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SYDNEY • MELBOURNE • BRISBANE

# Bulli Aged Care Centre of Excellence

## BCA ASSESSMENT REPORT

REPORT 2016/0041 R1.1

25th July 2016

Prepared for Billard Leece Partnership Pty Ltd

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## SWP Quality System

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| Job Number/Ref: | 2016/0041 | Revision Number: | R1.1 | Issue Date: | 25th July 2016 |

## Revision History

| Rev No | Date | Revision Details | Author | Verifier |
|---|---|---|---|---|
| 1 | 01/07/16 | Draft Report – for review | Peter Tran | Anthony Ljubicic |
| 1.1 | 25/07/16 | Amended to include AS2118.6-2012 | Peter Tran | Anthony Ljubicic |

**Disclaimer:**
This report is based on a desktop audit of preliminary documentation only.
Details contained in the report address issues of significance to broad BCA compliance relevant to this stage of design resolution.
This report is based on a review of the design documentation only. It represents a compliance report for "documentation to this point in time" and will be subject to amendment and expansion as project documentation develops

# EXECUTIVE SUMMARY

An assessment of the proposed design of the Bulli Aged Acre Centre of Excellence (ACCoE) at Hospital Road, Bulli has been undertaken against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia and the applicable Building Regulations.

This report details the non-compliances identified that require either amendments to plans or an Alternative Solution to satisfy the Performance Requirements of the BCA.

Summary of BCA Parameters:-

| | |
|---|---|
| Building Use: | Retail, Health Care (hospital) and Aged Care |
| Class of Occupancy: | Class 6, 9a & 9c |
| Type of Construction required: | Type A |
| Rise in Storeys: | 4 |
| Number of Storeys: | 4 |
| Effective Height: | 12.2m (RL39.900 – 27.700) |

The following are the main issues that require amendments to the design:-

1. Smoke compartments exceeds the limited permitted by the BCA.
2. Separation of openings in different fire compartments.
3. The swing doors to the loading on ground floor swing against the direction of exit travel.
4. Horizontal exit doorways are required to swing both ways.

The following are the main issues proposed to be addressed by the Fire Safety Engineer via an Alternative Solution:-

1. Exit Travel Distances.
2. Distance between alternative exits.
3. Horizontal Exits.
4. Non-required stairs, ramps or escalators.

The design is capable of complying with the requirements of the relevant sections of the Environmental Planning Assessment Act 1979, the Environmental Planning and Assessment Regulations 2000 and the Building Code of Australia 2016. Compliance is subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

Further detailed regulatory reviews will need to be progressively undertaken as designs advance and become more resolved to ensure compliance is achieved.

Whilst not precluding the issue of a Construction Certificate, it is noted that many detailed design issues are not indicated on the drawings. These issues are designated "Compliance Readily Achievable" in the *"Status*" column of the assessment in Section 13 of the report and should be resolved prior to construction.

Key issues which require additional details have been listed under Section **Error! Reference source not f ound.** of this report and need to be clarified with SWP prior to the issue of a construction certificate.

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# 1. INTRODUCTION

This report presents the findings of a preliminary assessment undertaken of the proposed design of the Bulli Aged Acre Centre of Excellence (ACCoE) at Hospital Road, against the Deemed-to-Satisfy (DtS) provisions of Building Code of Australia (BCA) 2016.

It has been prepared by Steve Watson and Partners for Billard Leece Partnership Pty Ltd on behalf of NSW Health and Infrastructure and IRT Group.

# 2. PURPOSE

The purpose of this report is to provide an assessment of the design documentation against the current requirements of the BCA.

The assessment is undertaken for the purpose of, and to the extent necessary for Schematic Design Phase Stage.

# 3. SCOPE AND LIMITATIONS

## 3.1. SCOPE

The scope of this assessment is limited to the the design documentation referenced in Appendix A of this report.

## 3.2. LIMITATIONS

The following limitations apply to the assessment:

- The report considers matters of a significant nature only and should not be considered exhaustive.
- The plans are assessed to the extent necessary to Schematic Design Phase Stage. This means that the design has been assessed as able to comply with the BCA ie – the submitted plans are consistent with the BCA but certain design details may be not specified at this stage
- Details in regard to access for people with disabilities have been assessed to the extent of the deemed-to-satisfy provisions of the BCA/Premises Standard only. A detailed assessment against AS 1428 series, AS/NZS 2890.6 – 2009 and AS 4299 – 1995 is outside the scope of this report
- Generally the assessment does not incorporate a detailed assessment of the requirements of the Australian Standards.
- Structural and services documentation has not been reviewed.
- Appraisals are limited to the provisions of the BCA and the Premises Standards. Other legislative requirements have not been considered. It does not address additional or specific requirements stipulated under other areas such as Safety in Design, Construction Safety, Disability Discrimination, Planning and Environment, Occupational Health and Safety, Health, Dangerous Goods, etc, which may impact on the design and use of the building. It is recommended that appropriate advice from suitably qualified consultants should be obtained for further information on these areas.

# 4. ALTERNATIVE SOLUTIONS (PERFORMANCE BASED)

Further development of the BCA has introduced provisions to allow performance based buildings. This has allowed for innovation and variation from the prescriptive deemed-to-satisfy requirements of the BCA, whilst maintaining the principle levels of health, safety and amenity of building occupants.

Alternative solutions are generally adopted when a nominated deemed-to-satisfy provision appears inappropriate for the design, or when a proposed design varies from the prescriptive requirements of the BCA. Subsequently, an alternative solution supported by Fire Engineering analysis can determine whether a proposed design that varies from prescriptive requirements, will satisfactorily meet the performance provisions of the BCA. Ultimately, it is with the discretion of the relevant building surveyor whether to accept a deviation from the prescriptive code requirements.

Utilising the performance provisions may result in more economical and somewhat safer building, however alternative solutions may require additional on-going maintenance. It is in this instance that all parties, such as the building owner, insurance companies, proposed tenants, etc, are aware of this decision making process and are kept informed of any additional requirements needed to maintain the level of safety.

# 5. STATUTORY FRAMEWORK

The following table summarises the key statutory issues relating to fire safety and the BCA in relation to the certification of new building works.

| Issue | Legislative reference | Comment |
|---|---|---|
| New Work | EPAR 145 | All new works must comply |
| Access to premises | Disability (Access to Premises — Buildings) Standards 2010 | Upgrade of the "Affected Part" to provide access for people with disabilities |
| Development by the Crown | Section 109R of the Act | Certification at the time of tender that the design complies with the State's building laws. |

## 5.1. NEW WORK

Clause 145 of the Environmental Planning and Assessment Regulation 2000 (EPAR) requires that all new work comply with the current requirements of the BCA.

This means that all works proposed in the plans are required to comply but that existing features of an existing building need not comply with the BCA unless required to under other clauses of the legislation.

## 5.2. ACCESS TO PREMISES

The Disability (Access to Premises – Buildings) Standards came into force via BCA2011 throughout Australia on 01 May 2011, and with it introduced a higher standard of access to that required by previous versions of the BCA. In prescribed circumstances, the legislation requires upgrade of access and facilities for persons with disabilities when building work is proposed. In particular, unless works are undertaken by a lessee who does not lease the entire building, proposed building work anywhere in the building could trigger a need for enhanced access at the main building pedestrian entry and from that entry to all areas of the building that are subject to the building work.

## 5.3. DEVELOPMENT BY THE CROWN

Development by the Crown is regulated by Part 4 Division 4 and Part 4A Division 2 of the EP&A Act. Section 109R of the Act requires that any demolition or building work cannot be commenced unless the works are certified as complying with the State's building laws at the date of calling for tenders. The above regulatory requirements generally still apply.

One means of ensuring compliance with the certification requirement is to obtain a construction certificate in relation to the works.

# 6. METHODOLOGY

## 6.1. PROCESS ADOPTED

The following method of assessment has been used in the preparation of this report:

1) Determine the basic assessment data for the building.
2) Assess the design of the building against the current Deemed-to-Satisfy requirements of Sections B, C, D, E, F, G, H and J of the BCA. Establish the status of each clause into the following categories:
    1. Clause is administrative information only **(Noted)**;
    2. Clause is or is not relevant to the proposed work **(Applicable or N/A)**
    3. The proposed work complies with the requirements of the clause **(Complies)**;
    4. Compliance with the requirements of the clause is unable to be determined from the documentation provided **(Compliance Readily Achievable)**. A recommendation in the "Comments" column will indicate what is required to achieve compliance. The design and construction teams are responsible to ensure compliance is achieved;
    5. Compliance with the requirements of the clause is unable to be determined from the documentation provided. Additional details or relevant information required to verify compliance (**Additional Details Required**);
    6. Proposed work does not comply with the requirements of the clause **(Does Not Comply)**. An indication will be given in the Comments field as to the nature of the issue and whether an alternative solution has been proposed to address the issue;
    7. Proposed work is to be addressed on a performance basis via an Alternative Solution satisfying the relevant Performance Requirements. (**Alternative Solution**);
3) Nominate the status of the design against each BCA requirement;
4) Provide comments against each BCA requirement as appropriate.

# 7. DESCRIPTION OF PROPOSED DEVELOPMENT

Proposed development involves the construction of a four storey hospital and aged care building located at Hospital Road, Bulli.

# 8. ASSESSMENT DATA SUMMARY

The following basic assessment data has been drawn from the provisions of the BCA 2016.

## 8.1. ASSUMPTIONS

Assumptions made in the preparation of this report are listed below:

1. No assumptions have been made.

## 8.2. INTERPRETATIONS

A number of issues within the BCA are recognised to be interpretive in nature. Where these issues are encountered, interpretations are made that are consistent with Standard Industry Practise and/or Steve Watson & Partners policy formulated in regard of each issue.

1. The Class 6 pharmacy/retail is less than 10% of the floor area of the ground floor. The Class 9a classification will apply to the whole storey.

# 9. ISSUES REQUIRING RESOLUTION

## 9.1. ISSUES REQUIRING AMENDMENTS TO PLANS

The following issues need to be resolved.

| Item | DTS Clause | Description of Non-compliance | Requirement to Satisfy BCA |
|---|---|---|---|
| 1. | C2.5 | Smoke compartments within the Class 9c building exceeds the 500m$^2$ permitted by the BCA;<br>• Level 2 – Western smoke compartment – 593m$^2$<br>• Level 2 – Central smoke compartment – 526m$^2$<br>• Level 3 – Western smoke compartment – 610m$^2$<br>• Level 3 – Southern smoke compartment – 510m$^2$ | Class 9a<br>In a Class 9a building patient care areas are to be divided into fire compartments not exceeding 2000m$^2$.<br>Ward areas must be divided into areas of not more than 1000m$^2$ by walls with an FRL of not less than 60/60/60 and into smoke compartments of not more than 500m$^2$.<br>Treatment areas must be divided into smoke compartments not exceeding 1000m$^2$.<br>Class 9c<br>In a Class 9c aged care building are to be divided into fire compartments not exceeding 8000m$^2$.<br>Class 9c aged care buildings must be divided into smoke compartment not exceeding 500m$^2$. |
| 2. | C3.3 | Separation of openings in different fire compartments. | External walls within the distances specified in Table C3.3 of the BCA are to be protected by construction with an FRL not less than 60/60/60 and the associated openings protected in accordance with Clause C3.4 of the BCA. |
| 3. | D2.20 | The swing doors to the loading on ground floor swing against the direction of exit travel.<br>Horizontal exit doorways are required to swing both ways. | Defined exit doors that serve a part of a building must swing outward in the direction of exit travel. |

### 9.2. ALTERNATIVE SOLUTIONS REQUIRED

It is proposed to satisfy the following non-compliances by alternative solutions:

| Item | Non-Compliance | DTS Clause | Description | Performance Requirement |
|---|---|---|---|---|
| 1. | Exit Travel Distances | D1.4 | The nominated exits in the building are listed in appendix D1.4 of the report.<br>The following areas have been identified with distances exceeding 20m to a point of choice:<br>1. Ground Floor – Lift Lobby BOH – approx. 25m<br>The following Class 9a patient care areas have been identified with a distance exceeding 30m to an exit from the starting point:<br>1. Level 1 – 3.001 – approx. 31m<br>2. Level 1 – 3.011 – approx. 36m<br>3. Level 1 – G1.434 – approx. 35m<br>4. Level 1 – G3.098 - approx. 32m<br>5. Level 1 – 3.019 – approx. 32m<br>6. Level 1 – 3.012 – approx. 34m<br>7. Level 1 – 3.013 – approx. 32m<br>8. Level 2 – 4.003 – approx. 32m<br>9. Level 2 – 4.004 – approx. 34m<br>10. Level 2 – 3.054 – approx. 36m<br>11. Level 2 – 4.090 – approx. 32m<br>12. Level 2 – 4.042 – approx. 33m<br>13. Level 2 – 4.019 – approx. 31m<br>14. Level 2 – G1.205 – approx. 35m<br>15. Level 2 – G1.206 – approx. 32m<br>The following Class 9c aged care areas have been identified with exit travel distances exceeding 40m:<br>1. Level 3 – terrace – approx. 48m<br>2. Level 3 – Pal Suite 6.059 – approx. 43m | DP4 & EP2.2 |
| 2. | Distance between alternative exits | D1.5 | The following Class 9a patient care areas have been identified with a distance alternative exits exceeding 45m:<br>1. Level 1 – approx. 66m<br>2. Level 2 – approx. 65m<br>The following Class 9c aged care areas have been identified with distances between alternative exits exceeding 60m:<br>1. Level 2 – approx. 83m | DP4 & EP2.2 |
| 3. | Horizontal Exits | D1.11 | The doorways to fire compartments A & B are considered horizontal exits. Fire compartment A is required to have at least one required exit which is not a horizontal exit. | DP4 & EP2.2 |
| 4. | Non-required stairs, ramps or escalators | D1.12 | The lobby stairway connects four storeys. | CP2 & EP2.2 |

## 10. RELEVANT AUTHORITIES

Where an alternative solution is proposed to meet the performance requirements contained in any one or more of the Category 2 fire safety provisions referral to Fire and Rescue NSW under Clause 144 of the EP&A Regulations is required in either of the following types of buildings:

(a) a class 9a building that is proposed to have a total floor area of 2,000 square metres or more, or
(b) a building (other than a class 9a building) that is proposed to have:
    (i) a fire compartment with a total floor area of more than 2,000 square metres, or

(ii) a total floor area of more than 6,000 square metres,

## 11. STATUTORY FIRE SAFETY MEASURES

All fire/essential safety measures installed within the building are required required to be certified upon completion of the project and prior to occupation of the building by the owner of the building, by issuing a Final Fire Safety Certificate under the Act.

The owner is also required under the Act to certify each of the Fire Safety Measures annually by issuing a Fire Safety Statement.

With alternative solutions, additional or more frequent maintenance may result.

## 12. CONCLUSION

The design is capable of complying with the requirements of the relevant sections of the of the Act and EPAR and the BCA 2016 subject to resolution of the identified areas of non-compliance and compliance with the recommendations provided within the report.

Further detailed regulatory reviews will need to be progressively undertaken as designs advance and become more resolved to ensure compliance is achieved.

# 13. BCA 2016 – CLAUSE BY CLAUSE ASSESSMENT

| Clause | Description | Comment | Status |
|---|---|---|---|
| **BCA Version** | | | |
| BCA 2016 | **BCA Version**<br>The BCA is updated every 3 years with amendments influencing health, safety and amenity features required within the building. Legislation typically allows future BCA changes to be ignored provided substantial progress on the design of the development has previously occurred. | This report assumes that the applicable BCA version is BCA 2016. In addition, requirements of the Premises Standards (PS) are covered as relevant. | Noted |
| **Section A: General Provisions** | | | |
| A3.2 | **Classification and Usage**<br>Usage on each level of the building is as follows:<br>**LEVEL** / **USE** / **CLASS**<br>Ground / Retail (Pharmacy) / 6<br>Hospital / 9a<br>Level 1 / Hospital / 9a<br>Level 2 / Hospital / 9a<br>Aged care / 9c<br>Level 3 / Hospital / 9a<br>Aged Care / 9c | | Noted |
| A2.1 | **Suitability of Materials**<br>Every part of a building must be constructed in an appropriate manner to achieve the requirements of the BCA, using materials that are fit for the purpose for which they are intended. | The builder is responsible to adopt and install appropriate proprietary accredited building products and is to ensure that those products/assemblies are fit for the purpose they are intended and are installed in accordance with the manufacturer's specifications/ requirements for that system. | Compliance readily achievable |
| **Section B: Structure** | | | |
| B1.1 | **Resistance to actions**<br>The resistance of the building must be greater than the most critical action effect resulting from different combinations of actions | Certification from a qualified structural engineer will need to be provided at Construction Certificate stage | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| B1.2 | **Determination of individual actions**<br>The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA. | Certification from a qualified structural engineer will need to be provided at Construction Certificate stage | Compliance readily achievable |
| B1.3 | - | No provisions | - |
| B1.4 | **Determination of structural resistance of materials and forms of construction**<br>The structural resistance of materials and forms of construction must be determined in accordance with the relevant Australian Standards in accordance with Clause B1.4 of the BCA. | Certification from a qualified structural engineer will need to be provided at Construction Certificate stage | Compliance readily achievable |
| B1.5 | **Structural software**<br>Structural software used in computer aided design of a building or structure that uses design criteria based on DTS provisions of the BCA must comply with the ABCB Protocol for Structural Software. | - | Noted |
| B1.6 | **Construction of buildings in flood hazard areas** | A Class 9c aged care building in a flood hazard area must comply with the ABCB Standard for Construction of Buildings in Flood Hazard Areas.<br>Confirmation from a hydraulic engineer will be required as to whether the building is located within a flood hazard area prior to the issue of the Construction Certificate. | Compliance readily achievable |
| Part B | **Structure and Importance Level**<br>Assessment of the building structure will be required for dead, live, wind, earthquake, fire and other loads required by current day AS Codes.<br>The design of the structure must be based on the appropriate 'Importance Level' under BCA Table B1.2a. | Noted | Compliance readily achievable |
| **Section C: Fire Resistance** | | | |
| **Part C1 – Fire Resistance and Stability** | | | |
| C1.1 | **Type of Construction Required**<br>**Type A Construction**<br>BCA Type A fire resisting construction is required. | Details of the proposed construction and how it will achieve the required FRL is to be provided. Certification from a structural engineer will be required for FRL's of all structural elements including existing structure. | Additional details required |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C1.1, Spec C1.1 | **Combustible Materials to External Walls in Fire**<br>External walls should be constructed of non-combustible materials and/or otherwise not contribute to the risk of fire spread via the external façade.<br>Combustible materials are not permitted to be located near or directly above a required exit so as to make the exit unusable in a fire.<br>The following materials may be used where non-combustible materials are required:-<br>• Plasterboard.<br>• Perforated gypsum.<br>• Fibrous-plaster sheeting to AS 2185.<br>• Fibre-reinforced cement sheeting.<br>• Pre-finished metal sheeting.<br>• Bonded laminated materials.<br>• As determined by testing to AS 1530.1<br>• An appropriately BCA accredited product or system | Architect and Structural engineer to make provisions for this requirement in the design.<br>Detailed review of the external cladding should be undertaken to ensure that there are no combustible materials and non-complaint claddings have not been nominated that could increase the risk of fire spread via the external façade.<br>Ensure all façade materials have a current Certificate of Conformity or a current Certificate of Accreditation, or the like to determine their acceptance by the Fire Brigade. | Compliance readily achievable |
| C1.2 | **Calculation of rise in storeys**<br>**Effective Height / Calculation of rise in storeys**.<br>Rise in storeys is a defined BCA term addressing the number of main building levels excluding basements.<br>Effective height is defined under the BCA as vertical distance between the floor of the lowest storey included in the calculation of rise in storeys and the floor of the topmost storey (excluding the topmost storey if it contains only heating, ventilating, lift or other equipment, water tanks or similar service units).<br>These parameters influence the BCA provisions applicable to the building. | The following parameters apply:-<br>Rise in storeys: 4 storeys<br>Effective Height: 12.2m<br>(RL39.900 – 27.700) | Noted |
| C1.3 | **Buildings of multiple classification** | The building is required to be constructed of Type A fire resisting construction as the classification of the top storey is a Class 9a & 9c | Noted |
| C1.4 | **Mixed types of construction** | If a fire wall divides the building in accordance with Clause C2.7, the building portions are able to be constructed in differing levels of fire-resistance determined in accordance with Clause C1.1 and C1.3. | N/A |
| C1.5 | **Two storey Class 2, 3 or 9c buildings**<br>A Class 9c building having a rise of 2 may be Type C construction if it is protected throughout with a sprinkler system and complies with the maximum compartment size for Type C construction. | | N/A |

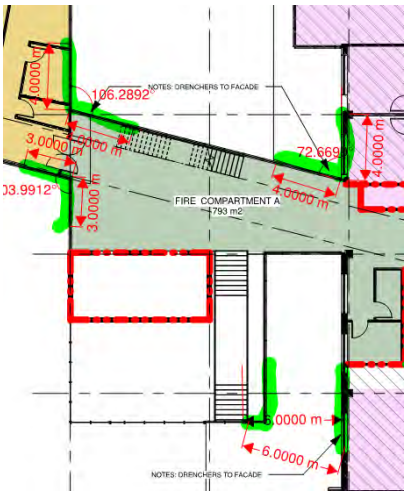
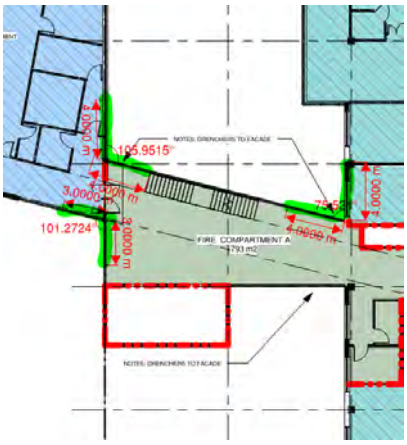
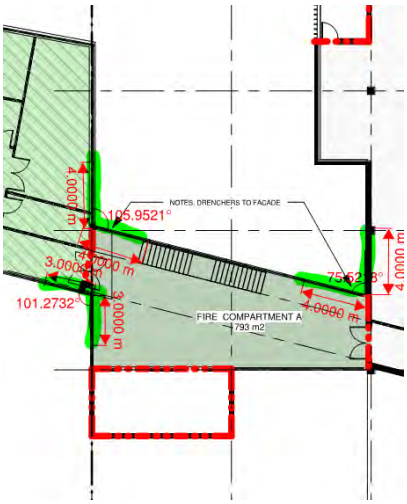
| Clause | Description | Comment | Status |
|---|---|---|---|
| C1.6 | **Class 4 parts of buildings** | | N/A |
| C1.7 | **Open spectator stands and indoor sports stadiums** | | N/A |
| C1.8 | **Lightweight construction**<br>Lightweight construction used in a wall system must comply with Specification C1.8.<br>Lightweight construction used as a fire-resisting covering of a steel column or the like, and where the covering is not in continuous contact with the column must have the voids filled to a height of not less than 1.2m above the floor and where the column is liable to be damaged must be protected by steel or other suitable material. | Details of the proposed systems to be installed must be in accordance with a tested prototype. | Compliance readily achievable |
| C1.9 | - | This Clause has deliberately been left blank | - |
| C1.10 | **Fire Hazard Properties**<br>Floor materials, floor coverings and wall and ceiling lining materials need to comply with prescribed fire hazard properties. Refer to Appendix C1.10. | Compliance assumed and will require verification test data for all timber and other combustible linings and materials, including:-<br>• Carpets<br>• Vinyls (walling and flooring)<br>• Timber flooring and wall linings<br>• Veneered wall panelling<br>• Spray-on insulation material<br>• Other combustible finishes<br>• Carpark soffit insulation fire test reports, based on 'room fire testing' will be required to meet fire brigade consent conditions if applicable. | Compliance readily achievable |
| C1.11 | **Performance of external walls in fire** | | N/A |
| C1.12 | **Non-combustible materials** | Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible. | Noted |
| C1.13 | **Fire-protected timber: Concession**<br>*Fire-protected timber* in a Class 2, 3 or 5 building may be used wherever an element is *required* to be *non-combustible*, | | N/A |
| **Part C2 – Compartmentation and Separation** | | | |
| C2.1 | **Application of Part** | Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand. | Noted |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C2.2, | **Floor Area Limitations (Type A construction)**<br>The floor area and volume limitations are:<br>Class 9a: 5,000m$^2$ and 30,000m$^3$<br>Class 9c: 8,000m$^2$ and 48,000m$^3$<br><br>Note:<br>• The BCA does not require Class 2 and 3 parts of the building to be considered<br>• The basement carpark levels are not required to be considered as they're provided with a sprinkler system throughout | The floor area and volume of Lower Ground and Ground floor levels are within the maximum limitations outlined by Table C2.2. | Complies |
| C2.3 | **Large isolated buildings** | | N/A |
| C2.4 | **Perimeter Vehicular Access** | | N/A |
| C2.5 | **Class 9a and 9c buildings**<br>*(NSW variation for Class 9c Buildings)*<br>**Class 9a**<br>In a Class 9a building patient care areas are to be divided into fire compartments not exceeding 2000m$^2$.<br>Ward areas must be divided into areas of not more than 1000m$^2$ by walls with an FRL of not less than 60/60/60 and into smoke compartments of not more than 500m$^2$.<br>Treatment areas must be divided into smoke compartments not exceeding 1000m$^2$.<br>**Class 9c**<br>In a Class 9c aged care building are to be divided into fire compartments not exceeding 8000m$^2$.<br>Class 9c aged care buildings must be divided into smoke compartment not exceeding 500m$^2$. | Smoke compartments within the Class 9c building exceeds the 500m$^2$ permitted by the BCA;<br>• Level 2 – Western smoke compartment – 593m$^2$<br>• Level 2 – Central smoke compartment – 526m$^2$<br>• Level 3 – Western smoke compartment – 610m$^2$<br>• Level 3 – Southern smoke compartment – 510m$^2$ | Does not comply |

| Clause | Description | Comment | Status |
|---|---|---|---|
| | **Class 9a**<br>Construction of smoke proof walls is to comply with Specification C2.5. Details to be provided to SWP.<br>Smoke doors must swing in direction of egress or both ways if required to be used as required exits from separate fire compartments.<br>Ancillary use areas located within a patient care area and contains equipment or material that area a high potential fire hazard must be separated from the remainder of the patient care area by walls with an FRL of not less than 60/60/60.<br>**Class 9c**<br>Smoke compartments are to be divided by smoke-proof walls complying with Specification C2.5.<br>Note specific requirements for bounding internal walls.<br>Ancillary use areas containing equipment or materials that are high potential fire hazard must be separated from the patient care area / remainder of the building by construction with an FRL of not less than 60/60/60 / smoke proof walls complying with Specification C2.5. Ancillary use areas include but are not limited to the following:<br>• Kitchen and related food preparation areas with a floor area of more than 30m$^2$,<br>• Room containing a hyperbaric chamber,<br>• Room used predominately for the storage of medical / administrative records having a floor area of more than 10m$^2$.<br>• Laundry, where items of equipment are of the type that are potential fire sources | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Additional Details Required |
| | Smoke doors must provide a 'smoke reservoir' at least 400mm deep.<br>Smoke doors need to be solid core and self-closing or 200°C resistant toughened glass. Smoke seals must be fitted. If doors are electromagnetically held open, they should be linked to smoke detectors located within 1.5m of the doors.<br>Ducts through smoke walls need smoke dampers<br>Note, smoke doors must swing in direction of egress or both ways to permit egress both directions through the doorways. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Additional Details Required |
| C2.6 | **Vertical separation of openings in external walls**<br>Only applicable to a building of Type A Construction, which is not sprinkler protected. | Sprinklers are required to be provided throughout the building. | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C2.7 | **Separation by Fire Walls**<br>A fire wall must extend to the underside of a floor having an FRL required for a fire wall or the roof covering.<br>Separation of fire compartment – A part of a building separated from the remainder of the building by a fire wall may be treated as a separate fire compartment if it is constructed in accordance with Clause C2.7(a) and the fire wall extends to the underside of a floor having an FRL required for a fire wall or the roof covering | Architect and Structural engineer to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C2.8 | **Separation of classifications in the same storey**<br>As the building has parts of different classifications located alongside one another in the same storey each building element must have the higher FRL prescribed in Specification C1.1 of the BCA or the parts must be separated by a fire wall. | Separation of classification is not required as the Class 6 pharmacy/retail is less than 10% of the floor area of a storey. The Class 9a classification will apply to the whole storey. | N/A |
| C2.9 | **Separation of classifications in different storeys**<br>As different classifications are situated one above the other in adjoining storeys they must be separated in accordance with the DTS provisions of the BCA. | | N/A |
| C2.10 | **Separation of Lift Shafts**<br>Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA<br>Any lift connecting more than 2 storeys or more than 3 storeys in a sprinkled building must be separated from the remainder of the building as specified in Clause C2.10. | Architect and Structural engineer to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C2.11 | **Stairs and Lift in One Shaft**<br>A stairway and lift must not be in the same shaft if either the stairway or the lift is required to be in a fire-resisting shaft. | | Complies |
| C2.12 | **Separation of Equipment**<br>Two hour fire enclosure is required for:-<br>• lift motor rooms<br>• emergency generators sustaining emergency equipment operating in emergency mode<br>• central mechanical smoke control plant<br>• boilers<br>• batteries with voltage over 24 volts and a capacity exceeding 10 ampere hours. (Batteries within an electricity network substation are exempt.) | Architect and Structural engineer to make provisions for this requirement in the design.<br>Any UPS system with a voltage exceeding 24 volts and a capacity exceeding 10 amp hours must be fire separated. | Additional details required |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C2.13 | **Electricity Supply System**<br>A substation located within a building or main switchboard, which sustains emergency equipment, must be separated from the remainder of the building by 2hr fire rated construction. | Architect and Electrical engineer to make provisions for this requirement in the design. | Compliance readily achievable |
| C2.14 | **Corridors in Class 2 & 3 Building**<br>Public corridors must be divided at intervals of not more than 40m by smoke-proof walls complying with Clause 2 of Specification C2.5. | | N/A |
| **Part C3 – Protection of Openings** | | | |
| C3.1 | **Application of Part** | | Noted |
| C3.2 | **Protection of Opening in External Walls**<br>Openings in the external walls of the building are to be protected in accordance with C3.4, being fire rated windows, external sprinklers or the like, if:-<br>• less than 3m to side or rear boundary,<br>• less than 6m from the far boundary of a road or lane,<br>• Less than 6m from another building on the same allotment.<br>Openings that require protection should not occupy more than one third of the storey in which they occur. | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C3.3 | **Separation of Openings in Different Fire Compartments**<br>External walls within the distances specified in Table C3.3 of the BCA are to be protected by construction with an FRL not less than 60/60/60 and the associated openings protected in accordance with Clause C3.4 of the BCA. | **First Floor**<br>  <br>**Second Floor**<br>  <br>**Third Floor**<br>  | Does not comply |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C3.4 | **Acceptable method of protection**<br>Window openings that are required to be protected are to be protected by wall wetting sprinklers with windows that are automatic closing or permanently fixed in the closed position, -/60/- fire windows or -/60/60 automatic fire shutters.<br>Doorways are to be protected by wall wetting sprinklers used with doors that are self closing or automatic closing, or -/60/30 self closing or automatic closing fire doors. | | Noted |
| C3.5 | **Doorways in fire walls**<br>Doorways in firewalls are to be protected by a fire door or fire shutter that has an FRL of not less than that required for the firewall except that the insulation rating must be at least 30. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C3.6 | **Sliding Fire Doors** | | N/A |
| C3.7 | **Protection of doorways in horizontal exits**<br>Doorways in horizontal exits are to be protected by a fire door, which has an FRL of not less than that required for the firewall except that the insulation rating must be at least 30. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C3.8 | **Openings in Fire Isolated Exits**<br>-/60/30 self-closing fire doors are required to doorways providing access to fire isolated stairways. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C3.9 | **Service Penetrations in Fire Isolated Exits**<br>Service penetrations other than electrical wiring for essential service installations, pressurisation ducts with an FRL of -/120/60, or water pipes for fire services are not permissible. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C3.10 | **Openings in fire isolated lift shafts**<br>Openings in lift shafts are to be protected by -/60/- fire doors complying with AS1735.11.<br>Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm2 (175 X 200 mm). | Certification from the lift supplier is required for the installation of the new lift | Compliance readily achievable |
| C3.11 | **Bounding construction: Class 2, 3, 4 and 9b buildings** | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| C3.12 | **Openings in floors for services**<br>Services passing through floors are to be placed within fire resisting shafts or in accordance with Clause C3.15. | Services penetrations of fire rated structure generally need to be fire-stopped and/or located in fire rated riser shafts. Openings in fire rated elements need to be fire resisting to maintain the function of the elements. | Compliance readily achievable |
| C3.13 | **Openings in shafts**<br>In a building of Type A construction, an opening in a wall providing access to a ventilating, pipe, garbage, or other service shaft must be protected by:<br>• If it is a sanitary compartment - a door or panel which together with its frame, is non combustible or has an FRL of not less than -/30/30, or<br>• A self closing -/60/30 fire door or hopper, or<br>• An access panel with an FRL of not less than -/60/30, or<br>• If the shaft is a garbage shaft - a door or hopper of non-combustible construction. | Architect to make provisions for this requirement in the design.<br>Details to be provided at Construction Certificate Stage | Compliance readily achievable |
| C3.14 | - | This Clause has deliberately been left blank | - |
| C3.15 | **Openings for service installation**<br>Methods and materials used are to be identical to tested prototypes and in accordance with AS4072.1 and AS1530.4, and having achieved the required FRL or resistance to the incipient spread of fire or other specified method. | Any system used must be a certified system and installed in accordance with the tested method. Specifications of the methods of fire sealing need to be provided | Compliance readily achievable |
| C3.16 | **Construction Joints**<br>Construction joints in elements required to have a fire resistance with respect to integrity and insulation must be protected. | Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4. | Compliance readily achievable |
| C3.17 | **Columns protected with lightweight construction** | Columns must be protected in accordance with the identical tested prototype. | Compliance readily achievable |
| **Section D: Access and Egress** | | | |
| **Part D1 - Provision for Escape** | | | |
| D1.1 | **Application of Part** | | Noted |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D1.2 | **Number of Exits Required**<br>In a Class 9a & 9c building, at least one exit must be provided from every part of a storey which has been divided into fire compartments.<br>Each patient care area must be served by a minimum of 2 exits.<br>Each required main hospital area fire zone must be served by a minimum of one exit other than a horizontal exit. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D1.3 | **When Fire Isolated Exits are Required**<br>All stairways serving as a required exit connecting 2 consecutive storey are required to be fire-isolated. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D1.4 | **Exit Travel Distances**<br>No point on the floor must be more than 20m to an exit or a point in which travel in different directions to 2 exits is available, in which case, the maximum distance to 1 exit cannot exceed 40m.<br>In a patient care area in a Class 9a building;<br>(i) no point on the floor must be more than 12 m from a point from which travel in different directions to 2 of the required exits is available; and<br>(ii) the maximum distance to one of those exits must not be more than 30 m from the starting point. | **Class 9a**<br>The following areas have been identified with distances exceeding 20m to a point of choice:<br>2. Ground Floor – Lift Lobby BOH – approx. 25m<br>The following Class 9a patient care areas have been identified with a distance exceeding 30m to an exit from the starting point:<br>16. Level 1 – 3.001 – approx. 31m<br>17. Level 1 – 3.011 – approx. 36m<br>18. Level 1 – G1.434 – approx. 35m<br>19. Level 1 – G3.098 - approx. 32m<br>20. Level 1 – 3.019 – approx. 32m<br>21. Level 1 – 3.012 – approx. 34m<br>22. Level 1 – 3.013 – approx. 32m<br>23. Level 2 – 4.003 – approx. 32m<br>24. Level 2 – 4.004 – approx. 34m<br>25. Level 2 – 3.054 – approx. 36m<br>26. Level 2 – 4.090 – approx. 32m<br>27. Level 2 – 4.042 – approx. 33m<br>28. Level 2 – 4.019 – approx. 31m<br>29. Level 2 – G1.205 – approx. 35m<br>30. Level 2 – G1.206 – approx. 32m<br>The following Class 9c aged care areas have been identified with exit travel distances exceeding 40m:<br>3. Level 3 – terrace – approx. 48m<br>4. Level 3 – Pal Suite 6.059 – approx. 43m | Alternative solution |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D1.5 | **Distance between alternative exits**<br>The following travel distance limits apply:-<br>• ≤ 20m to an single exit or to a point of choice to alternative egress paths, and<br>• ≤ 40m to the closest alternative exit;<br>• ≤ 60m travel distance between alternative exits and not less than 9m between alternative exits;<br>• ≤ 45m travel distance between alternative exits in a Class 9a patient care area;<br>• Exit paths to alternative exits should not converge at any point to be less than 6m apart. | The following Class 9a patient care areas have been identified with a distance alternative exits exceeding 45m:<br>3. Level 1 – approx. 66m<br>4. Level 2 – approx. 65m<br>The following Class 9c aged care areas have been identified with distances between alternative exits exceeding 60m:<br>2. Level 2 – approx. 83m | Alternative solution |
| D1.6 | **Dimensions of exits**<br>In a required exit or path of travel, the unobstructed height throughout must be not less than 2m, except the unobstructed height of any doorway must be reduced to not less than 1980mm. The unobstructed width of each exit or path of travel to an exit except a doorway must not be less than 1m.<br>The unobstructed width of each exit or path of travel to an exit, except for doorways, in a public corridor in a Class 9c must not be less than 1.5m, and 1.8m for the full width of the doorway, providing access into a sole occupancy unit or communal bathroom.<br>The unobstructed width of a doorway must be not less than—<br>(i) in patient care areas through which patients would normally be transported in beds, if the doorway provides access to, or from, a corridor of width—<br>(A) less than 2.2 m — 1200 mm; or<br>(B) 2.2 m or greater — 1070 mm,<br>and where the doorway is fitted with two leaves and one leaf is secured in the closed position, the other leaf must permit an unobstructed opening not less than 800 mm wide; or<br>(ii) in patient care areas in a horizontal exit — 1250 mm; or<br>(iii) the unobstructed width of each exit provided to comply with (b), (c), (d) or (e), minus 250 mm; or<br>In a Class 9c, the unobstructed width of a doorway must not be less than-<br>a) 1070mm where it opens from a public corridor to a sole-occupancy unit; or<br>b) 870mm in other resident use areas; or<br>c) 800mm in non-resident use areas.<br>and where the doorway is fitted with two leaves and one leaf is secured in the closed position, the other leaf must permit an unobstructed opening not less than 870 mm wide in resident use areas and 800 mm wide in non-resident use | Architect to make provisions for this requirement in the design. | Additional Details Required |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D1.7 | **Travel via fire-isolated exits**<br>Where the path of travel from the point of discharge of a fire-isolated exit necessitates passing within 6m of any part of an external wall, measured horizontally at right angle angles to the path of travel , that part of the wall must have:<br>a. An FRL of not less than 60/60/60; and<br>b. Any openings protected internally in accordance with C3.4<br>for a distance of 3m above or below, as appropriate, the level of the path of travel, or for the height of wall, whichever is the lesser. | Architect to make provisions for this requirement in the design. | Additional details required |
| D1.8 | **External stairways in lieu of fire-isolated exits** | | N/A |
| D1.9 | **Travel by non-fire-isolated stairways or ramps** | Travel by non-fire-isolated stairways or ramps is not permitted for a Class 9c building. Refer to Clause D1.3. | N/A |
| D1.10 | **Discharge from exits**<br>An exit must not be blocked nor be capable of being blocked at its point of discharge.<br>If an exit discharges to open space that is at a different level than the public road to which it is connected, the path of travel to the road must be by—<br>(i) a ramp or other incline having a gradient not steeper than 1:8 at any part, or not steeper than 1:14 if required by the Deemed-to-Satisfy Provisions of Part D3; or<br>(ii) except if the exit is from a Class 9a building, a stairway complying with the Deemed-to-Satisfy Provisions of the BCA. | Architect to make provisions for this requirement in the design. | Additional details required |
| D1.11 | **Horizontal Exits**<br>In a Class 9a health-care building or Class 9c building, horizontal exits may be counted as required exits if the path of travel from a fire compartment leads by one or more horizontal exits directly into another fire compartment which has at least one required exit which is not a horizontal exit. | The doorways to fire compartments A & B are considered horizontal exits. Fire compartment A is required to have at least one required exit which is not a horizontal exit. | Alternative solution |

| Clause | Description | Comment | Status |
|---|---|---|---|
| | Horizontal exits must have a clear area on the side of the fire wall, to which the occupants are evacuating, to accommodate the total number of persons serviced by the horizontal exit of not less than –<br>(i) 2.5 m2 per patient/resident in a Class 9a health-care building or Class 9c building; and<br>(ii) 0.5 m2 per person in any other case.<br>The clear area required must be connected to the horizontal exit by an unobstructed path that has at least the dimensions required for the horizontal exit and may include the area of the unobstructed path. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D1.12 | **Non-required stairs, ramps or escalators**<br>Non-required stairs are permitted to connect up to 3 consecutive levels in a sprinklered building if one of the levels has direct access to open space | The lobby stairway connects four storeys. | Alternative solution |
| | A non-fire isolated stairway must not be used between storeys in—<br>(i) a patient care area in a Class 9a health-care building; or<br>(ii) a resident use area in a Class 9c building; | Architect to make provisions for this requirement in the design. | Additional details required |
| D1.13 | **Number of persons accommodated** | Details on the number of proposed number of employees to be present during working hours are to be provided to accurately determine the population. | Additional details required |
| D1.14 | **Measurement of distance** | | Noted |
| D1.15 | **Method of measurement** | | Noted |
| D1.16 | **Plant rooms and lift machine rooms: Concession** | | Noted |
| D1.17 | **Access to lift pits**<br>Access requirements apply to lift pits over 3m in depth. | Lift consultant to confirm. | Compliance readily achievable |
| **Part D2 – Construction of Exits** | | | |
| D2.1 | **Application of Part**<br>*(NSW variation for Entertainment Venues)* | | Noted |
| D2.2 | **Fire Isolated Stairs or Ramps**<br>Stairs or ramps within fire resisting shafts are to be constructed of non-combustible materials. The construction of the stairs is not to cause structural damage or impair the fire resistance of the shaft if there is local failure. | Architect and Structural Engineer to make provisions for this requirement in the design. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D2.3 | **Non Fire Isolated Stairways and Ramps** | | N/A |
| D2.4 | **Separation of Rising and Descending Stair Flights** | | N/A |
| D2.5 | **Open access ramps and balconies** | | N/A |
| D2.6 | **Smoke lobbies** | | N/A |
| D2.7 | **Installations in Exits and Paths of Travel**<br>Electrical meters and motors, distribution boards and telecommunication boards must not be accessed from fire isolated exits and, if located in corridors leading to exits, should occur in non-combustible or fire protective smoke sealed enclosures.<br>No openings to ducts conveying hot products of combustion permitted in required exits.<br>Gas or fuel services not permitted in required exits.<br>Electric or services equipment in paths of travel to exits must be within a non-combustible and smoke sealed enclosure. | Install non-combustible linings to the internal walls, ceiling and doors of relevant cupboards and install smoke seals to the doors. | Compliance readily achievable |
| D2.8 | **Enclosure of Space Beneath Stairs** | | N/A |
| D2.9 | **Width of stairways**<br>A stairway more than 2m in width is only counted as having a width of 2m unless it is divided by a continuous handrail or balustrade between landings and each division is less than 2m wide. | | N/A |
| D2.10 | **Pedestrian ramps**<br>Ramps serving as required exit must have a gradient not less steeper than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1.<br>The surface of the ramp must have a non-slip finish. | | N/A |
| D2.11 | **Fire-isolated passageways**<br>Fire isolated passageways are to have an FRL equivalent to the fire resisting stair shaft as specified in Specification C1.1 when tested from the outside | | N/A |
| D2.12 | **Roof as open space** | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D2.13 | **Going and Risers**<br>To provide safe passage, stairways must comply with the following:-<br>• minimum 2 risers / maximum 18 in each flight<br>• risers 115mm min 190 mm max - going 250mm min 355mm max - 2R+G 550mm min 700mm max.<br>• Risers and goings that are consistent in a flight and within a prescribed range of dimensions.<br>• Riser gaps and step openings that do not exceed 125mm.<br>• Non-slip treads and non-skid tread nosing | Further detail of the stairs will need to be provided to confirm compliance | Compliance Readily Achievable |
| D2.14 | **Landings**<br>Ramps Surfaces, stair tread surfaces or nosing strips, and stair landing surfaces, or landing nosing strips to a flight below, must achieve slip-resistance classifications to AS4586-2013 as follows:-<br>**Application** / **Dry Surface Conditions** / **Wet Surface Condition**<br>1:14 or steeper ramps — P4 or R11 — P5 or R12<br>Ramps of 1:14 to 1:20 — P3 or R10 — P4 or R11<br>Tread or Landing Surface — P3 or R10 — P4 or R10<br>Nosing Strip or Landing Strip — P3 — P4 | Certification / test reports on the slip resistance of the surfaces will need to be provided on constructed elements. | Compliance readily achievable |
| D2.15 | **Thresholds**<br>Steps should not occur at doorways without a threshold landing except as follows:-<br>• A single 190mm step is permitted (other than in health or aged care buildings) at doors leading to the exterior.<br>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 | Note that where access for people with disabilities is required it is not permitted to have a step at the threshold of a doorway | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D2.16 | **Barriers to Prevent Falls**<br>Requirements apply to the provision and design of barriers at locations where a person could fall 1m or more. Generally 125mm maximum gap size limits apply between balusters or rails and a 1m minimum height applies, with alternate dimensions permitted in fire isolated stairs and industrial areas.<br>Climbable balustrade elements are prohibited where a person could fall 4m or more. | Architect and Structural Engineer to make provisions for this requirement in the design. | Compliance readily achievable |
| D2.17 | **Handrails**<br>Handrails to exits including parts of fire isolated exit serving an area required to be accessible to people with disabilities must comply with Clause 12 of AS1428.1, viz:-<br>• Handrails not to obstruct circulation space<br>• 30-50mm diameter<br>• 865-1000mm above nosing line of stairs<br>• 865-1000mm above ramps and landings<br>• Consistent height throughout<br>• 50mm grip clearance and no obstructions to handhold<br>• Continuous at internal (return) landings<br>• Provided with handrail extensions and 180 degree curled ends | Handrail details to be confirmed by the access consultant | Compliance readily achievable |
| D2.18 | **Fixed Platforms, Walkways, Stairways and Ramps**<br>Platforms, walkways, stairs, ladders and the like that give access to and around plant and equipment, machine rooms, attic spaces and other low use areas of the building are permitted provided that construction details are to AS1657. | | Noted |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D2.19 | **Doorways and doors**<br>A doorway in a resident use area of a Class 9c building must not be fitted with—<br>(i) a sliding fire door; or<br>(ii) a sliding smoke door; or<br>(iii) a revolving door; or<br>(iv) a roller shutter door; or<br>(v) a tilt-up door.<br>A doorway serving as a required exit or forming part of a required exit, or a doorway in a patient care area of a Class 9a health-care building—<br>(i) must not be fitted with a revolving door; and<br>(ii) must not be fitted with a roller shutter or tilt-up door<br>(iii) must not be fitted with a sliding door unless—<br>(A) it leads directly to a road or open space; and<br>(B) the door is able to be opened manually under a force of not more than 110 N; and<br>(iv) if fitted with a door which is power-operated—<br>(A) it must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source; and<br>(B) if it leads directly to a road or open space it must open automatically if there is a power failure to the door or on the activation of<br>A power-operated door in a path of travel to a required exit, except for a door in a patient care area of a Class 9a health-care building as provided in (b), must be able to be opened manually under a force of not more than 110 N if there is a malfunction or failure of the power source. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D2.20 | **Swinging doors**<br>Defined exit doors that serve a part of a building must swing outward in the direction of exit travel. | The swing doors to the loading on ground floor swing against the direction of exit travel.<br>Horizontal exit doorways are required to swing both ways. | Does Not Comply |
| | Must not encroach more than 500mm into the required width of the stair or 100mm when fully open and swing in the direction of travel. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D2.21 | **Operation of latch**<br>Exit doors should be provided with "free handle" egress via a downward or pushing action and, if serving an area accessible to people with disabilities, must have non-slip "D" pull handles with 35-45mm hand clearances. | All exit doors and doors in the path of travel must comply.<br>Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D2.22 | **Re-Entry from Fire-Isolated Exits**<br>Fire isolated stair doors must facilitate re-entry from within the stair back onto the floor on every 4th level at all times and on all levels in the event of a fire alarm, where serving a Class 9a health care or Class 9c aged care building.<br>In such cases, the doors to fire isolated stairs must not be able to be locked to prevent escape from within the stair back into any level unless the doors are linked to a failsafe device that opens upon activation of a fire alarm. On at least every fourth storey, the doors should not be locked at all and should be sign posted that re-entry is available at that level. Alternatively, an intercommunication or audible/visual alarm system is required within the stair to assist persons who may accidentally be locked within the stair. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| D2.23 | **Signage to Fire Safety Doors**<br>An automatic door held open by an automatic hold-open device:<br>**FIRE SAFETY DOOR DO NOT OBSTRUCT**<br>Or for a self-closing door<br>**FIRE SAFETY DOOR**<br>**DO NOT OBSTRUCT**<br>**DO NOT KEEP OPEN**<br>or for a door discharging from a fire-isolated exit<br>**FIRE SAFETY DOOR DO NOT OBSTRUCT** | Under Clause 183 of the Environmental Planning and Assessment Regulation 2000 a notice is to be displayed in a conspicuous location adjacent to a doorway providing access to but not within a fire isolated stairway, passageway or ramp. The words "**OFFENCES RELATING TO FIRE EXITS**" are to be provided in letters at least 8mm high and the remaining words are to be at least 2.5mm high.<br>The notice is to state the following:<br>OFFENCES RELATING TO FIRE EXITS<br>It is an offence under the Environmental Planning and Assessment Act 1979:<br>a) to place anything in or near this fire exit that may obstruct persons moving to and from the exit, or<br>b) interfere with or obstruct the operation of any fire doors, or<br>c) to remove, damage or otherwise interfere with this notice. | Compliance readily achievable |
| D2.24 | **Protection of Openable Windows**<br>Where the fall distance from the floor to the surface below is 4m or more or where a release device occurs to a required screen, an additional barrier at 865mm above floor level is required and must be non-climbable with gaps no greater than 125mm between elements. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| NSW D2.101 | **Doors in the Path of Travel in an Entertainment Venue** | | N/A |
| **Part D3 – Access for People with Disabilities** | | | |
| D3.1 | **General Building Access Requirements**<br>Access is generally required for persons with a disability throughout all areas unless specifically exempted. | A report is to be provided for review by the project's Access Consultant detailing compliance with Part D3 of the BCA, AS1428.1 – 2009, AS/NZS1428.4.1 - 2009 and AS/NZS2890.6 – 2009 | Compliance readily achievable |
| D3.2 | **Access to Buildings**<br>External access to the building for people with a disability must be provided:-<br>• From main pedestrian entry points at the allotment boundary.<br>• Through the principle pedestrian entrance.<br>• Through at least 50% of all pedestrian entries.<br>• From accessible car parking spaces.<br>• For buildings over 500m², so that an accessible entry occurs within 50m of any non-accessible entry.<br>• From any another accessible building on the site. | Refer to access consultant's report. | Compliance readily achievable |
| D3.3, | **Parts of the Building to be Accessible**<br>All parts of the building must be accessible to people with a disability except for areas where access would be inappropriate due to the particular use or areas that would pose a health or safety risk to people with a disability.<br>Every ramp, except a fire isolated ramp, must comply with Clause 10 if AS 1428.1.<br>Every stairway, except a fire isolated stairway, must comply with Clause 11 of AS 1428.1.<br>A fire isolated stairway must comply with Clause 11(f) and (g) of AS 1428.1.<br>Every passenger lift must comply with Clause E3.6.<br>Accessways must have passing spaces and turning spaces complying with AS 1428.1.<br>A ramp or passenger lift need not be provided to serve a storey or level other than the entrance storey of a class 5, 6, 7b or 8 building containing not more than 3 storeys and with a floor area of each storey, excluding the entrance floor, of not more than 200m².<br>Pile height or pile thickness of carpets shall comply with the requirements of this Clause and AS 1428.1. | Refer to access consultant's report. | Compliance readily achievable |
| D3.4 | **Exemptions**<br>Buildings required to be accessible must have travel paths, facilities and details which comply with AS1428.1. – 2009. | Refer to access consultant's report. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D3.5 | **Accessible Car Parking**<br>The accessible parking spaces must comply with AS/NZS 2890.6 – 2009.<br>General requirements are:-<br>• 2.4m x 5.4m.<br>• 2.2m head clearance for access and egress routes to and from accessible carspaces.<br>• 2.5m head clearances over accessible car spaces.<br>• Flat even surfaces.<br>• Designated and sign posted for disabled users. | Refer to access consultant's report. | Compliance readily achievable |
| D3.6 | **Signage**<br>Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deafness in accordance with AS1428.1 must identify every accessible sanitary facility and space with a hearing augmentation system.<br>Every doorway required to be provided with an exit sign under Clause E4.5 is to be provided with braille and tactile signage that states "**EXIT**" and identify the floor level "**LEVEL #**".<br>Signage must be provided within a room containing hearing augmentation identifying the type of hearing augmentation, the area covered in the room and if receivers are being used and where the receivers can be obtained.<br>Signage identifying ambulant accessible sanitary facilities in accordance with AS 1428.1 must be located on the door of the facility.<br>Where the pedestrian entrance is not accessible, directional signage in accordance with AS 1428.1 must be provided to direct a person to the location of the nearest accessible pedestrian entrance.<br>Where a bank of sanitary facilities is not provided with an accessible unisex sanitary facility, directional signage 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. | Refer to access consultant's report. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D3.7 | **Hearing Augmentation**<br>A hearing augmentation system must be provided where an inbuilt amplification system, other than one used only for emergency warning, is installed—<br>i) at any ticket office, teller's booth, reception area or the like, where the public is screened from the service provider<br>An induction loop must be provided to not less than 80% of the floor area of the room or space served by the inbuilt amplification system; or<br>A system requiring the use of receivers or the like, it must be available to not less than 95% of the floor area of the room or space served by the inbuilt amplification system, and the number of receivers provided must not be less than—<br>A) if the room or space accommodates up to 500 persons, 1 receiver for every 25 persons or part thereof, or 2 receivers, whichever is the greater; and<br>B) if the room or space accommodates more than 500 persons but not more than 1000 persons, 20 receivers plus 1 receiver for every 33 persons or part thereof in excess of 500 persons; and<br>C) if the room or space accommodates more than 1000 persons but not more than 2000 persons, 35 receivers plus 1 receiver for every 50 persons or part thereof in excess of 1000 persons; and<br>D) if the room or space accommodates more than 2000 persons, 55 receivers plus 1 receiver for every 100 persons or part thereof in excess of 2000 persons. | Refer to access consultant's report. | Compliance readily achievable |
| D3.8 | **Tactile Indicators (TGSIs)**<br>Tactile indicators are to be provided to all stairways, ramps and escalators must be provided to warn people who are blind or have a vision impairment that they are approaching:<br>• a stairway, other than a fire-isolated stairway,<br>• an escalator, passenger conveyor or moving walk,<br>• a ramp other than a fire-isolated ramp, step ramp, kerb ramp or swimming pool ramp, or<br>• in the absence of a suitable barrier an overhead:<br>o obstruction less than 2 m above floor level, other than a doorway<br>o an accessway meeting a vehicular way adjacent to any pedestrian entrance to a building, excluding a pedestrian entrance serving an area referred to in D3.4, if there is no kerb or kerb ramp at that point<br>Tactile ground surface indicators must comply with sections 1 and 2 of AS/NZS 1428.4.1 | Refer to access consultant's report. | Additional details required |
| D3.9 | **Wheelchair seating spaces in Class 9b assembly buildings** | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| D3.10 | **Swimming Pools**<br>Not less than 1 means of accessible water entry/exit in accordance with Specification D3.10 must be provided.<br>An accessible entry/exit must be by means of—<br>i) a fixed or movable ramp and an aquatic wheelchair; or<br>ii) a zero depth entry at a maximum gradient of 1:14 and an aquatic wheelchair; or<br>iii) a platform swimming pool lift and an aquatic wheelchair; or<br>iv) a sling-style swimming pool lift.<br>Latching devices on gates and doors forming part of a swimming pool safety barrier need not comply with AS 1428.1. | | N/A |
| D3.11 | **Ramps**<br>On an accessway a series of connected ramps must not have a combined vertical rise of more than 3.6m.<br>A landing for a step ramp must not overlap a landing of another step ramp or ramp. | Refer to access consultant's report. | Compliance readily achievable |
| 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. | Glazed shopfronts will need to have decals installed in accordance with AS 1428.1 | Compliance readily achievable |
| **Section E: Services and Equipment** | | | |
| **Part E1 – Fire Fighting Equipment** | | | |
| E1.1 | - | This Clause has deliberately been left blank | |
| E1.2 | - | This Clause has deliberately been left blank | |
| E1.3 | **Fire Hydrants**<br>Fire hydrant cover is required throughout to AS2419.1 from hydrants located externally, within fire stairs or at other approved locations. | Fire hydrants must conform to the pressure and flow requirements and distance limitations specified in AS 2419.1 – 2005.<br>Hydraulic plans identifying the locations of all fire hydrants and booster assembly to be provided.<br>Certification from the Hydraulics Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| E1.4 | **Fire Hose Reels**<br>Fire hose reel cover to AS2441-2005 is required throughout via hose reels located adjacent to stairs and exits.<br>Fire hose reels are not required to be provided within Class 9c aged care buildings.<br>Note, fire hose reel must be located so that the fire hose will not need to pass through doorways fitted with fire or smoke doors, except;<br>(i) doorways in walls referred to in ancillary use areas located within a patient care area and containing equipment or materials that are a high potential fire hazard in a Class 9a building and ancillary use areas containing equipment or materials that are a high potential fire hazard, in a Class 9c building, separating ancillary use areas of high potential fire hazard; and<br>(ii) doorways in walls referred to in C2.12 or C2.13 separating equipment or electrical supply systems; and<br>(iii) doorway openings to shafts referred to in C3.13. | Certification from the Hydraulics Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E1.5 | **Sprinklers**<br>*(NSW variation for Residential Aged Care)*<br>The building is to be provided with a sprinkler system throughout in accordance with Specification E1.5.<br>A sprinkler valve enclosure must be located in a secure room or enclosure that has direct egress to road or open space.<br>The following conditions apply with respect to the sprinkler system to the aged care building:-<br>• Sprinklers are to be to AS2118.6-2012.<br>• Sprinklers must be connected to the fire brigade monitoring system.<br>• Monitored stop valves are required to AS2118.1 in a location accessible to a road or open space.<br>• Fire orders notices should occur at each exit showing fire alarm operation method, fire equipment and exit locations and evacuation procedures.<br>• The sprinkler system should be linked to an audible occupant warning system to sound an alarm through all occupied areas at prescribed sound levels. | Certification from the Hydraulics Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| E1.6 | **Portable Fire Extinguishers**<br>Portable Fire Extinguishers are required be installed to Table E1.6 and AS 2444 requirements, at:-<br>• emergency services switchboards<br>• kitchens<br>• flammable liquid stores<br>• at nurses stations<br>• special risk areas<br>• where fire hose reels are not installed | Certification from the Hydraulics Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E1.7 | - | This Clause has deliberately been left blank | |
| E1.8 | **Fire Control Centre**<br>A fire control centre for Fire Indicator, Fire Fans Control and Emergency Intercom panels is required for buildings over 18,000m$^2$ in area, at a location readily available for firefighting operations and located at or near the main building entry. | | N/A |
| E1.9 | **Fire Services During Construction**<br>Fire services are required during construction, including fire hydrants and hose reels which must be active and operational after the building reaches a construction stage effective height of 12m.<br>When the building reaches 12m effective height:-<br>• All required hydrants and hose reels must be operational on every storey covered by a roof or floor slab over, except for the two uppermost storeys.<br>• Any required booster connections must be installed. | Further discussion required with builder to determine that this is included in their program.<br>BCA compliance with respect to fire services during construction can be problematic as hydrants with required pressures and flows and booster connections often cannot be achieved at the required time. A temporary fire protection system, possibly with temporary boosters and no fire pumps, may need to be agreed with the fire brigade. This needs to be put in place early in the construction programme and may require liaison with the builder and his fire services contractor. | Compliance Readily achievable |
| E1.10 | **Provisions for special hazards** | | N/A |
| **Part E2 –Smoke Hazard Management** | | | |
| E2.1 | **Applicable of Part** | Part is not applicable to<br>· open deck car parks<br>· open spectator stands<br>· a Class 8 electricity network substation with a floor area not more than 200m$^2$<br>· storerooms, etc less than 30m$^2$<br>· sanitary compartments<br>· plantrooms or the like | Noted |

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**General requirements**

The following smoke hazard management systems are required for the complex:-

- An air-handling system that does not form part of the smoke hazard management system and recycles air from one fire compartment to another must be designed and installed to operate as a smoke control system in accordance with AS/NZS 1668.1 or incorporate smoke dampers and automatically shutdown upon activation of smoke detectors in accordance with Clause 4.10 of AS/NZS 1668.1.
- Stair pressurisation for fire isolated stairs a Class 9a & 9c building with a rise in storey of more than 2.
- The building must be provided with a sprinkler system complying with Specification E1.5.

**Hospital and Aged Care Buildings**

All areas (including common areas) should be provided with a smoke detection and alarm system to Clause 4 of BCA Spec E2.2a. The following general requirements apply:-

- AS1670 smoke detection and alarm systems are required throughout. The system requires specific smoke detector types as nominated for various areas as detailed in BCA Spec E2.2 (a).
- Connected to occupant alert system.
- Manual call points in evacuation routes so that no point on floor >30m to a call point.

Occupant warning system must be to clause 8.7 of AS1670 except must be arranged to warn staff and in ward areas may have volume and content modified to minimise patient trauma.

All fire stairs must be pressurised if the Hospital or Aged Care building has a rise in storeys of more than 2.

A zone smoke control system, or a sprinkler system, is required in a Hospital Building with a rise in storeys of more than 2.

**Hospitals**

The building must be provided with:-

a) Class 9a health care area smoke detection systems must meet the following:-
   i. To AS1670.
   ii. Connected to occupant alert system.
   iii. Photo-electric detectors in patient care areas.
   iv. Alternate photo-electric/ionisation type in travel paths to exits, corridors, etc.
   v. Type A rate of rise heat detectors may be used in lieu of smokes in non-patient care areas.
   vi. Manual call points in evacuation routes so no point on floor is more than 30m to a call point.

Certification from the relevant Services Consultant to be provided prior to the issue of the Construction Certificate.

Compliance Readily achievable

| Clause | Description | Comment | Status |
|---|---|---|---|
| | b) Occupant warning system must be to clause 8.7 of AS1670 except must be arranged to warn staff and in ward areas may have volume and content modified to minimise patient trauma.<br>c) System must be connected to fire brigade monitoring service.<br>**Aged Care**<br>The building must be provided with:-<br>b) an automatic smoke detection and alarm system complying with Clause 4 of Specification E2.2a; and<br>c) automatic shutdown of any air-handling system which does not form part of a zone smoke control system (other than individual room units with a capacity not more than 1000 L/s, systems serving critical treatment areas and miscellaneous exhaust air systems installed in accordance with Sections 5 and 11 of AS/NZS 1668.1) on the activation of-<br>i. smoke detectors installed in accordance with (a); and<br>ii. any other installed fire detection and alarm system including a sprinkler system complying with Specification E1.5.<br>Note: The smoke detection and alarm system in accordance with Clause 4 of Specification E2.2a must include for a Class 9c aged care building: -<br>a) remote automatic indication of each zone must be given in each smoke compartment by means of<br>i. mimic panels with an illuminated display; or<br>ii. annunciator panels with alpha numeric display; and<br>b) manual call points must be installed in paths of travel so that no point on the floor is more than 30m from a manual call point.<br>Note: The smoke detection and alarm system in accordance with Clause 4 of Specification E2.2a must be connected to a fire alarm monitoring system which is in turn connected to a fire station or fire dispatch station centre in accordance with AS 1670.3 in accordance with Clause 7 of Specification E2.2a.<br>Note: The smoke detection and alarm system in accordance with Clause 4 of Specification E2.2a must activate a Building Occupant Warning System in accordance with Clause 6 of Specification E2.2a. | | |
| E2.3 | **Provisions of special hazards** | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Part E3 – Lift Installations** | | | |
| E3.1 | **Lift Installations**<br>Electric and electrohydraulic lifts must comply with the design requirements of BCA Specification E3.1. | Certification from the relevant Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.2 | **Stretcher Capacity Lifts**<br>Buildings greater than 12m in effective height require a lift sized to accommodate a stretcher of 2m x 0.6m x 1.4m high. The lift must serve every level to which lift access is provided. | Certification from the relevant Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.3 | **Warning Against Use of Lift in Fire**<br>Warning signage is required at lift doors advising that lifts should not be used in the event of a fire. | Certification from the relevant Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.4 | **Emergency Lifts**<br>Emergency lifts of prescribed size, operation and fire isolation are required in buildings where:-<br>• a patient care area occurs in a health care building at a level that does not have direct access to a road or open space.<br>Where more than two passenger lifts serve a storey, two emergency lifts must be provided, and these must be in separate shafts if multiple lift shafts occur.<br>The following requirements apply to an emergency lift:-<br>• Must serve all storeys served by a passenger lift.<br>• Must be contained in a fire rated shaft.<br>• If the building effective height exceeds 75m, must have a 600kg rating if not provided with a stretcher facility or a 900kg rating if stretcher facility is provided.<br>• If serving a patient care area in a health care building, have minimum clear car dimensions of 2280mm depth, 1600mm width and 2300 mm height. Doors must be 1300mm wide and 2100mm high. (All dimensions measured clear of all obstructions including handrails.)<br>• If serving a patient care area in a health care building, must be connected to a standby power system where installed. | Certification from the relevant Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.5 | **Landings**<br>Access and egress to and from the liftwell landings is to comply with the Deemed-to-Satisfy provisions of Section D of the BCA. | Certification from the relevant Lift Consultant to be provided prior to the issue of the Construction Certificate. | Complies |

| Clause | Description | Comment | Status |
|---|---|---|---|
| E3.6 | **Passenger lifts**<br>Every passenger lift must be one of the types identified n Table E3.6a, have accessible features in accordance with Table E3.6b and not reply on a constant pressure device for its operation if the lift car is fully enclosed. | Certification from the Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.7 | **Fire Service Control**<br>Where lifts serve a storey above 12m in effective height:-<br>• A fire service control switch is required for each lift or lift group.<br>• A lift car fire service drive control is required for each lift. | Certification from the Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.8 | **Aged Care Buildings**<br>Where residents in a Class 9c aged care building are on levels which do not have direct access to a road or open space, the building must be provided with either—<br>(a) at least one lift to accommodate a stretcher in accordance with E3.2(b); or<br>(b) a ramp in accordance with AS 1428.1, and<br>the lift or ramp must discharge at a level providing direct access to a road or open space. | Architect to make provisions for this requirement in the design.<br>Certification from the Lift Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E3.9 | **Fire service recall control switch**<br>The fire service control switch must be located at the landing nominated by the appropriate authority and, when activated, must return all lifts to the nominated floor. If a lift car drive control has been activated, it shall override the landing fire service control switch. | Certification of lift design to be provided | Compliance readily achievable |
| E3.10 | **Lift car fire service drive control switch**<br>The lift car service drive control must be activated from within the lift car. The switch is to be located between 600mm and 1500mm above the lift car floor and be labelled '**FIRE SERVICE**" in indelible white lettering on red background. The "**OFF**" and "**ON**" positions are to be identified. | Certification of lift design to be provided | Compliance readily achievable |
| **Part E4 – Emergency Lighting, Exit and Warning Systems** | | | |
| E4.1 | - | This clause has been intentional left blank | - |

| Clause | Description | Comment | Status |
|---|---|---|---|
| E4.2 | **Emergency Lighting requirements**<br>Emergency lighting is to be provided throughout the building. | Emergency lighting is to be provided in:<br>• every fire-isolated stairway, fire-isolated ramp or fire-isolated passageway.<br>• Every passageway, hallway, corridor or the like, serving a ward area, and<br>• In patient care areas having a floor area more than 120m$^2$.<br>• Every passageway, hallway, corridor or the like, that is part of the path of travel to an exit.<br>• In every room having a floor area more than 100m$^2$ that does not open to a corridor or space that has emergency lighting or to a road or open space.<br>• In any room having a floor area more than 300m$^2$.<br>• In every required non-fire isolated stairway<br>• To every room or space that has public access in a Class 6 or 9b building if:<br>  • the floor area is more than 300m$^2$;<br>  • or if any point on the floor is more than 20m from the nearest doorway opening directly to the road or open space; or<br>  • if the egress involves a vertical rise within the building of more than 1.5m.<br>• In every Class 9c excluding within sole-occupancy units<br>Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E4.3 | **Measurement of distances** | | Noted |
| E4.4 | **Design and operation of emergency lighting**<br>Emergency lighting must comply with to AS2293.1 | Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| E4.5 | **Exit signs**<br>Exit signs are to be provided in accordance with Clause E4.5 of the BCA. | Exit signs must be clearly visible to person approaching the exit and must be installed on, above or adjacent to;<br>1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit.<br>2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space.<br>3. A horizontal exit<br>4. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting.<br>Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E4.6 | **Direction signs**<br>Where an exit is not readily apparent then exit signs with directional arrows must be installed in appropriate positions in corridors, hallways, lobbies and the like indicating the direction to a required exit | Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E4.7 | **Class 2 and 3 buildings and Class 4 parts: Exemptions** | | N/A |
| E4.8 | **Design and operation of exit signs**<br>Exit signs are to operate in accordance with AS 2293.1.<br>Photoluminescent exit sign are to comply with Specification E4.8 | Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |
| E4.9 | **Sounds systems and intercom systems for emergency purposes**<br>A Class 9a building having a floor area of more than 1000 $m^2$ or a rise in storeys of more than 2 is required to have a sound system and intercom system for emergency purposes (SSISEP) complying with AS 1670.4 must be installed throughout the building. and the system—<br>(i) must be arranged to provide a warning for occupants; and<br>(ii) in a ward area, may have its alarm adjusted in volume and content to minimise trauma consistent with the type and condition of patients | The SSISEP is to be installed throughout the building.<br>Certification from the Electrical Consultant to be provided prior to the issue of the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Section F: Health and Amenity** | | | |
| **Part F1 – Damp and Weatherproofing** | | | |
| F1.0 | **Water Proofing of External Walls**<br>Weatherproofing of external wall systems must be in accordance with BCA Verification Method FV1. | A test report on the proposed wall system is to be provided. The test report must include the following information:<br>(i) Name and address of the person supervising the test.<br>(ii) Test report number.<br>(iii) Date of the test.<br>(iv) Cladding manufacturer's name and address.<br>(v) Construction details of the test specimen, including a description, and drawings and details of the components, showing modifications, if any.<br>(vi) Test sequence with the pressures used in all tests.<br>(vii) For each of the static and cyclic pressure tests, full details of all leakages, including position, extent and timing. | Compliance readily achievable |
| F1.1 | **Stormwater Drainage**<br>Stormwater drainage must comply with AS/NZS 3500.3. | Hydraulic drawings and design certification to be provided at Construction Certificate stage. | Compliance readily achievable |
| F1.2 | - | This clause has deliberately been left blank | - |
| F1.3 | - | This clause has deliberately been left blank | - |
| F1.4 | **External above ground membranes**<br>External waterproofing membrane systems for roofs, decks, balconies and the like must comply with AS4654 Parts 1 and 2. | The standard membrane detailing for waterproofing including minimum upturn termination lengths, requirements for stepped balcony details at doorways and windows and provision of continuous grates where stepping does not occur. | Compliance readily achievable |
| F1.5 | **Roof coverings**<br>Metal sheet roofing complying with AS 1562.1 | | Compliance readily achievable |
| F1.6 | **Sarking**<br>Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2. | | Compliance readily achievable |
| F1.7 | **Water Proofing of Wet Areas in Buildings**<br>Water proofing of wet areas within a building to comply with AS 3740. | | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| F1.8 | - | This clause has deliberately been left blank | - |
| F1.9 | **Damp-proofing**<br>Moisture from the ground must be prevented from reaching the lowest floor timber and the walls above the lowest floor joists, the walls above the dam proof course and the underside of a suspended floor constructed of a material other than timber, and the supporting beams or girders.<br>Damp proof course must consist of a material that complies with AS/NZS 2904 or an impervious termite shield in accordance with AS 3660.1. | | Compliance readily achievable |
| F1.10 | **Damp-proofing of floors on the ground**<br>A vapour barrier in accordance with AS2870 is to be provided beneath the basement floor slab. | | Compliance readily achievable |
| F1.11 | **Provision of Floor Wastes**<br>The floor of each bathroom and laundry in each sole occupancy of the Class 2 and 3 building portions must have a floor waste and the floor graded to the floor waste to permit drainage of water. | | N/A |
| F1.12 | **Sub-floor ventilation** | | N/A |
| F1.13 | **Glazed assemblies**<br>Windows, sliding doors with a frame, adjustable louvres, shopfronts and window walls with one piece framing in an external wall must comply with AS 2047 requirements for resistance to water penetration. | | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Part F2 – Sanitary and Other Facilities** | | | |
| F2.1 | **Facilities in Residential buildings**<br>Facilities for residents in a Class 9c Aged Care Building—<br>For each building or group of buildings, provide—<br>(a) a closet pan and wash basin for each 6 residents or part thereof for whom private facilities are not provided; and<br>(b) a shower for each 7 residents or part thereof for whom private facilities are not provided; and<br>(c) a suitable bath, fixed or mobile.<br>Other facilities, provide—<br>(a) one kitchen or other adequate facility for the preparation and cooking or reheating of food including a kitchen sink and washbasin; and<br>(b) laundry facilities for the cleansing and drying of linen and clothing or adequate facilities for holding and dispatch or treatment of soiled linen and clothing and the like and the receipt and storage of clean linen; and<br>(c) one clinical hand washing basin for each 16 residents or part thereof. Note: Urinals must not be taken into consideration in calculating the number of facilities. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| F2.2 | **Calculation of number of occupants and fixtures** | | Noted |
| F2.3 | **Sanitary Facilities**<br>Toilet facilities are required in appropriate numbers based on the number of persons accommodated. | Details on the number of proposed number of employees to be present during working hours and visitors are to be provided to accurately determine the number of sanitary facilities required. | Additional details required |
| F2.4 | **Facilities for Persons with Disabilities**<br>Accessible unisex toilets for people with a disability are required on each storey and at 50% of toilet banks on any storey.<br>Facilities should be constructed to AS1428.1 – 2009 although an existing WC facility that fully complies with AS1428.1 – 2001 may substitute as a concession. | Refer to access consultant's report | Compliance readily achievable |
| F2.5 | **Construction of Sanitary Compartments**<br>Where clear space between closet pan and doorway is less than 1.2m, doors must open outwards, slide or be readily removable from outside. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| F2.6 | **Interpretation: Urinals and washbasins** | | Noted |

| Clause | Description | Comment | Status |
|---|---|---|---|
| F2.7 | - | NSW - Deleted | - |
| F2.8 | **Waste Management**<br>In a Class 9a building at least one slop hopper or other device, other than a water closet or urinal, must be provided<br>i) on any storey containing ward areas and bedrooms to facilitate emptying of containers of sewage or dirty water; and<br>ii) with flushing apparatus, tap and grating.<br>In a Class 9c building, the following facilities must be provided for every 60 beds or part thereof on each storey containing resident use areas—<br>iii) one slop-hopper or other device other than a water closet pan or urinal for the safe handling and disposal of liquid and solid wastes with a flushing apparatus, tap and grating; and<br>iv) an appliance for the disinfection of pans or an adequate means to dispose of receptacles. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| **Part F3 – Room Heights** | | | |
| F3.1 | Height of rooms and other spaces<br>The following minimum ceiling heights are to be provided:-<br>• Kitchen, laundry, or the like – 2.1m; and<br>• Corridor, passageway or the like – 2.4m; and<br>• A habitable room excluding kitchen – 2.4m; and<br>• Bathroom, sanitary compartment storeroom etc – 2.1m; and<br>• Above stairway, ramp, landing or the like – 2m measured vertically above nosing of stairway treads or floor surface of ramp, landing.<br>in a Class 9a health-care building—<br>(i) a patient care area — 2.4 m; and<br>(ii) an operating theatre or delivery room — 3 m; and<br>(iii) a treatment room, clinic, waiting room, passageway, corridor, or the like — 2.4 m | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| **Part F4 – Light and Ventilation** | | | |
| F4.1 | **Provisions of natural Light**<br>Natural lighting aggregating 10% of room floor area is required to rooms used for sleeping in health care and aged care buildings. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| F4.2 | **Methods and extent of natural lighting**<br>Natural light is required to be provided by windows to 10% of the floor area of the habitable rooms. | Architect to make provisions for this requirement in the design. | Compliance readily achievable |
| | Class 9a<br>A required window that faces a boundary of an adjoining allotment or a wall of the same building or another building on the allotment must not be less than a horizontal distance from that boundary or wall that is the greater of—<br>i) generally — 1 m; and<br>ii) in a patient care area or other room used for sleeping purposes in a Class 9a building — 3 m; and<br>iii) 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill. | Architect to make provisions for this requirement in the design. | Additional details required |
| | **Class 9c**<br>A required windows providing natural light to sleeping rooms must be transparent and located in an external wall with a window sill not more than 1m above the floor level and where the window faces another wall of the same building be located a minimum horizontal distance of 3m from the wall. | Architect to make provisions for this requirement in the design. | Additional details required |
| F4.3 | **Natural Light borrowed from adjoining room** | | Noted |
| F4.4 | **Artificial lighting**<br>The artificial lighting system must comply with AS/NZS 1680.0. | Design details and certification from a electrical engineer is required | Compliance readily achievable |
| F4.5 | **Ventilation of rooms**<br>Ventilation shall be provided throughout the building in by means of natural ventilation complying with Clause F4.6 or mechanical ventilation complying with the requirements of AS1668.2 as required by Clause F4.5 of the BCA. | Design details and certification from a mechanical engineer is required | Compliance readily achievable |
| F4.6 | **Natural ventilation** | | N/A |
| F4.7 | **Ventilation borrowed from adjoining room** | | N/A |
| F4.8 | **Restrictions on position of water closets and urinals** | Architect to make provisions for this requirement in the design. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| F4.9 | **Airlocks** | | N/A |
| F4.10 | - | This clause has intentionally been left blank | - |
| F4.11 | **Carparks**<br>Basement carparks must be provided with a system of mechanical ventilation complying with AS 1668.2 | | N/A |
| F4.12 | **Kitchen Local Exhaust Ventilation**<br>A commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2, where:<br>• any cooking apparatus has a total maximum electrical power input exceeding 8kW, or<br>• a total gas power input exceeding 29 MJ/h, or<br>the total maximum power input to more than one apparatus exceeds 0.5kW electrical power or 1.8 MJ gas per metre square of the room or enclosure. | | Compliance readily achievable |
| **Part F1 – Sound Transmission and Insulation** | | | |
| F5.1 | **Application of Part**<br>Applicable only to the Class 9c building. | **A detailed assessment will need to be undertaken by a qualified acoustic consultant at the Construction Certificate stage to verify compliance.** | Noted |
| F5.1 | **Determination of airborne sound insulation ratings**<br>Construction required to have an airborne sound insulation rating must have the value for weighted sound reduction index ($R_w$) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) determined in accordance with AS/NZS1276.1 or ISO717.1 using result from laboratory measurements, or comply with Specification F5.2 of the BCA. | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |
| F5.3 | **Determination of impact sound insulation ratings**<br>A floor required to have an impact sound insulation rating must have the required value for weighted normalised impact sound pressure level with spectrum adaptation term ($L_{n,w}+C_I$) determined in accordance with AS/ISO 717.2 using results from laboratory measurements or comply with Specification F5.2 of the BCA.<br>Walls that are required to have an impact sound insulation rating must be of discontinuous construction. | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| F5.4 | **Sound insulation rating of floors**<br>Floors separating sole occupancy units or separating sole occupancy units from a plant room, lift shaft, public corridor, public lobby or the like or parts of different classifications must have an $R_w + C_{tr}$ of not less than 50 and an $L_{n,w} + C_I$ of not more than 62. | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |
| F5.5 | **Sound insulation rating of walls**<br>Walls must have an $R_w + C_{tr}$ of not less than 50 if it separates sole occupancy units and an $R_w$ of 50 if it separates a sole occupancy unit from a plant room, lift shaft, public corridor, public lobby or the like or parts of different classifications.<br>Compliance with F5.3(b) is required if the wall separates a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room (excluding a kitchen) in another adjoining unit or a sole occupancy unit from a plant room or lift shaft.<br>Doors incorporated the walls that separate sole-occupancy units from a stairway, public corridor, public lobby or the like, provided the door assembly has an $R_w$ not less than 30.<br>Where a wall required to have sound insulation has a floor above, the wall must continue to the underside of the floor above or a ceiling that provides the sound insulation required for the wall.<br>Where a wall required to have sound insulation has a roof above, the wall must continue to the underside of the roof above or a ceiling that provides the sound insulation required for the wall. | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |
| F5.6 | **Sound insulation rating of internal services**<br>Services passing through more than one sole-occupancy unit must be separated from the rooms by construction with an $R_w + C_{tr}$ (airborne) not less than:<br>a) 40 if the adjacent room is a habitable room (other than a kitchen); or<br>b) 25 if the adjacent room is a kitchen or non-habitable room.<br>Note if a stormwater pipe passes through a sole – occupancy unit it must be separated in accordance with (a) and (b). | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |
| F5.7 | **Sound isolation pumps**<br>A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump. | Design details and certification from the acoustic consultant is required to be provided at Construction Certificate stage. | Compliance readily achievable |

## Section G: Ancillary Provisions

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Part G1- Minor Structures and components** | | | |
| G1.1 | **Swimming pools**<br>*(NSW variation for swimming pools)* | | |
| G1.2 | **Refrigerated chambers, strong rooms and vaults** | | N/A |
| G1.3 | **Outdoor play spaces** | | N/A |
| G1.101 | **Provision for cleaning windows**<br>A safe manner of cleaning windows is to be provided as windows are located 3 or more storeys above ground level. | The windows must either be able to be cleaned wholly from within the building, or a method complying with the Construction Safety Act 1912 and Regulations is required. | Compliance readily achievable |
| **Part G2 - Boilers, pressure vessels, heating appliances, fire places, chimneys and flues** | | | |
| G2.1 | - | This clause has intentionally been left blank | - |
| G2.2 | **Installation of appliances** | | N/A |
| G2.3 | **Open fireplaces** | | N/A |
| G2.4 | **Incinerator rooms** | | N/A |
| **Part G3 - Atrium Construction** | | | **N/A** |
| **Part G4 - Construction in Alpine Areas** | | | **N/A** |
| **Part G5 - Construction in Bushfire Prone Areas** | | | |
| G5.1 | **Application of Part** | | N/A |
| G5.2 | **Protection**<br>*(NSW variation for bushfire prone area)* | | N/A |
| **Section H: Special Use Buildings – Auditoriums, Public Halls, Public Transport Buildings** | | | |

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Part H1 - Class 9b Buildings** | | | **N/A** |
| **NSW Part - H101 Entertainment Venues other than Temporary Structures and Drive-In Theatres** | | | **N/A** |
| **NSW Part - H102 Temporary Structures** | | | **N/A** |
| **NSW Part - H103 Drive-In Theatres** | | | **N/A** |
| **Part H2 - Public Transport Buildings** | | | **N/A** |
| **Part H3 - Farm Building and Farm Sheds** | | | **N/A** |
| **NSW Section J: Energy Efficiency** | Energy Efficiency for buildings requires buildings to reduce greenhouse gas emissions by efficiently using energy. A building's services must have features that facilitate the efficient use of energy. The discipline of Energy Efficiency with the BCA has become a specialised field where compliance with BCA Section J is to be certified with the issue of a Certificate of Compliance – Design from the relevant Services Engineer/Consultant.<br>The purpose of this section is to provide a brief explanation of which areas are to achieve compliance with BCA Section J – Energy Efficiency during design and construction. The BCA should be referenced for exact requirements, clarification and further explanation. | | |
| Section J | **Energy Efficiency Measures**<br>Energy efficiency measures are prescribed for the following building elements to limit energy consumption:-<br>• Building fabric<br>• External glazing<br>• Building sealing<br>• Air movement.<br>• Air-conditioning and ventilation systems.<br>• Artificial lighting and power<br>• Hot water supply<br>• Access for maintenance | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>Compliance assumed, although further information is required to confirm compliance.<br>A performance based BCA JV3 assessment may be adopted for the project if compliance with BCA deemed to satisfy provisions are problematic. | Compliance readily achievable |
| **NSW Subsection J(B) Energy Efficiency - Class 3 and Class 5 to 9 Buildings** | | | |
| **NSW J(B)1 - Compliance with BCA Provisions.** | Class 3 and Class 5 to 9 buildings must comply with all of the provisions of the national **Section J** that are applicable to the relevant classifications, except as varied by **NSW J3.1** Application of Part. | | **Noted** |
| **Part J0 - Energy Efficiency** | | | |
| J0.1 | **Application of Part** | | Noted |
| J0.2 | **Heating and cooling loads of sole-occupancy units of a Class 2 building or a Class 4 part** | | N/A |

| Clause | Description | Comment | Status |
|---|---|---|---|
| J0.3 | **Ceiling fans**<br>Required ceiling fans must be permanently installed and have a speed controller | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| **Part J1 - Building Fabric** | | | |
| J1.1 | **Application of Part** | | Noted |
| J1.2 | **Thermal Construction – General**<br>Insulation must comply with AS/NZS 4859.1 and be installed in accordance with Clause J1.2.<br>Insulation must abut or overlap adjoining insulation, form a continuous barrier with ceilings, walls, bulkheads, floors or the like and not affect the safe or effective operation of services. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| J1.3 | **Roof and ceiling construction**<br>A roof or ceiling that is part of the envelope must achieve the Total R-Value specified in Table J1.3 for the direction of heat flow.<br>A roof that -<br>i. is required to achieve a minimum *Total R-Value;* and<br>ii. has metal sheet roofing fixed to metal purlins, metal rafters or metal battens; and<br>iii. does not have a ceiling lining or ha a ceiling lining fixed directly to those metal purlins, metal rafters or metal battens (see specification J1.3 Figure 2(c) and (f),<br>must have a thermal break, consisting of a material with an *R-Value* of not less than R0.2, installed between the metal roofing and its supporting metal purlins, metal rafters or metal battens. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| J1.4 | **Roof lights**<br>Roof lights, including any associated shaft and diffuser, that form part of the envelope must, if the roof lights are not required for compliance with Part F4, comply with Table J1.4.<br>If the roof lights are required for compliance with Part F4 they must have an area not more than 150% of the minimum area required by F4.6; and have transparent and translucent elements, including any imperforate ceiling diffuser, with a combined performance of not more than 0.29 Total System SHGC; and 2.9 Total System U-Value. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| J1.5 | **Walls**<br>Each part of an external wall that is part of the envelope must satisfy one of the options in Table J1.5a or Table J1.5b except as specified in Clause J1.5.<br>A wall that -<br>i. is required to achieve a minimum *Total R-Value;* and<br>ii. has lightweight external cladding such as weatherboards, fibre cement or metal sheeting fixed to a metal frame; and<br>iii. does not have a wall lining or has a wall lining that is fixed directly to the same metal frame,<br>must have a thermal break, consisting of a material with an *R-Value* of not less than R0.2, installed between the external cladding and the metal frame. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| J1.6 | **Floors**<br>Floors are required to achieve a minimum R-Value in accordance with Table J1.6.<br>A concrete slab-on-ground with an in-slab heating or cooling system; or located in climate zone 8 must have insulation installed around the vertical edge of its perimeter.<br>The insulation must have an R-Value of not less than 1.0, be water resistant and be continuous from the adjacent finished ground level to a depth of not less than 300 mm or for the full depth of the vertical edge of the concrete slab-on-ground | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| **Part J2 - Glazing** | | | |
| J2.1 | **Application of Part** | | Noted |
| J2.2 | - | This Clause has deliberately been left blank | - |
| J2.3 | - | This Clause has deliberately been left blank | - |

| Clause | Description | Comment | Status |
|---|---|---|---|
| J2.4 | **Glazing**<br>The glazing in each storey including a mezzanine must be assessed separately in accordance with Clause J2.4(b) and (c) for-<br>i) *glazing* in the external *fabric* facing each orientation; and<br>ii) *glazing* 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.<br>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. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The glazing calculator must be completed and submitted with the Construction Certificate application as evidence of compliance. | Compliance readily achievable |
| J2.5 | **Shading**<br>Where shading is required to comply with Clause J2.4, it must;<br>a) be provided by an external permanent projection, such as a verandah, balcony, fixed canopy, eaves or shading hood which<br>i. extends horizontally on both sides of the glazing for the same projection distance P in figure J2.4 of the BCA, or<br>ii. provides the equivalent shading to that above with a reveal or the like, or<br>b) be provided an external shading device such as a blind, vertical or horizontal building screen with blades, battens or slats, which<br>i. is capable of restricting at least 80% of summer solar radiation, and<br>**ii.** if adjustable is operated automatically in response to the level of solar radiation. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| **Part J3 - Building Sealing** | | | |
| J3.1 | **Application of Part**<br>*(NSW variation for building sealing)* | Applies to elements forming the envelope of a Class 3, and Class 5 to 9 building other than as specified. | Noted |
| J3.2 | **Chimneys and flues** | | N/A |
| J3.3 | **Roof lights** | | N/A |
| J3.4 | **Windows and doors**<br>A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like when serving a conditioned space. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| J3.5 | **Exhaust fans**<br>A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like when serving a conditioned space. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| J3.6 | **Construction of roofs, walls and floors**<br>Roofs, walls, floors and any opening must be constructed to minimise air leakage in accordance with Clause J3.6(b) when forming part of the external fabric of a conditioned space.<br>These requirements do not apply to openings, grilles and the like required for smoke hazard management. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| J3.7 | **Evaporative coolers**<br>An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |
| **Part J4 - This Part has deliberately been left blank** | | | - |
| **Part J5 - Air-conditioning and Ventilation Systems** | | | |
| J5.1 | **Application of Part** | | Noted |
| J5.2 | **Air-conditioning systems**<br>An air-conditioning system must be capable of being deactivated when the building or part of a building served by that system is not occupied.<br>An air-conditioning system must comply with requirements specified under this Clause which relate to controls, fans, pumps, insulation and time switches.<br>Space heating must comply with Specification J5.2d.<br>Energy efficiency ratios must comply with Specification J5.2e | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The mechanical engineer is to design and certify the A/C system to comply with the requirements under this Clause. | Compliance readily achievable |
| J5.3 | **Mechanical ventilation systems**<br>The mechanical ventilation system must comply with the requirements specified under this clause which relate to controls, fans and time switches. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The mechanical engineer is to design and certify the mechanical ventilation system to comply with the requirements under this Clause. | Compliance readily achievable |
| J5.4 | **Miscellaneous exhaust systems**<br>A miscellaneous exhaust system with an air flow rate of more than 1000 L/s, that is associated with equipment having a variable demand, must be capable of stopping the motor when the system is not needed and have a variable speed fan or the like. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The mechanical engineer is to design and certify the mechanical ventilation system to comply with the requirements under this Clause. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| **Part J5 - Artificial Lighting and Power** | | | |
| J6.1 | **Application of Part** | | Noted |
| J6.2 | **Artificial lighting**<br>In a Class 5, 6, 7, 8, 9a or 9b the artificial lighting must not exceed the sum of the allowances obtained by multiplying the area of each space by the maximum power density in Table J6.2a. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The electrical engineer is to design and certify compliance with the requirements under this Clause. | Compliance readily achievable |
| J6.3 | **Interior artificial lighting and power control**<br>The power control for artificial interior lighting must comply with the requirements of Clause J6.3. Artificial lighting of a room or space must be individually operated by a switch or other control device in accordance with Specification J6. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The electrical engineer is to design and certify compliance with the requirements under this Clause. | Compliance readily achievable |
| J6.4 | **Interior decorative and display lighting**<br>Interior decorative and display lighting, such as for foyer mural or art displays, must be controlled separately from other artificial lighting as specified in Clause J6.4.<br>Window display lighting must be controlled separately from other display lighting. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The electrical engineer is to design and certify compliance with the requirements under this Clause. | Compliance readily achievable |
| J6.5 | **Artificial lighting around the perimeter of a building**<br>Artificial lighting around the perimeter of a building must be controlled by a daylight sensor or time switch as specified in Clause J6.5. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The electrical engineer is to design and certify compliance with the requirements under this Clause. | Compliance readily achievable |
| J6.6 | **Boiling water and chilled water storage units**<br>Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>The electrical engineer is to design and certify compliance with the requirements under this Clause. | Compliance readily achievable |
| **Part J7 - Heated Water Supply and Swimming Pool and Spa Pool Plant** | | | |
| J7.1 | - | This Clause has deliberately been left blank | - |
| J7.2 | **Heated water supply**<br>A hot water supply system for food preparation and sanitary purposes, other than a solar hot water supply system in climate zones 1, 2 and 3 must be designed and installed in accordance with Section 8 of AS/NZS 3500.4 | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate. | Compliance readily achievable |

| Clause | Description | Comment | Status |
|---|---|---|---|
| J7.3 | **Swimming pool hearing and pumping** | | N/A |
| J7.4 | **Spa pool heating and pumping** | | N/A |
| **Part J8 - Facilities for Energy Monitoring** | | | |
| J8.1 | **Application of Part** | | Noted |
| J8.2 | - | This Clause has deliberately been left blank | - |
| J8.3 | **Facilities for energy monitoring**<br>A building or sole-occupancy unit with a floor area of more than 500m$^2$ must have the facility to record the consumption of gas and electricity.<br>A building with a floor area of more than 2,500m$^2$ must have the facility to record individually the energy consumption of—<br>I. air-conditioning plant including, where appropriate, heating plant, cooling plant and air handling fans; and<br>II. artificial lighting; and<br>III. appliance power; and<br>IV. central hot water supply; and<br>V. internal transport devices including lifts, escalators and travelators where there is more than one serving the building; and<br>VI. other ancillary plant. | An energy efficiency report is to be provided by a suitably qualified ESD consultant for review with the Construction Certificate.<br>An energy monitoring facility is required for the building. | Compliance readily achievable |

# 14. APPENDIX A – REFERENCED DOCUMENTATION

The following documentation was used in the preparation of this report:

| *Drawing No.* | *Title* | *Issue* | *Date* | *Drawn By* |
|---|---|---|---|---|
| AA.10.0001 | General Arrangement Plan - Ground Floor | 4 | 20.05.16 | Billard Leece Partnership |
| AA.10.0101 | General Arrangement Plan - First Floor | 4 | 20.05.16 | Billard Leece Partnership |
| AA.10.0201 | General Arrangement Plan - Second Floor | 4 | 20.05.16 | Billard Leece Partnership |
| AA.10.0301 | General Arrangement Plan - Second Floor | 4 | 20.05.16 | Billard Leece Partnership |
| AA.10.0401 | General Arrangement Plan - Roof | 4 | 20.05.16 | Billard Leece Partnership |
| AA.20.0001 | Elevation - Proposed - North | 2 | 20.05.16 | Billard Leece Partnership |
| AA.20.0101 | Elevation - Proposed - South | 2 | 20.05.16 | Billard Leece Partnership |
| AA.20.0201 | Elevation - Proposed - East | 2 | 20.05.16 | Billard Leece Partnership |
| AA.20.0301 | Elevation - Proposed - West | 2 | 20.05.16 | Billard Leece Partnership |
| AA.30.0001 | Section - Proposed - AA | 2 | 20.05.16 | Billard Leece Partnership |
| AA.30.0101 | Section - Proposed - BB | 2 | 20.05.16 | Billard Leece Partnership |
| AA.30.0201 | Section - Proposed - CC | 2 | 20.05.16 | Billard Leece Partnership |
| AA.30.0301 | Section - Proposed - DD | 2 | 20.05.16 | Billard Leece Partnership |
| AA.30.0401 | Section - Proposed - EE | 2 | 20.05.16 | Billard Leece Partnership |

# 15. APPENDIX B – STATUTORY FIRE SAFETY MEASURES

Schedule of Statutory Fire Safety Measures

| Measure | Standard of Performance |
|---|---|
| Access panels, doors and hoppers to fire resisting shafts | BCA2016 Clause C3.13 and tested prototypes (AS 1530.4 – 2014 and AS 4072.1-2005)<br>*Note: Systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1]* |
| Automatic fail safe devices | Scheduled devices release upon trip of smoke detection and/or sprinkler activation in accordance with BCA2016 Clauses D2.19 and D2.21. |
| Automatic fire detection and alarm system *(smoke detection system)* | BCA2016 Specification E2.2a, AS 1670.1 – 2015 *(note Class 9a also requires manual call points, Class 9c requires manual call points and mimic panels) (System monitoring in accordance with AS1670.3-2004)*<br>*[Note: The 1993 edition has been retained for a transitional period ending on 30 April 2017]* |
| Automatic fire detection and alarm system *(smoke detection system to operate zone smoke control or stair pressurisation system)* | BCA2016 Clause 5 of Specification E2.2a and AS/NZS 1668.1 – 2015 and AS 1670.1 - 2015 |
| Automatic fire detection and alarm system *(smoke detection system to automatically shutdown air-handling system or smoke detection system to activate smoke exhaust system or smoke and heat vents)* | BCA2016 Clause 5 and 7 of Specification E2.2a and AS/NZS 1668.1 – 2015 *(System monitoring in accordance with AS1670.3-2004)* |
| Automatic fire suppression systems *(Combined sprinkler and hydrant system)* | BCA2016 Specification E1.5 and AS 2118.6-2012 (combined sprinkler and hydrant systems in multistorey buildings) |
| Emergency lifts | BCA2016 Clause E3.4 |
| Emergency lighting | BCA2016 Clause E4.2, E4.4 and AS 2293.1 – 2005 |
| Sound System and Intercommunication System for Emergency Purposes (aka EWIS) | BCA2016 Clause E4.9 and AS 1670.4 – 2015 |
| Exit signs | BCA2016 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005 |
| Fire control room / centre | BCA2016 Specification E1.8 |
| Fire dampers | BCA2016 Clause C3.15 and AS/NZS 1668.1 – 2015 (AS 1682.1-1990 and AS 1682.2-1990) |
| Fire doors | BCA2016 Specification C3.4 and AS 1905.1 – 2015 |
| Fire hydrants systems | BCA2016 Clause E1.3 and AS 2419.1 – 2005 |
| Fire seals protecting opening in fire resisting components of the building | BCA2016 Clause C3.15, Specification C3.15 and AS 1530.4 –2014 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.<br>*[Note: Systems tested to AS 1530.4 prior to 1 January 1995 need not be retested to comply with the provisions in AS 4072.1]* |
| Fire shutters | BCA2016 Specification C3.4 and AS 1905.2 – 2005 |
| Fire windows | BCA2016 Specification C3.4 and AS 1530.4 – 2014 |
| Hose reel system | BCA2016 Clause E1.4 and AS 2441 – 2005 |

| Measure | Standard of Performance |
|---|---|
| Mechanical air handling system *(automatic shut down of air-handling system)* | BCA2016 Clause E2.2 and AS/NZ 1668.1-2015 |
| Mechanical air handling system *(automatic air pressurisation system)* | BCA2016 Table E2.2a and Specification G3.8 and AS/NZ 1668.1-2015 |
| Portable fire extinguishers | BCA2016 Clause E1.6 and AS 2444 – 2001 |
| Smoke dampers | AS/NZS 1668.1 – 2015 (AS 1682.1-1990 and AS 1682.2-1990) |
| Smoke detectors and heat detectors *(detectors for the automatic closing operation of horizontal exits)* | BCA2016 Clause C3.7 and AS 1670.1 – 2015 |
| Smoke doors | BCA2016 Specifications C2.5, C3.4 and AS 1288 – 2006 |
| Wall wetting sprinkler and drencher systems | BCA2016 Clause C3.4 and AS 2118.2 – 1995 |
| Warning and operational signs | BCA2016 Clauses D2.23,D3.6, E3.3, E3.9 and E3.10 |

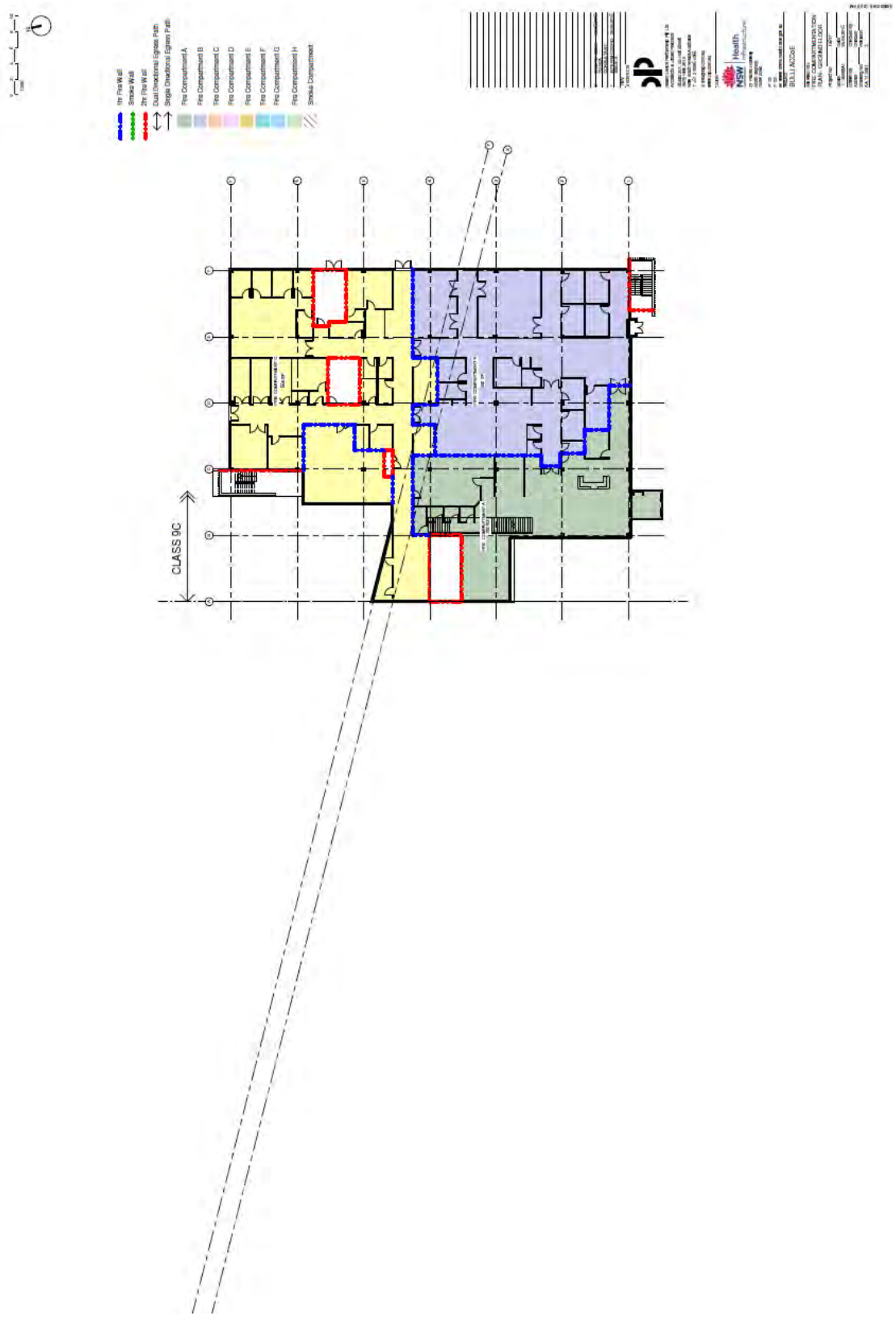
**Note the fire safety schedule will need to be amended subject to the inclusion of a fire engineered alternative solution.**

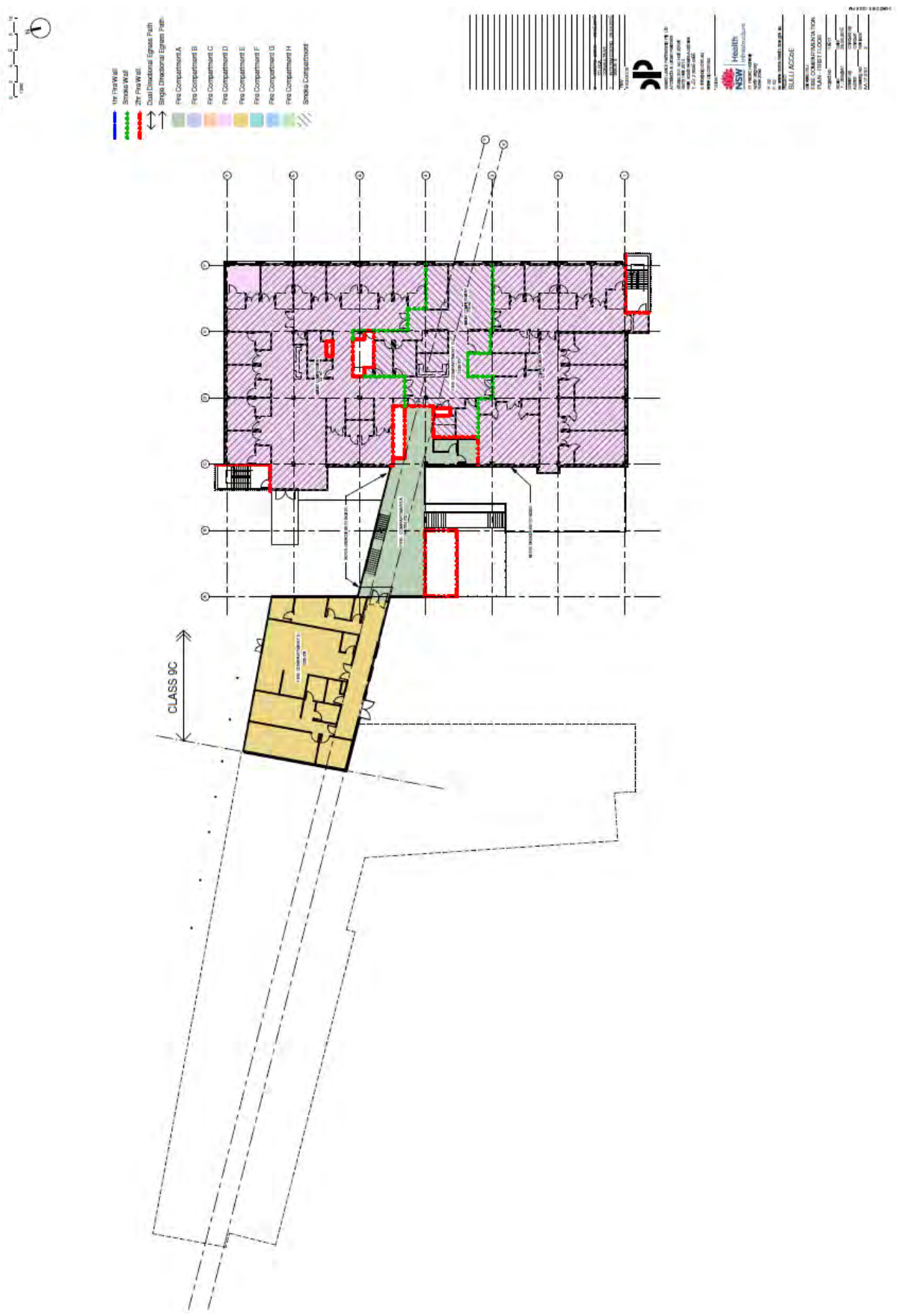
# 16. APPENDIX C1.1 – FIRE RATING REQUIREMENTS

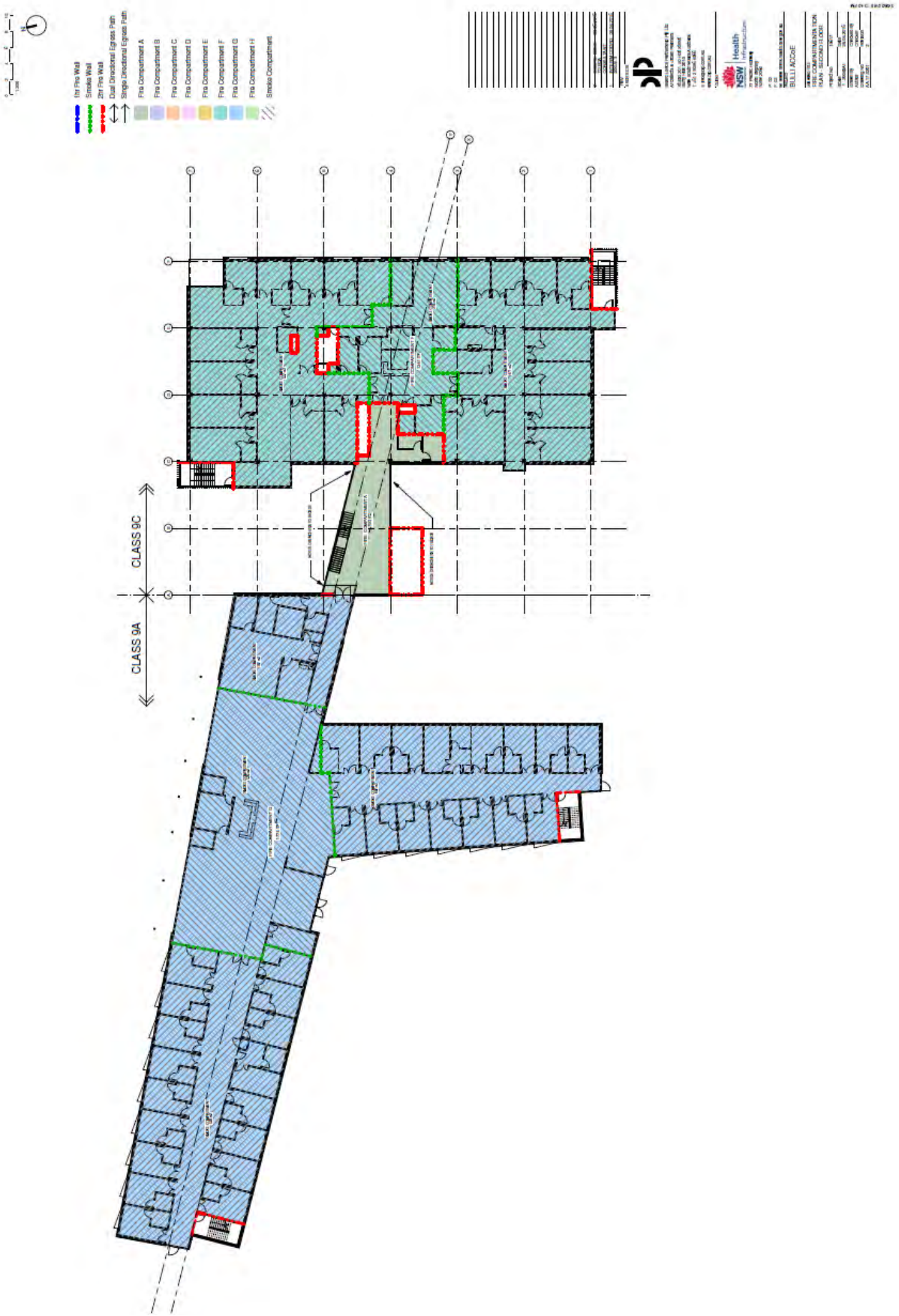
| **TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS** | | | | |
|---|---|---|---|---|
| **Building element** | **Class of building - FRL:** (in minutes) | | | |
| | Structural adequacy/Integrity/Insulation | | | |
| | 2, 3 or 4 part | 5, 9 or 7a | 6 | 7b or 8 |
| **EXTERNAL WALL** (including any column 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 1.5m | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| 1.5 to less than 3 m | 90/60/60 | 120/ 90/ 90 | 180/180/120 | 240/240/180 |
| 3 or more | 90/60/30 | 120/ 60/ 30 | 180/120/90 | 240/180/ 90 |
| For non-loadbearing parts- | | | | |
| less than 1.5 m | -/90/90 | - /120/120 | - /180/180 | - /240/240 |
| 1.5 to less than 3 m | -/60/60 | - / 90/ 90 | - /180/120 | - /240/180 |
| 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- | | | | |
| less than 3 m | 90/ - / - | 120/ - / - | 180/ - / - | 240/ - / - |
| 3 m or more | - / - / - | - / - / - | - / - / - | - / - / - |
| **COMMON WALLS** | | | | |
| **and FIRE WALLS** | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| **INTERNAL WALLS**- | | | | |
| Fire-resisting lift and stair shafts- | | | | |
| Loadbearing | 90/90/90 | 120/120/120 | 180/120/120 | 240/120/120 |
| Non-loadbearing | - /90/90 | - /120/120 | - /120/120 | - /120/120 |
| Bounding public corridors, public lobbies and the like- | | | | |
| Loadbearing | 90/90/90 | 120/ - / - | 180/ - / - | 240/ - / - |
| Non-loadbearing | - /60/60 | - / - / - | - / - / - | - / - / - |
| Between or bounding sole-occupancy units- | | | | |
| Loadbearing | 90/90/90 | 120/ - / - | 180/ - / - | 240/ - / - |
| Non-loadbearing | - /60/60 | - / - / - | - / - / - | - / - / - |
| Ventilating, pipe, garbage, and like shafts not used for the discharge of hot products of Combustion- | | | | |
| Loadbearing | 90/90/90 | 120/ 90/ 90 | 180/120/120 | 240/120/120 |
| Non-loadbearing | - /90/90 | - / 90/ 90 | - /120/120 | - /120/120 |
| **OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES** | | | | |
| **and COLUMNS** | 90/ - / - | 120/ - / - | 180/ - / - | 240/ - / - |
| **FLOORS** | 90/90/90 | 120/120/120 | 180/180/180 | 240/240/240 |
| **ROOFS** | 90/60/30 | 120/ 60/ 30 | 180/60/30 | 240/ 90/ 60 |

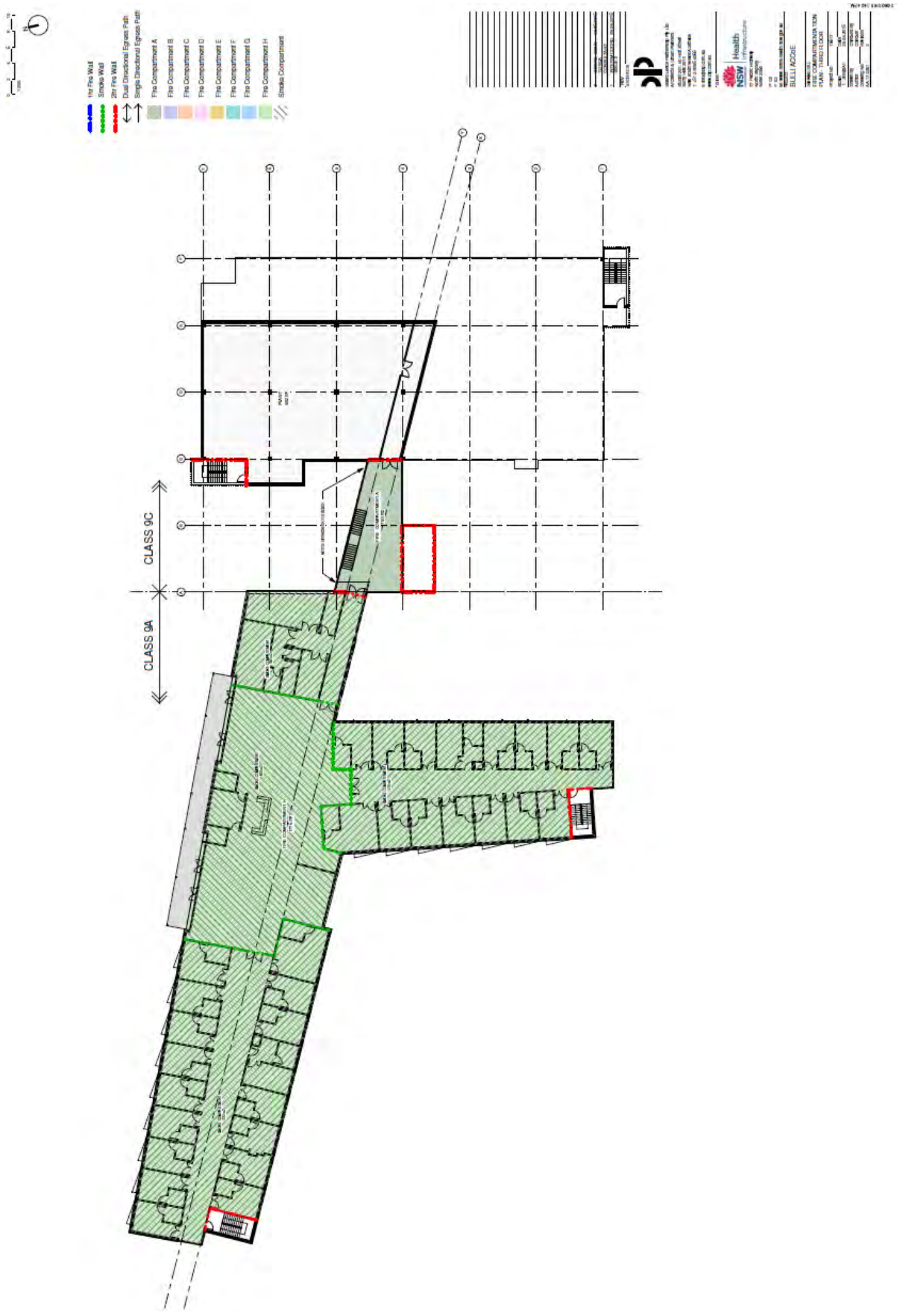
# 17. APPENDIX C2.2 – FLOOR AREAS AND VOLUMES

## Floor areas and volumes of each storey




CLASS 9C


CLASS 9C
CLASS 9A


1Hr Fire Wall
Smoke Wall
2Hr Fire Wall
Dual Directional Egress Path
Single Directional Egress Path
Fire Compartment A
Fire Compartment B
Fire Compartment C
Fire Compartment D
Fire Compartment E
Fire Compartment F
Fire Compartment G
Fire Compartment H
Smoke Compartment
CLASS 9C
CLASS 9A

# 18. APPENDIX C1.10 – EARLY FIRE HAZARD PROPERTIES FOR MATERIALS

**Floor materials, floor coverings and wall and ceiling lining materials are required to comply with BCA prescribed fire hazard properties.**

Floor Linings & Floor Coverings

| | | |
|---|---|---|
| General Non Sprinklered Areas | - | Minimum 2.2 (or 4.5 for Class 3 areas and 9a patient care areas) kw/$m^2$ critical radiant heat flux and, a maximum smoke development rate of 750 percent minutes. |
| General Sprinklered Areas | - | Minimum 1.2(or 2.2 for Class 3, 9a patient care, and 9c residential use areas) kw/$m^2$ critical radiant heat flux |
| Fire Isolated Exits and Fire Control Rooms | - | Minimum 2.2/(or 4.5 for Class 3, 9a and 9c areas) kw/$m^2$ critical radiant heat flux |
| Lift Cars | - | Minimum 2.2 kw/$m^2$ critical radiant heat flux |

Wall Linings and Ceiling Linings

| | | |
|---|---|---|
| Generally | - | Variously Group 1,2, or 3 materials (more restrictive Group number for non-sprinklered areas, public corridors, health care corridors and other prescribed locations) when tested to AS/ISO 9705 or clause 3 of BCA Spec A2.4 and AS/NZ 3837 |
| Fire Isolated Exits | - | Group 1 material when tested as above |
| Lift Cars | - | Group 1 or 2 materials when tested as above |

In addition, in non-sprinklered areas, wall and ceiling linings must have a smoke growth rate index not more than 100 or an average specific extinction area less than 250$m^2$/g.

**Other than above, construction materials generally need to achieve as1530.3 early fire hazard indice requirements as follows:-**

| | | |
|---|---|---|
| Generally | - | Spread of flame Index not > 9 |
| | - | Smoke Developed Index not > 8 |
| Sarking | - | Flammability Index not > 5 |
| Fire Isolated Exits and Fire Control Rooms | - | Spread of Flame Index 0 |
| | - | Smoke Developed Index not > 2 |
| | - | Sarking Flammability 0 |
| Non Fire Isolated Stairs & Escalators and Auditorium Fixed Seating | - | Spread of Flame Index 0 |
| | - | Smoke Developed Index not > 5 |
| Lifts | - | To AS 1735.2 |
| Air Ducts | - | To AS4254 |

# 19. APPENDIX D3 – SIGNIFICANT ACCESSIBILITY REQUIREMENTS

**Access for wheelchair users and people with disabilities generally must be to AS1428.1-2009. Principle requirements are:-**

- Continuous accessible paths of travel throughout
- Minimum 1m wide travel paths with maximum 3-5mm joints, lips, level changes etc.
- No deep pile carpets or grates with large slots.
- Walls or 75-150mm kerbs at travel path sides or if level change occurs to cause a wheelchair hazard.
- 1.8m wide x 2m long wheelchair passing spaces at 20m intervals in passageways where a direct line of sight is not available.
- Turning spaces at 20m intervals and within 2m of dead end access ways. 1.5m x 1.5m 90 deg turning spaces (with splayed internal corner) and 1.54m x 2.07m long 180 deg turning spaces are required including at dead ends in passageways.
- Step ramps, kerb ramps and threshold ramps as prescribed.
- 1:14 maximum ramps with 9m between landings.
- 1.9m x 1 in 10 (maximum 190mm rise) step ramps
- 1.52m x 1 in 8 (maximum 190mm rise) kerb ramps.
- 30-50mm handrails with 300mm extensions and curls and 50mm clearances on both sides of steps, ramps, etc.
- 850mm clear width doors with 340 - 900mm latchside clearances and 1220-1670mm approach clearances depending on arrangements.
- Stairs and ramps set back from building lines and corridors to allow space for handrail extensions and TGSIs.
- Decals to glazing.
- 900-1100mm door hardware height.
- Lever handle hardware with low opening forces.
- Landings at doorways, direction changes and at intervals on ramps and inclined walkways.
- Walkways with colour contrast borders.
- Flat even surfaces.
- Colour contrasted hand rails and door frames.
- "D" pull handles to doors.
- Continuous protected paths from disabled persons carspaces to lifts, access points, etc.
- Ambulant disabled persons toilets with grabrails and outward swinging doors or longer cubicles.
- Prescribed types of water entry arrangements for swimming pools depending on pool size.
- Non fire enclosed stairs with opaque risers.
- Fire stairs and non-fire enclosed stairs with colour contrasting nosing strips.
- All switches and controls 900-1100mm above floor level.

**The following general requirements apply to accessible toilets:-**

- Unisex facility.
- ~1.9 x 2.7m or 2.3 x 2.4m minimum room dimensions depending on arrangements. (~2.2m x 1.6m if AS1428.1-2001 concession applies).
- 30-40mm grabrails with 50-60mm clearances.
- Doors with appropriate clearances and circulation spaces and able to be operated externally in emergencies
- Washbasins with clearances as required.
- Shielded hot water pipes.
- Mirror, shelf, dispensers and coat hooks.
- Mirrored layout for alternative facilities

# 20. APPENDIX F2.3 – REQUIREMENTS FOR SANITARY FACILITIES

The status of sanitary facilities required by Part F2 of the BCA are set out below:

| Class | Use | Occupant Numbers | | | WC *Required* / *Provided* | | Urinal *Required* / *Provided* | | Basin *Required* / *Provided* | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | **Total** | | | | | | | | |
| | TBA | TBA | Male | | | | | | | |
| | | | Female | | | | N/A | | | |
| | | | Unisex Disabled | | | | N/A | | | |

**Notes**:

1. A common unisex accessible facility may be counted once for both male and female facilities in accordance with Clause F2.2(c) of the BCA;
2. Staff and patrons are permitted to share the same facilities in accordance with Clause F2.3(d) of the BCA;
3. At least one ambulant sanitary compartment must be provided within each the male and female facilities complying with Section 16 of AS1428.1 – 2009.
4. A WC is able to be used in place of a urinal.

# 21. APPENDIX J1 – ENERGY EFFICIENCY R-VALUES

ROOFS AND CEILINGS - MINIMUM TOTAL R-VALUE (Table J1.3a)

| Climate zone | 1, 2, 3, 4 & 5 | 6 | 7 | 8 |
|---|---|---|---|---|
| **Direction of heat flow** | **Downwards** | | **Upwards** | |
| Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of not more than 0.4 | 3.2 | 3.2 | 3.7 | 4.8 |
| Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.4 but not more than 0.6 | 3.7 | 3.2 | 3.7 | 4.8 |
| Minimum *Total R-Value* for a roof or ceiling with a roof upper surface solar absorptance value of more than 0.6 | 4.2 | 3.2 | 3.7 | 4.8 |

ADJUSTMENT OF MINIMUM TOTAL R-VALUE FOR LOSS OF CEILING INSULATION (Table J1.3b)

| Percentage of ceiling area uninsulated | Minimum R-Value of ceiling insulation required to satisfy J1.3(a) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **1.0** | **1.5** | **2.0** | **2.5** | **3.0** | **3.5** | **4.0** | **4.5** | **5.0** | **5.5** | **6.0** |
| | **Adjusted minimum R-Value of ceiling insulation required to compensate for loss of ceiling insulation area** | | | | | | | | | | |
| 0.5% to less than 1.0% | 1.0 | 1.6 | 2.2 | 2.8 | 3.4 | 4.0 | 4.7 | 5.4 | 6.2 | 6.9 | |
| 1.0% to less than 1.5% | 1.1 | 1.7 | 2.3 | 2.9 | 3.6 | 4.4 | 5.2 | 6.1 | 7.0 | | |
| 1.5% to less than 2.0% | 1.1 | 1.7 | 2.4 | 3.1 | 3.9 | 4.8 | 5.8 | 6.8 | | | |
| 2.0% to less than 2.5% | 1.1 | 1.8 | 2.5 | 3.3 | 4.2 | 5.3 | 6.5 | | | | |
| 2.5% to less than 3.0% | 1.2 | 1.9 | 2.6 | 3.6 | 4.6 | 5.9 | Not Permitted | | | | |
| 3.0% to less than 4.0% | 1.2 | 2.0 | 3.0 | 4.2 | 5.7 | | | | | | |
| 4.0% to less than 5.0% | 1.3 | 2.2 | 3.4 | 5.0 | | | | | | | |
| 5.0% or more | | | | | | | | | | | |

**Note:** Where the minimum *R-Value* of ceiling insulation *required* to satisfy J1.3(a) is between the values stated, interpolation may be used to determine the adjusted minimum *R-Value*.

ROOF LIGHTS - THERMAL PERFORMANCE OF TRANSPARENT AND TRANSLUCENT ELEMENTS (Table J1.4)

| Roof light shaft index (see Note 1) | Constant | Total area of roof lights serving the room or space as a percentage of the floor area of the room or space | | | |
|---|---|---|---|---|---|
| | | **Up to 2%** | **More than 2% to and up to 3%** | **More than 3% and up to 4%** | **More than 4% and up to 5%** |
| Less than 0.5 | *Total System SHGC* | Not more than 0.83 | Not more than 0.57 | Not more than 0.43 | Not more than 0.34 |
| | *Total System U-Value* | Not more than 8.5 | Not more than 5.7 | Not more than 4.3 | Not more than 3.4 |

| | | | | | |
|---|---|---|---|---|---|
| 0.5 to less than 1.0 | *Total System SHGC* | Not more than 0.83 | Not more than 0.72 | Not more than 0.54 | Not more than 0.43 |
| | *Total System U-Value* | Not more than 8.5 | Not more than 5.7 | Not more than 4.3 | Not more than 3.4 |
| 1.0 to less than 2.5 | *Total System SHGC* | Not more than 0.83 | Not more than 0.83 | Not more than 0.69 | Not more than 0.55 |
| | *Total System U-Value* | Not more than 8.5 | Not more than 5.7 | Not more than 4.3 | Not more than 3.4 |
| 2.5 and more | *Total System SHGC* | Not more than 0.83 | Not more than 0.83 | Not more than 0.83 | Not more than 0.83 |
| | *Total System U-Value* | Not more than 8.5 | Not more than 5.7 | Not more than 4.3 | Not more than 3.4 |

**Notes:**

1. The *roof light* shaft index is determined by measuring the distance from the centre of the shaft at the roof to the centre of the shaft at the ceiling level and dividing it by the average internal dimension of the shaft opening at the ceiling level (or the diameter for a circular shaft) in the same units of measurement.
2. The total area of *roof lights* is the combined area for all *roof lights* serving the room or space.
3. The area of a *roof light* is the area of the roof opening that allows light to enter the building.
4. The thermal performance of an imperforate ceiling diffuser may be included in the *Total System U-Value* and *Total System SHGC* of the *roof light*.
5. The total area of *roof lights* serving the room or space as a percentage of the *floor area* of the room or space must not exceed 5% unless allowed by J1.4(b).

## OPTIONS FOR EACH PART OF AN EXTERNAL WALL THAT IS PART OF AN ENVELOPE (Table J1.5a)

| Climate zone | Options |
|---|---|
| 1, 2 and 3 | (a) (i) Achieve a minimum *Total R-Value* of 3.3.<br>(ii) The minimum *Total R-Value* in (i) is reduced—<br>(A) for a wall with a surface density of not less than 220 kg/m$^2$, by 0.5; and<br>(B) for a wall that is—<br>(aa) facing the south orientation as described in Figure J2.3, by 0.5; or<br>(bb) shaded with a projection shade angle in accordance with Figure J1.5 of—<br>(AA) 15 degrees to not more than 45 degrees, by 0.5; or<br>(BB) more than 45 degrees, by 1.0; and<br>(C) if the outer surface solar absorptance value is not more than 0.6, by 0.5. |
| | (b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like—<br>(i) achieve a minimum *Total R-Value* of 1.4; and<br>(ii) satisfy *glazing* energy index Option B of Table J2.4a. |
| 4, 5 and 6 | (a) (i) Achieve a minimum *Total R-Value* of 2.8.<br>(ii) The minimum *Total R-Value* in (i) is reduced—<br>(A) for a wall with a surface density of not less than 220 kg/m$^2$, by 0.5; and (B) for a wall that is—<br>(aa) facing the south orientation as described in Figure J2.3, by 0.5; or<br>(bb) shaded with a projection shade angle in accordance with Figure J1.5 of—<br>(AA) 30 degrees to not more than 60 degrees, by 0.5; or<br>(BB) more than 60 degrees, by 1.0. |
| | (b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like—<br>(i) achieve a minimum *Total R-Value* of 1.4; and<br>(ii) satisfy *glazing* energy index Option B of Table J2.4a. |

| | |
|---|---|
| 7 | (a) Achieve a minimum *Total R-Value* of 2.8.<br>(b) Where the only space for insulation is provided by a furring channel, top hat section, batten or the like—<br>(i) achieve a minimum *Total R-Value* of 1.4; and<br>(ii) satisfy *glazing* energy index Option B of Table J2.4a. |
| 8 | (a) Achieve a minimum *Total R-Value* of 3.8. |
| | (b) Where the wall is an earth retaining wall or earth-berm, achieve a minimum *Total R-Value* of 2.0. |

## AN ENVELEOPE WALL OTHER THAN AN EXTERNAL WALL - MINIMUM TOTAL R-VALUE (Table J1.5b)

| Location | | | Climate zone | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| (a) | Where the adjacent enclosed non- *conditioned space* has— | | 1.0 | 1.0 | Nil | Nil | 1.0 | 1.0 | 1.5 | 2.5 |
| | (i) | ventilation of not more than 1.5 air changes per hour of outside air during occupied hours; and | | | | | | | | |
| | (ii) | glazing in the external *fabric* as *required* by Part J2; and | | | | | | | | |
| | (iii) | *roof lights* in the external *fabric* as *required* by J1.4. | | | | | | | | |
| (b) | For other than (a) | | 2.3 | 2.3 | 2.3 | 1.8 | 1.8 | 1.8 | 2.8 | 3.8 |
| **Note:** | When assessing the glazing and *roof lights* as *required* by Part J2 and J1.4, assess the glazing and *roof lights* as if the non-*conditioned space* is the same separate *conditioned space*. | | | | | | | | | |

## FLOORS - MINIMUM TOTAL R-VALUE (Table J1.6)

| Location | | | *Climate zone* | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| Direction of heat flow | | | Upwards | Downwards and upwards | | Downwards | | | | |
| (a) | A slab on ground: | | | | | | | | | |
| | (i) | Without an in-slab heating or cooling system | Nil | Nil | Nil | Nil | Nil | Nil | 1.0 | 2.0 |
| | (ii) | With an in-slab heating or cooling system | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 2.25 |
| (b) | A suspended floor without an in-slab heating or cooling system where the non- *conditioned space* is— | | 1.0 | 1.0 | Nil | Nil | 1.0 | 1.0 | 1.5 | 2.5 |
| | (i) | enclosed; and | | | | | | | | |
| | (ii) | where mechanically ventilated by not more than 1.5 air changes per hour. | | | | | | | | |
| (c) | A suspended floor with an in-slab heating or cooling system where the non- *conditioned space* is— | | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.25 | 1.75 | 2.75 |
| | (i) | enclosed; and | | | | | | | | |
| | (ii) | where mechanically ventilated by not more than 1.5 air changes per hour | | | | | | | | |
| (d) | For other than (a), (b) or (c) | | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 | 3.5 |
| **Note:** A sub-floor space with not more than 150% of the *required* sub-floor ventilation is considered enclosed. | | | | | | | | | | |