of a *required* stairway, no winders in lieu of a landing.<br>(b) In the case of a non- *required* stairway—<br>(i) the stairway must have—<br>(A) not more than 3 winders in lieu of a quarter landing; and | Verification will be required with the Construction Documentation |

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| | (B) not more than 6 winders in lieu of a half landing; and<br>(ii) the going of all straight treads must be constant throughout the same *flight*; and<br>(iii) the going of all winders in lieu of a quarter or half landing may vary from the going of the straight treads within the same *flight* provided that the going of all such winders is constant.<br>(c) Where a stairway discharges to a sloping public walkway or public road—<br>(i) the riser (R) may be reduced to account for the slope of the walkway or road; and<br>(ii) the quantity (2R+G) may vary at that location. | |
| **Cl. D2.14** | Landings<br>In a stairway—<br>(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—<br>(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<br>(ii) have—<br>(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<br>(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<br>**Table D2.14 SLIP-RESISTANCE CLASSIFICATION** | Verification will be required with the Construction Documentation |

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| | <table><tr><th rowspan="2">Application</th><th colspan="2">Surface conditions</th></tr><tr><th>Dry</th><th>Wet</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> | |
| **Cl. D2.15** | 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—<br>(a) in patient care areas in a Class 9a health-care building, the door sill is not more than 25 mm above the finished floor level to which the doorway opens; or<br>(b) in a Class 9c building, a ramp is provided with a maximum gradient of 1:8 for a maximum height of 25 mm over the threshold; or<br>(c) in a building required to be accessible by Part D3, the doorway—<br>(i) opens to a road or open space; and<br>(ii) is provided with a threshold ramp or step ramp in accordance with AS 1428.1; or<br>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<br>(e) in other cases—<br>(i) the doorway opens to a road or open space, external stair landing or external balcony; and<br>(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. | Door Thresholds are required to comply with the requirements for Access to buildings in accordance with Clause AS 1428.1 - 2009 Verification will be required within the Construction Documentation. |
| **Cl. D2.16** | Balustrades or other barriers<br>(a) A continuous balustrade or other barrier must be provided along the side of any roof to which public access is provided, any stairway or ramp, any floor, corridor, hallway, balcony, deck, verandah, *mezzanine*, access bridge or the like and along the side of any delineated path of access to a building, if— | Verification will be required with the Construction Documentation |

(i) it is not bounded by a wall; and

(ii) its level above the surface beneath, is more than—

(A) 4 m where it is possible for a person to fall through an openable *window*; or

(B) 1 m in any other case.

(c) A balustrade or other barrier in—

(i) *fire-isolated stairways*, *fire-isolated ramps* and other areas used primarily for emergency purposes, excluding external stairways and external ramps; and

(ii) Class 7 (other than *car parks*) and Class 8 buildings and parts of buildings containing those classes, must comply with (g) and (h)(i).

(d) A balustrade or other barrier in stairways and ramps, other than those covered in (c), must comply with (g) and (h)(ii).

(e) A balustrade or other barrier along the side of a horizontal or near horizontal surface such as a—

(i) roof to which public access is provided and any path of access to a building; and

(ii) floor, corridor, hallway, balcony, verandah, *mezzanine*, access bridge or the like,

❑ must comply with (g) and (h)(ii).

(g) The height of a balustrade or other barrier must be constructed in accordance with the following:

(i) The height is not less than 865 mm above the nosings of the stair treads or the floor of a ramp or other path of travel with a gradient not less than 1:20.

(ii) The height is not less than—

(A) 1 m above the floor of any access path, balcony, landing or the like where the path of travel has a gradient less than 1:20; or

(B) 865 mm above the floor of a landing to a stair or ramp where the balustrade or other barrier is provided along the inside edge of the landing and does not exceed a length of 500 mm; or

(C) 865 mm above the floor beneath an openable *window*.

(iii) A transition zone may be incorporated where the balustrade or other barrier height changes from 865 mm on the stair *flight* or ramp to 1 m at the landing.

(iv) For a balustrade or other barrier provided under (f), the height above the floor must be not less than—

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| | (A) 1 m; or<br>(B) 700 mm and a horizontal projection extends not less than 1 m outwards from the top of the balustrade.<br>(h) Openings in a balustrade or other barrier must be constructed in accordance with the following:<br>(i) For a balustrade or other barrier provided under (c)—<br>(A) the space between balusters or the width of any opening (including any openable *window* or panel) must not be more than 300 mm; or<br>(B) where rails are used, a rail must be provided at a height of not more than 150 mm above the nosings of the stair treads or the floor of the landing, balcony or the like and the space between rails must not be more than 460 mm.<br>(ii) For a balustrade or other barrier other than those provided under (c)—<br>(A) any opening does not permit a 125 mm sphere to pass through it and for stairs, the space is measured above the nosings; and<br>(B) for floors more than 4 m above the surface beneath, any horizontal or near horizontal elements between 150 mm and 760 mm above the floor must not facilitate climbing. | |
| **Cl. D2.17** | Handrails must be provided to at least one side of all stairways and ramps less than 2-metres in width, and to both sides where more than 2-metres in width, and must: –<br>❑ Be continuous between stair flight landings<br>❑ Have no obstruction that would cause a break in the hand hold<br>❑ Have one rail fixed at a height not less than 865-mm | Verification will be required with the Construction Documentation |
| **Cl. D2.20** | Swinging doors<br>A swinging door in a *required exit* or forming part of a *required exit*—<br>(a)must not encroach—<br>(i)at any part of its swing by more than 500 mm on the *required* width (including any landings) of a *required*—<br>(A)stairway; or<br>(B)ramp; or<br>(C)passageway,<br>if it is likely to impede the path of travel of the people already using the *exit*; and | Exit Doors are required to swing outward in the direction of egress |

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| | (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<br>(b)must swing in the direction of egress | |
| **Cl. D2.21** | Operation of latch<br>(a) A door in a *required exit*, forming part of a *required exit* or in the path of travel to a *required exit* must be readily openable without a key from the side that faces a person seeking egress, by—<br>(i) a single hand downward action on a single device which is located between 900 mm and 1.1 m from the floor and if serving an area *required* to be *accessible* by Part D3—<br>(A) be such that the hand of a person who cannot grip will not slip from the handle during the operation of the latch; and<br>(B) have a clearance between the handle and the back plate or door face at the centre grip section of the handle of not less than 35 mm and not more than 45 mm; or<br>(ii) a single hand pushing action on a single device which is located between 900 mm and 1.2 m from the floor. | Verification will be required with the Construction Documentation |
| **Cl. D2.24** | Protection of openable windows<br>(a) A window opening must be provided with protection, if the floor below the window is 2 m or more above the surface beneath in—<br>(i) a bedroom in a Class 2 or 3 building or Class 4 part of a building; or<br>(ii) a Class 9b *early childhood centre*.<br>(b) Where the lowest level of the window opening is less than 1.7 m above the floor, a window opening covered by (a) must comply with the following:<br>(i) The openable portion of the window must be protected with—<br>(A)<br>a device capable of restricting the window opening; or | Verification will be required with the Construction Documentation |

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| | (B)<br>a screen with secure fittings.<br>(ii) A device or screen *required* by (i) must—<br>(A) not permit a 125 mm sphere to pass through the window opening or screen; and<br>(B) resist an outward horizontal action of 250 N against the—<br>(aa) window restrained by a device; or<br>(bb) screen protecting the opening; and<br>(C) have a child resistant release mechanism if the screen or device is able to be removed, unlocked or overridden.<br>(c) A barrier with a height not less than 865 mm above the floor is *required* to an openable window—<br>(i) in addition to window protection, when a child resistant release mechanism is *required* by (b)(ii)(C); and<br>(ii) where the floor below the window is 4 m or more above the surface beneath if the window is not covered by (a).<br>(d) A barrier covered by (c) must not—<br>(i) permit a 125 mm sphere to pass through it; and<br>(ii) have any horizontal or near horizontal elements between 150 mm and 760 mm above the floor that facilitate climbing. | |
| **Cl. D3.1** | General building access requirements<br>Buildings and parts of buildings must be *accessible* as *required* by Table D3.1, unless exempted by D3.4. | Key Compliance issues<br><br>Compliance with the AS 1428.1 Clauses following must be observed/demonstrated through construction:- |

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| | | Clause 6 - CONTINUOUS ACCESSIBLE PATHS OF TRAVEL<br>Clause 7 - FLOOR OR GROUND SURFACES ON CONTINUOUS ACCESSIBLE<br>PATHS OF TRAVEL AND CIRCULATION SPACES<br>Clause 8 - SIGNAGE<br>Clause 9 - TACTILE GROUND SURFACE INDICATORS<br>Clause 10 - WALKWAYS, RAMPS AND LANDINGS<br>Clause 11 - STAIRWAYS<br>Clause 12 - HANDRAILS<br>Clause 13 - DOORWAYS, DOORS AND CIRCULATION SPACE AT DOORWAYS<br>Clause 14 - SWITCHES AND GENERAL PURPOSE OUTLETS (POWER POINTS)<br>Clause15 - SANITARY FACILITIES |
| **Cl. D3.2** | Access to Buildings<br>▪ Must be provided by an AS 1428.1 complying path of travel from –<br><br>(i) a entry point from the road at the allotment boundary to the entrance doorway.<br>(ii) any disabled car parking space on the allotment.<br>(iii) any other accessible building on the allotment.<br>(iv) through the principal public entrance. | For reference |

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| | ▪ Parts of buildings required to be accessible must comply with AS 1428.1 | |
| **Cl. D3.3** | Parts of buildings to be accessible<br>In a building *required* to be *accessible*:<br>(a) every ramp and stairway, except for ramps and stairways in areas exempted by clause D3.4, must comply with:<br>(i) for a ramp, except a fire-isolated ramp, clause 10 of AS 1428.1; and<br>(ii) for a stairway, except a fire-isolated stairway, clause 11 of AS 1428.1;<br>(iii) for a fire-isolated stairway, clause 11.1(f) and (g) of AS 1428.1;<br>(b) every passenger lift must comply with clause E3.6;<br>(c) *access ways* must have:<br>(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<br>(ii) turning spaces complying with AS 1428.1:<br>(A) within 2 m of the end of *access ways* where it is not possible to continue travelling along the *access way*; and<br>(B) at maximum 20 m intervals along the *access way*;<br>(d) an intersection of *access ways* satisfies the spatial requirements for a passing and turning space;<br>(e) a passing space may serve as a turning space;<br>(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-<br>(i) containing not more than 3 *storeys*; and<br>(ii) with a *floor area* for each *storey*, excluding the entrance *storey*, of not more than 200 $m^2$. | For reference |

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| **Cl. D3.5** | Accessible carparking<br>*Accessible* carparking spaces—<br>(a) subject to (b), must be provided in accordance with Table D3.5 in—<br>(i) a Class 7a building *required* to be *accessible*; and<br>(ii) a carparking area on the same allotment as a building *required* to be *accessible*; and<br>(b) need not be provided in a Class 7a building or a carparking area where a parking service is provided and direct access to any of the carparking spaces is not available to the public; and<br>(c) subject to (d), must comply with AS/NZS 2890.6; and<br>(d) need not be designated where there is a total of not more than 5 carparking spaces, so as to restrict the use of the carparking space only for people with a disability. | Verification will be required with the Construction Documentation |
| **Cl. D3.8** | Tactile indicators<br>(a) 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—<br>(i) a stairway, other than a *fire-isolated stairway*; and<br>(ii) an escalator; and<br>(iii) a passenger conveyor or moving walk; and<br>(iv) a ramp other than a *fire-isolated ramp*, step ramp, kerb ramp or *swimming pool* ramp; and<br>(v) in the absence of a suitable barrier—<br>(A) an overhead obstruction less than 2 m above floor level, other than a doorway; and<br>(B) an *accessway* meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to inD3.4, if there is no kerb or kerb ramp at that point,<br>except for areas exempted by D3.4.<br>(b) Tactile ground surface indicators *required* by (a) must comply with sections 1 and 2 of AS/NZS 1428.4.1.<br>(c) A hostel for the aged, nursing home for the aged, a *residential aged care building* Class 3 | Verification will be required with the Construction Documentation |

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| | accommodation for the aged, Class 9a *health-care building* or a Class 9c building need not comply with (a)(i) and (iv) if handrails 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** | D3.12 Glazing on an accessway<br>On an *accessway*, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1. | Verification will be required with the Construction Documentation |

## 4.5 SECTION E – SERVICES AND EQUIPMENT

| CLAUSE | CLAUSE REQUIREMENT | ACTION/RECOMENDATION |
|---|---|---|
| **Cl. E1.3** | Fire Hydrants<br>▪ Be provided to a building more than 500 m² and where fire brigades can attend.<br>▪ 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 –<br>(i) Class 2, 3, 4 sole-occupancy unit may be served by a single hydrant at the level of egress from that unit<br>(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<br>▪ On-site pump sets provided to achieve the AS 2419.1 performance requirements must comprise –<br>(i) two pumps, at least one driven by a compression ignition engine or electric motor supplied from an emergency power generator; or<br>(ii) two electric motor pumps connected to independent power sources; or<br>(iii) if connected to a reticulated water supply and in a building not greater than 25 m, one pump driven by –<br>(a) a compression ignition engine; or<br>(b) an electric motor supplied from an emergency power generator; or<br>(c) an electric motor connected to two independent power sources through an automatic change-over facility<br>▪ Internal fixed on-site pump sets must be in a clearly indicated room having direct 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.<br>▪ 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 –<br>(i) each wall of the enclosure exposed to the building; or<br>(ii) that part of the building external wall 2 m each side and 3 m above the enclosure; or<br>(iii) a wall between the building and enclosure extending 2 m each side and 3 m above the enclosure,<br>has an FRL of that required for a fire wall for the classification occupied | Verification will be required with the Construction Documentation |

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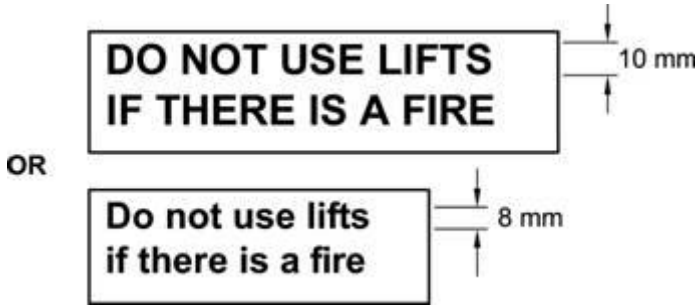
| | Where the supply system is from a static source, suitable connections and vehicular access must permit Brigade personnel to draw water, and a fire-service booster connection is provided adjacent to allow boosting of the system | |
| **Cl. E1.6** | Portable fire extinguishers<br>(a) Portable fire extinguishers must be—<br>(i) provided as listed in Table E1.6 | Verification will be required with the Construction Documentation |
| **Cl. E2.2** | Smoke Hazard Management<br>Automatic shutdown:<br>A building or part of a building used as an assembly building must be provided with automatic shutdown of any air-handling system (other than non-ducted individual room units with a capacity not more than 1000 L/s and miscellaneous exhaust air systems installed in accordance with Sections 5 and 6 of AS/NZS 1668.1) which does not form part of the smoke hazard management system, on the activation of—<br>(i) smoke detectors installed complying with Clause 5 of Specification E2.2a; and<br>(ii) any other installed fire detection and alarm system, including a sprinkler system complying with Specification E1.5. | Verification will be required with the Construction Documentation |
| **Cl. E3.1** | Lift installations<br>An *electric passenger lift* installation and an *electrohydraulic passenger lift* installation must comply with Specification E3.1. | Verification will be required with the Construction Documentation |
| **Cl. E3.3** | Warning against use of lifts in fire<br>A warning sign must—<br>(a) be displayed where it can be readily seen—<br>(i) near every call button for a passenger lift or group of lifts throughout a building; except | Verification will be required with the Construction Documentation |

(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.




**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

(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.

Table E3.6a LIMITATIONS ON USE OF TYPES OF PASSENGER LIFTS

| Lift type | Limitations on use | |
|---|---|---|
| *Electric passenger lift* | No limitation. | |
| *Electrohydraulic passenger lift* | No limitation. | |
| *Stairway platform lift* | Must not— | |
| | (a) | be used to serve a space in a building accommodating more than 100 persons calculated according to D1.13; or |
| | (b) | be used in a high traffic public use area such as a theatre, cinema, auditorium, transport interchange, shopping centre or the like; or |

Verification will be required with the Construction Documentation

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| | (c) | be used where it is possible to install another type of passenger lift; or |
| | (d) | connect more than 2 *storeys*; or |
| | (e) | where more than 1 stairway lift is installed, serve more than 2 consecutive *storeys*; or |
| | (f) | when in the folded position, encroach on the minimum width of a stairway *required* by D1.6. |
| *Inclined lift* | No limitation. | |
| *Low-rise platform lift* | Must not travel more than 1000 mm. | |
| *Low-rise, low-speed constant pressure lift* | Must not— | |
| | (a) | for an enclosed type, travel more than 4 m; or |
| | (b) | for an unenclosed type, travel more than 2 m; or |
| | (c) | be used in high traffic public use areas in buildings such as a theatre, cinema, auditorium, transport interchange, shopping complex or the like. |
| *Small sized, low-speed automatic lift* | Must not travel more than 12 m. | |

Table E3.6b APPLICATION OF FEATURES TO PASSENGER LIFTS

| Feature | Application | |
|---|---|---|
| Handrail complying with the provisions for a mandatory handrail in AS 1735.12 | All lifts except— | |
| | (a) | a *stairway platform lift*; and |
| | (b) | a *low-rise platform lift*. |
| Lift floor dimension of not less than 1400 mm wide x 1600 mm deep | All lifts which travel more than 12 m. | |
| Lift floor dimensions of not less than 1100 mm wide x 1400 mm deep | All lifts which travel not more than 12 m except a *stairway platform lift*. | |
| Lift floor dimensions of not less than 810 mm wide x 1200 mm deep | A *stairway platform lift* | |
| Minimum clear door opening complying with AS 1735.12 | All lifts except a *stairway platform lift*. | |
| Passenger protection system complying with AS 1735.12 | All lifts with a power operated door. | |
| Lift landing doors at the upper landing | All lifts except a *stairway platform lift*. | |
| Lift car and landing control buttons complying with AS 1735.12 | All lifts except— | |
| | (a) | a *stairway platform lift*; and |
| | (b) | a *low-rise platform lift*. |
| Lighting in accordance with AS 1735.12 | All enclosed lift cars. | |

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| | (a) Automatic audible information within the lift car to identify the level each time the car stops; and — All lifts serving more than 2 levels.<br>(b) audible and visual indication at each lift landing to indicate the arrival of the lift car; and<br>(c) audible information and audible indication *required* by (a) and (b) is to be provided in a range of between 20–80 dB(A) at a maximum frequency of 1 500 Hz<br>Emergency hands-free communication, including a button that alerts a call centre of a problem and a light to signal that the call has been received — All lifts except a *stairway platform lift*. | |
| **Cl. E4.2** | AS 2293.1 compliant emergency lighting must be provided throughout the building. | Verification will be required with the Construction Documentation |
| **Cl. E4.4** | Refer Clause E4.2 above for emergency lighting requirements | Verification will be required with the Construction Documentation |
| **Cl. E4.5**<br>**Cl. E4.8** | AS 2293.1 compliant Exit Signage is required above each Exit (door or stair) | Verification will be required with the Construction Documentation |
| **Cl. E4.6**<br>**Cl. E4.8** | AS 2293.1 compliant Directional signage must be provided where Exit signage is not directly visible | Verification will be required with the Construction Documentation |

## 4.6 SECTION F – HEALTH AND AMENITY

| CLAUSE | CLAUSE REQUIREMENT | ACTION/RECOMENDATION |
|---|---|---|
| **Cl. F1.0** | Deemed-to-Satisfy Provisions<br>(a) Performance Requirement FP1.4, for the prevention of the penetration of water through external walls, must be complied with.<br>There are no Deemed-to-Satisfy Provisions for this Performance Requirement in respect of external walls.<br>(b) Where a Deemed-to-Satisfy Solution is proposed, Performance Requirements FP1.1 to FP1.3 and FP1.5 to FP1.7 are satisfied by complying with F1.1 to F1.13. (c) Where a Performance Solution is proposed, the relevant Performance Requirements must be determined in accordance with A2.2(3) and A2.4(3) as applicable. | Verification will be required with the Construction Documentation |
| **Cl. F1.1** | Stormwater drainage<br>Stormwater drainage must comply with AS/NZS 3500.3 | Verification will be required with the Construction Documentation |
| **Cl. F1.5** | Roof coverings<br>A roof must be covered with metal sheet roofing complying with AS 1562.1 | Verification will be required with the Construction Documentation |
| **Cl. F1.6** | Sarking<br>*Sarking-type materials* used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2. | Verification will be required with the Construction Documentation |
| **Cl. F1.7** | Wet areas must be water proofed in accordance with AS 3740 | Verification will be required with the Construction Documentation |
| **Cl. F1.9** | Damp-proofing<br>(a) Except for a building covered by (c), moisture from the ground must be prevented from reaching—<br>(i) the lowest floor timbers and the walls above the lowest floor joists; and<br>(ii) the walls above the damp-proof course; and | Verification will be required with the Construction Documentation |

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| | (iii) the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.<br>(b) Where a damp-proof course is provided, it must consist of—<br>(i) a material that complies with AS/NZS 2904; or<br>(ii) impervious termite shields in accordance with AS 3660.1.<br>(c) The following buildings need not comply with (a):<br>(i) A Class 7 or 8 building where in the particular case there is no necessity for compliance.<br>(ii) A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for other purposes.<br>(iii) An *open spectator stand* or *open-deck car park.* | |
| **Cl. F1.10** | Damp-proofing of floors on the ground<br>If a floor of a room is laid on the ground or on fill, moisture from the ground must be prevented from reaching the upper surface of the floor and adjacent walls by the insertion of a vapour barrier in accordance with AS 2870, except damp-proofing need not be provided if—<br>(a) weatherproofing is not *required*; or<br>(b) the floor is the base of a stair, lift or similar *shaft* which is adequately drained by gravitation or mechanical means. | Verification will be required with the Construction Documentation |
| **Cl. F1.11** | The floor of each bathroom and laundry must be graded to permit drainage to a floor waste. | Verification will be required with the Construction Documentation |
| **Cl. F1.13** | Glazed assemblies<br>(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:<br>(i) Windows.<br>(ii) Sliding doors with a frame.<br>(iii) Adjustable louvres.<br>(iv) Shopfronts. | Verification will be required with the Construction Documentation |

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| | (v) Window walls with one piece framing.<br>(b) The following buildings need not comply with (a):<br>(i) A Class 7 or 8 building where in the particular case there is no necessity for compliance.<br>(ii) A garage, tool shed, *sanitary compartment*, or the like, forming part of a building used for other purposes, except where the construction of the garage, tool shed, *sanitary compartment* or the like contributes to the weatherproofing of the other part of the building.<br>(iii) An *open spectator stand* or *open-deck car park*.<br>(c) The following glazed assemblies need not comply with (a):<br>(i) All glazed assemblies not in an *external wall*.<br>(ii) Hinged doors, including French doors and bi-fold doors.<br>(iii) Revolving doors.<br>(iv) Fixed louvres.<br>(v) Skylights, roof lights and windows in other than the vertical plane.<br>(vi) Sliding doors without a frame.<br>(vii) Shopfront doors.<br>(viii) Windows constructed on site and architectural one-off windows, which are not design tested in accordance with AS 2047.<br>(ix) Second-hand windows, re-used windows, recycled windows and replacement windows.<br>(x) Heritage windows. | |
| **Cl. F2.4** | Accessible sanitary facilities<br>In a building *required* to be *accessible*—<br>(a) *accessible* unisex *sanitary compartments* must be provided in *accessible* parts of the building in accordance with Table F2.4(a); and<br>(b) *accessible* unisex showers must be provided in accordance with Table F2.4(b); and<br>(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 | The Accessible and Ambulant sanitary facilities will be required to be compliant with Clause 15 and 16 of AS 1428.1 as an Accessible sanitary facility |

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| | and females; and<br>(d) an *accessible* unisex *sanitary compartment* must contain a closet pan, washbasin, shelf or bench top and adequate means of disposal of sanitary towels; and<br>(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 | |
| **Cl. F3.1** | Height of rooms and other spaces<br>The height of rooms and other spaces must be not less than—<br>(a) in a Class 2 or 3 building or Class 4 part of a building—<br>(i) a kitchen, laundry, or the like — 2.1 m; and<br>(ii) a corridor, passageway or the like — 2.1 m; and<br><br>(iii) a *habitable room* excluding a kitchen — 2.4 m; and<br>(iv) in a room or space with a sloping ceiling or projections below the ceiling line within—<br>(A) a *habitable room*—<br>(aa) in an attic — a height of not less than 2.2 m for not less than two-thirds of the *floor area* of the room or space; and<br>(bb) in other rooms — a height of not less than 2.4 m for not less than two-thirds of the *floor area* of the room or space; and<br>(B) a non-*habitable room* — a height of not less than 2.1 m for not less than two-thirds of the *floor area* of the room or space; and<br>when calculating the *floor area* of a room or space, any part that has a ceiling height of less than 1.5 m is not included; and<br>(b) in a Class 5, 6, 7 or 8 building—<br>(i) except as allowed in (ii) and (f) — 2.4 m; and<br>(ii) a corridor, passageway, or the like — 2.1 m; and<br>(d) in a Class 9b building—<br>(i) a *school* classroom or other *assembly building* or part that accommodates not more than | Verification will be required with the Construction Documentation |

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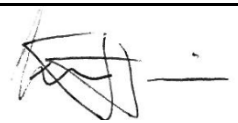
| | 100 persons — 2.4 m; and<br>(ii) a commercial kitchen — 2.4 m; and<br>(iii) above a stairway, ramp, landing or the like — 2 m measured vertically above the nosing line of stairway treads or the floor surface of the ramp, landing or the like. | |
| **Cl. F4.4** | Artificial lighting must be AS 1680 compliant. | Verification will be required with the Construction Documentation |
| **Cl. F4.5** | Ventilation to rooms and spaces other than habitable rooms within the Residential Sole Occupancy Units must be either natural or AS 1668.2 compliant mechanical ventilation. | Verification will be required with the Construction Documentation |

**Author**



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