





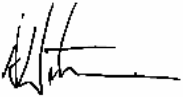
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# Royal Rehabilitation Centre, Ryde

## BCA Assessment Report

REPORT 2007/897 R1.2

April 2008

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## EXECUTIVE SUMMARY

An assessment of the proposed design of the Royal Rehabilitation Centre, Ryde against the Deemed-to-Satisfy provisions of the BCA has revealed that in order to comply a number of issues need to be resolved. Section 8 of 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 prior to the issue of a Construction Certificate.

The following are the main issues that require amendments to plans;

1. The wards on level one are not separated in 500m<sup>2</sup> smoke compartments in accordance with Clause C2.5 of the BCA. The west corner and south corner wards exceed 500m<sup>2</sup>.
2. The ground floor treatment area is not divided by smoke proof walls into compartments not exceeding 1,000m<sup>2</sup>. The treatment area on the ground floor is to be separated in smoke compartments not exceeding 1,000m<sup>2</sup> by smoke proof walls complying with Specification C2.5.
3. The double doors on grids 11/A, 11/B, 15/P and 15/K on the first floor are required to swing in the opposite direction for egress purposes.
4. The double doors on grid 13/Q and 13/J are required to swing in both directions for egress purposes.
5. A fire and smoke door is required to separate the spinal lounge / gym area on the first floor from reception area.
6. The travel distances from the second floor plantroom exceed 20m to an exit as required under Clause D1.4 of the BCA. Further details of the plant area is required to determine the paths of egress and accurately calculate the travel distances.
7. The exit travel distance to the fire stairs in Weemala 1 and 2 exceed 20m. Details of horizontal exits within the first floor of Weemala are to be provided to determine whether they address travel distance issues.
8. The distance between alternative exits on the ground floor treatment area is approximately 50m. Additional exit may need to be provided to ensure that the distance between alternative exits in the patient care areas does not exceed 45m. It may be possible to investigate an alternative solution to address the issue.
9. The loading bay area is served by three exits, two of which are horizontal exits. Horizontal exits within that area are not permitted to comprise more than half the required exits as specified under Clause D1.11 of the BCA.
10. The following exit doors do not swing in the direction of egress in accordance with Clause D2.4:
  - a. external door grid 10/Q first floor
  - b. door to fire stair grid 7/A second floor
  - c. the double external doors to Weemala 1 and 2
  - d. exit doors serving the general store
11. The Class 9c aged care building is not provided with a bath (fixed or mobile) or a clinical hand wash basin in accordance with Clause F2.1 of the BCA.
12. An additional urinal is required for the Community Hall based on the population calculated in accordance with Table F2.3 of the BCA.

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

13. It is proposed to investigate the possibility of reducing the FRL's within the Class 6 portions of 3 hours as required under Specification C1.1, down to 2 hours. Performance Requirements CP1 and CP2 are required to be satisfied.
14. The exit travel distances within the basement carpark exceeds 40m. The exit travel distances from the loading bay, ground floor plant room grid 10/R and plantroom on the second floor exceed 20m to a point of choice. Performance requirements DP4 and EP2.2 are to be satisfied.
15. The distance between alternative exits within the carpark exceeds 60m. The ground floor treatment area (Pool area) has a distance between alternative exits of approximately 50m, which exceeds the maximum of 45m permitted in patient care areas. The distance between alternative exits within the level 1 ward area exceeds 45m. Egress is possible via the balcony however, the door entering the adjoining compartment from the balcony is not defined as an exit under the BCA. Performance requirements DP4 and EP2.2 are to be satisfied.
16. The discharge point of the fire stairs from the rehabilitation centre and Weemala require passing within 6m of the external walls of the same building. Performance Requirement DP5 is to be satisfied.
17. The exits discharging from the treatment area on the first floor to the courtyard between grids 9-10/A-Q require travelling via a stairway to egress to the road. Performance Requirement DP4 is required to be satisfied.
18. Hydrants are likely to be required in non-compliant locations to achieve full coverage. Performance Requirement EP1.3 is to be satisfied.
19. Hose reels are likely to be required in non-compliant locations to achieve full coverage. Depending on the fire and smoke compartmentation of the patient care areas, certain rooms may not have hose reel coverage due to hose reels not being permitted to pass through fire or smoke doors. Performance Requirement EP1.1 is to be satisfied.
20. It is proposed to investigate the deletion of automatic air pressurisation systems from fire stairs via an alternative solution. Performance Requirement EP2.2 is to be satisfied.

Not all details are specified on the drawings. To ensure full compliance with the provisions of the BCA the recommendations provided in this report should be incorporated into the Construction Certificate design documentation.

Section 9 of this report identifies certain items which are not specified on the design documentation which may become issues if not designed in accordance with the requirements of the BCA.

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 "Not Specified" in the "Status" column of the assessment in Appendix B of the report and should be resolved prior to construction. General guidance is provided in the "Comments" column to assist the designer. Particular attention should be given to the following;

- a. The design and construction of fire walls separating fire compartments in accordance with Clause C2.7.
- b. Protection of openings in adjoining fire compartments in accordance with Clause C3.3 and C3.4. Due to the compartmentation requirements for Class 9a patient care area there are a significant amount of external openings which are required to be protected.

- c. Smoke doors are required to swing in the direction of egress which may mean that the doors are required to swing in both directions. This may be an issue where the smoke doors are also fire doors as fire doors are usually only able to swing in one direction due to the rebate of the door frame being required to ensure the door achieves the required FRL.
- d. There are a number of options for fire services in some instances. The options available under Part E2 of the BCA and summarised under appendix E of this report should be reviewed.
- e. The energy efficiency provisions under Part J of the BCA are required to be incorporated into the design. A detailed review of the proposed fabric and glazing needs to be undertaken to ensure compliance. The external walls and roof of the building are to achieve the required R-Values as specified under Part J1. The glazing elements are to be assessed in accordance with Method 2 as specified under Clause J2.4 of the BCA.

A number of compliance issues rely on assumptions and interpretations as outlined in section 7.1 and 7.2 of this report. These items should be clarified and the method of compliance needs to be confirmed prior to construction.

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## 1. INTRODUCTION

This report presents the findings of an assessment of the design of the proposed Royal Rehabilitation Centre against the Deemed-to-Satisfy (DTS) provisions of the relevant sections of the Building Code of Australia (BCA). It has been prepared by building regulations consultants and certifiers Steve Watson and Partners for Bates Smart Architects Pty Ltd.

## 2. PURPOSE

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

The assessment is undertaken for the purpose of, and to the extent necessary for, construction certification to be issued under Part 4a of the NSW Environmental Planning and Assessment Act 1979 (The Act) and Regulation 2000 (EPAR).

## 3. SCOPE AND LIMITATIONS

### 3.1. SCOPE

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

### 3.2. LIMITATIONS

The following limitations apply to the assessment:

- The plans are assessed to the extent necessary to issue a construction certificate under Part 4a of The Act. 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 only. An assessment against AS 1428 is outside the scope of this report.
- The assessment does not consider the requirements for people with disabilities under the provisions of the Disabilities Discrimination Act 1992.
- The assessment does not consider the requirements of legislation other than the nominated sections of the EP&A Act which might address building works such as OH&S, Construction Safety or the like.
- Generally the assessment does not incorporate the detailed requirements of the Australian Standards.

## 4. 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	EPAR Clause Ref	Comment	Relevant section of this report
New Work	145	All new works must comply	8 and 13

### 4.1. 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. METHODOLOGY

### 5.1. 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:
  - a) Clause is administrative information only (**Noted**).
  - b) Clause is or is not relevant to the proposed work (**Applicable or Not Applicable**).
  - c) The proposed work complies with the requirements of the clause (**Complies**).
  - d) Compliance with the requirements of the clause is unable to be determined from the documentation (**Not Specified**). A recommendation in the "Comments" column will indicate if further information is required.
  - e) 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.
- 3) Nominate the status of the design against each BCA requirement.
- 4) Provide comments against each BCA requirement as appropriate

## 6. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development comprises the construction of the Royal Rehabilitation Centre at Ryde which also includes a Aged Care Facility, general store and Recreation Circle consisting of a community centre and childcare centre.

The development is located on Morrison Road, Ryde. A private road is proposed to be constructed as part of the development which links to the Recreation Circle.

The rehabilitation centre is proposed to be located north of Morrison Road and west of the proposed private road. The rehabilitation centre is to consist of 4 levels containing carparking, therapy area, library, function room, café, wards, general store and offices.

## 7. ASSESSMENT DATA SUMMARY

The following basic assessment data has been drawn from the provisions of the BCA 2007.

### 7.1. ASSUMPTIONS

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

1. The function room will not be used as a Place of Public Entertainment (POPE).
2. An exit door is to be provided adjacent the vehicle ramp along grid 5 on the ground floor.
3. The majority of patients within the treatment areas on the ground floor are the same patients staying in the wards on the first floor.
4. The people using the library are the staff within the building. Therefore, to avoid calculating the same population twice the population of the library is not calculated.
5. Not more than 10 staff will be working in either aged care building (Weemala 1 and 2).
6. The childcare centre will provide its own sanitary facilities.
7. The health professional suites will provide its own sanitary facilities.
8. The entry to the loading dock will have a roller shutter door installed.

### 7.2. 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 north corner of the ground floor containing the hydro pool and gym is defined as a treatment area in accordance with the definitions in the BCA.
2. The spinal ward and neurology ward on level one are defined as ward areas in accordance with the definitions in the BCA. The areas adjacent the ward area containing the gyms, consult / interview rooms and dining are considered patient care areas but are not ward areas.
3. The north west section of the ground floor containing the hydro pool, gym and consultancy rooms are defined as treatment areas in accordance with the definitions of the BCA.
4. The patient care areas, as defined by the BCA, include the treatment area on the ground floor and the north east wing on level one. The patient care areas do not include the reception and office areas.
5. The BBQ area above the community centre is not defined as a storey.

### 7.3. BUILDING CHARACTERISTICS

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

#### 7.3.1. Classification

The significant spaces in the proposed design have been classified in accordance with the requirements of Clause A3.2 of the BCA and are summarised in the table below:

<i>Floor / Building</i>	<i>Space</i>	<i>Classification</i>
Lower ground	Carpark	Class 7a
	Loading dock, kitchen	Ancillary use to rehabilitation centre (Class 9a)
	Wheelchair sports / Youth safe	Class 5
Ground	Carpark	Class 7a
	Function room	Class 9b
	Library and I & drc	Class 9b
	Therapy	Class 9a
	Café / dining	Class 6
	Health professional suites	Class 5
	John Walsh Institute	Class 5
First floor	Admin	Class 5
	Poly Clinic	Class 5
	Wards	Class 9a
Second floor	Offices	Class 5
Weemala	Aged care facility	Class 9c
Recreation Circle	Childcare centre	Class 9b
	Community Centre	Class 9b
General Store	General store	Class 6

#### 7.3.2. Summary of construction determination

The type of construction required for the proposed design is summarised in the table below. Refer to appendix B for further detailed assessment data on the proposed development.

	Rehabilitation Centre	Weemala	Recreation Circle	General store
Classification	Class 5, 6, 7a, 9a and 9b	Class 9c	Class 9b	Class 6
Number of storeys contained	4	2	1	2
Rise in storeys	4	2	1	2
Type of construction required	Type A	Type C*	Type C	Type C
Effective height	17.2m	3.6m	Not Applicable	4.6m

\* As permitted under Clause C1.5, the two storey aged care facility is permitted to be constructed in Type C construction when it is sprinkler protected throughout in accordance with Specification E1.5.

## 8. ISSUES REQUIRING RESOLUTION

### 8.1. ISSUES REQUIRING AMENDMENTS TO PLANS

The following issues need to be resolved before issuing the Construction Certificate.

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
1.	C2.5	<p>The wards on level one are not separated in 500m<sup>2</sup> smoke compartments. The west corner and south corner exceed 500m<sup>2</sup>.</p> <p>The ground floor treatment area is not divided by smoke proof walls into compartments not exceeding 1,000m<sup>2</sup>.</p> <p>The double doors on grids 11/A, 11/B, 15/P and 15/K on the first floor are required to swing in the opposite direction for egress purposes.</p> <p>The double doors on grid 13/Q and 13/J are required to swing in both directions for egress purposes.</p> <p>A fire and smoke door is required to separate the spinal lounge / gym area on the first floor from reception area.</p>	<p>The west corner and south corner wards are to be separated into smoke compartments not exceeding 500m<sup>2</sup>.</p> <p>The treatment area on the ground floor is to be separated in smoke compartments not exceeding 1,000m<sup>2</sup> by smoke proof walls complying with Specification C2.5</p> <p>The fire / smoke doors as noted are to swing in the direction egress. Where required the doors are to swing in both directions.</p> <p>A fire / smoke door is to be installed between the spinal lounge / gym area and reception area on the first floor to create a separate fire / smoke compartment.</p>
2.	D1.4	<p>The travel distances exceed the maximum permitted in the following areas:</p> <ol style="list-style-type: none"> <li>1) basement carpark (Approximately 53m to an exit which exceeds the maximum permitted of 40m)</li> <li>2) loading bay lower ground floor (approximately 26m to a point of choice.)</li> <li>3) ground floor plant room grid 10/R (approximately 23m to a point of choice)</li> <li>4) plant room on the second floor (approximately 30m to a single exit).</li> <li>5) first floor of Weemala 1 and 2 (approximate worst case: 22m to single exit)</li> </ol>	<p>It is proposed to investigate alternative solutions to address the extended travel distances. Refer to Section 8.2 below.</p> <p>Slight design modifications may be possible to address some of the travel distance issues.</p> <p>Further details of the plant area on the second floor are required to determine the paths of egress and accurately calculate the travel distances.</p> <p>Details of horizontal exits within the first floor of Weemala are to be provided to determine whether they address travel distance issues</p>

Item	DTS Clause	Description of Non-compliance	Requirement to Satisfy BCA
3.	D1.5	<p>The distance between alternative exits exceeds the maximum permitted in the following areas:</p> <ol style="list-style-type: none"> <li>1) basement carpark (approximately 75m, maximum permitted is 60m)</li> <li>2) carpark ground floor (approximately 65m)</li> <li>3) ground floor treatment area (Pool area) (approximately 50m, maximum permitted is 45m)</li> <li>4) Level one ward areas (distance between alternative exits exceeds 45m) Egress is possible via the balcony however, the door entering the adjoining compartment from the balcony is not defined as an exit under the BCA.</li> </ol>	<p>Additional exit may need to be provided to ensure that the distance between alternative exits in the patient care areas does not exceed 45m. It may be possible to investigate an alternative solution to address the issues. Refer Section 8.2 below.</p>
4.	D1.10	<p>The exits discharging from the treatment area on the first floor to the courtyard between grids 9-10/A-Q require travelling via a stairway to egress to the road.</p>	<p>Exits in a Class 9a building discharging to open space that are at a different level to the road are required to have a path a travel to the road via ramps not steeper than 1:8. Due to the size of the ramp required it has been proposed to investigate possible alternative solutions to address the issue. Refer to section 8.2 below.</p>
5.	D1.11	<p>The loading bay area is served by three exits, two of which are horizontal exits. Horizontal exits within that area are not permitted to comprise more than half the required exits.</p>	<p>An additional exit which is not a horizontal exit is required to ensure compliance with Clause D1.11.</p>
6.	D2.20	<p>The following exit doors do not swing in the direction of egress:</p> <ol style="list-style-type: none"> <li>1. external door grid 10/Q first floor</li> <li>2. door to fire stair grid 7/A second floor</li> <li>3. the double external doors to Weemala 1 and 2</li> <li>4. exit doors serving the general store</li> </ol>	<p>The nominated doors are to be swung in the direction of egress.</p>
7.	F2.1	<p>The Class 9c aged care building is not provided with a bath (fixed or mobile) or a clinical hand wash basin.</p>	<p>One fixed or mobile bath is required and one clinical hand wash basin is required for each 16 residents or part thereof.</p>
8.	F2.3	<p>An additional urinal is required for the Community Hall based on the population calculated.</p>	<p>An additional urinal is to be provided in the male toilets</p>

## 8.2. ALTERNATIVE SOLUTIONS PROPOSED / REQUIRED

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

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
1.	Type of construction required	C1.1 and Spec C1.1	It is proposed to investigate the possibility of reducing the FRL's within the Class 6 portions 3 hours down to 2 hours.	CP1 and CP2	
2.	Exit travel distances	D1.4	The exit travel distances within the basement carpark exceeds 40m.  The exit travel distances from the loading bay, ground floor plant room grid 10/R and plantroom on the second floor exceed 20m to a point of choice.	DP4 and EP2.2	
3.	Distance between alternative exits	D1.5	The distance between alternative exits within the carparks exceed 60m.  The ground floor treatment area (Pool area) has a distance between alternative exits of approximately 50m  The distance between alternative exits within the level 1 ward area exceeds 45m. Egress is possible via the balcony however, the door entering the adjoining compartment from the balcony is not defined as an exit under the BCA.	DP4 and EP2.2	
4.	Travel via fire isolated exits	D1.7	The discharge point of the fire stairs from the rehabilitation centre and Weemala require passing within 6m of the external walls of the same building.	DP5	
5.	Discharge from exits	D1.10	The exits discharging from the treatment area on the first floor to the courtyard between grids 9-10/A-Q require travelling via a stairway to egress to the road. The path of travel to the road is required to be via ramps.	DP4	
6.	Fire Hydrants	E1.3	Hydrants are likely to be required in non-compliant locations to achieve full coverage	EP1.3	

Item	Non-Compliance	DTS Clause	Description	Performance Requirement	Comments
7.	Hose reels	E1.4	Hose reels are likely to be required in non-compliant locations to achieve full coverage Depending on the fire and smoke compartmentation of the patient care areas, certain rooms may not have hose reel coverage due to hose reels not being permitted to pass through fire or smoke doors.	EP1.1	
8.	Smoke hazard management	E2.2 and Spec E2.2	It is proposed to investigate the deletion of automatic air pressurisation systems from fire stairs in the rehabilitation centre via an alternative solution satisfying the Performance Requirements of the BCA.	EP2.2	

Note: Alternative solutions prepared to meet the performance requirements contained in the Category 2 fire safety provisions are required to be submitted to the NSW Fire Brigade for approval under Clause 144 of the Environmental Planning and Assessment Regulation 2000.

A Part 4A Compliance Certificate from a C10 Accredited Certifier is required prior to the issue of a Construction Certificate.

## 9. ISSUES TO BE RESOLVED PRIOR TO CONSTRUCTION

The following identifies certain items which are not detailed or specified on the design documentation which may become issues if not designed in accordance with the requirements of the BCA. The items below are those items which we have experienced to be regular issues only. Not all unspecified items have been noted below:

Item	Clause	Description	Requirement to Satisfy BCA
1.	C2.7	Separation by fire walls	<p>Fire walls are required to meet Fire Resistance Level (FRL) criteria for structural support, integrity and insulation. There are a number of ways in which a seemingly compliant system can fail through defective detailed design.</p> <ul style="list-style-type: none"> <li>• Structural steelwork crossing the fire wall – the steel will conduct heat across the wall so as to render an otherwise complying wall system non-compliant.</li> <li>• Tilt up panels - tilt up panels will often have published FRL's of 120, 180, or even 240 minutes. However, when these panels are supported by portal frames or other non-protected structural steelwork they will collapse in fire and offer no actual FRL at all. In certain instances where support is duplicated from both sides of the wall this can be acceptable. Also, Type C buildings are permitted this concession for external walls. In all other cases, tilt up panels required to be fire-resisting will need to be tied in to concrete slabs or other fire rated structural members in order to provide support.</li> <li>• Lightweight fire-rated internal walls beneath roofs – these wall systems do achieve non-structural FRL's. However, they need to be designed to support a failing roof structure in the event of fire so as to continue to prevent fire spread and structural collapse for the duration of their required FRL. In addition, structural steel members crossing these walls will affect the insulation rating. The solution envisaged by the BCA is that load bearing brickwork is used in this application. For residential buildings a fire-rated ceiling is recommended to the uppermost level in order to avoid the problems created by a design concept involving extending lightweight walls to the underside of the roof. A false ceiling can be installed below for the purposes of easy installation of light fittings, ventilation openings etc</li> </ul>
2.	C3.4	Acceptable method of protection (wall-wetting sprinklers)	<p>Wall-wetting sprinklers are allowed under BCA Clause C3.4 to protect window openings in walls required to have an FRL. However, these are often mistakenly used in conjunction with openable windows which is strictly prohibited under the clause. Only fixed pane windows are permitted due to the fact that the drencher spray needs to land on the glass for the barrier to be effective</p>
3.	C3.15	Openings for services penetrations (mixed metal and PVC plumbing systems)	<p>Metal pipes are allowed to penetrate fire-resisting construction on the basis that a wholly metal pipe system is reasonably resistant to fire and smoke. However, when metal pipework penetrates a floor and PVC is used within the same pipe system it does not comply. When PVC is used it should penetrate the slab and should be protected by a fire collar.</p>
4.	D2.15	Thresholds	<p>External doorway thresholds are generally required to be less than 190 mm and even less for health or aged care facilities. Often the door threshold signals the limit of design responsibility (or attention to design) so that the threshold height is omitted from the design.</p>

Item	Clause	Description	Requirement to Satisfy BCA
5.	D2.16	Balustrades or other barriers (No climbable members for floors 4m above floor beneath)	<p>Balustrades located more than 4 m above the ground below must not be climbable by children. Incorrect balustrade design can result in significant rectification works given that there are often large quantities of balustrading all constructed to the same detail (particularly in residential projects.)</p> <p>The interpretation of "must not facilitate climbing" as required under BCA clause D2.16(g) is the issue that can lead to significant problems as it is not adequately specified under the BCA. The non-climbable zone is between 150 mm and 760 mm from the floor.</p> <p>We therefore recommend that the Pool Fence Code AS1926 be consulted for clarification. The key is that any ledge of greater than 10 mm in width can be held to facilitate climbing if the angle to horizontal is less than 60°. Also, acceptable construction tolerances for building elements means that a complying design detail can easily be constructed so as not to comply. The 10 mm limit is not able to be extended to allow for tolerances. The following items can lead inadvertently to a defective detail:</p> <ul style="list-style-type: none"> <li>• Split balustrade elements (ie brick hob to 500 mm and then 500 mm clear glazing panel above) will almost certainly create a climbable ledge once built</li> <li>• End fixing points can create footholds where balustrade infill elements are fixed to posts</li> <li>• Not allowing enough height for tiles to be built up to create falls so that the dimensions from the finished floor do not comply</li> <li>• Taps and other fittings fixed to the balustrade</li> </ul> <p>Other climbable points located close to but not actually on the balustrade</p>
6.	D2.17	Handrails	Handrails are often omitted from the design of ramps and stairs. Even as little as two steps is counted as a stairway and as such requires a handrail.
7.	D2.21	Operation of latch (door hardware)	<p>BCA Clause D2.21 requires certain types of latches to all doors in the path of egress. This effectively means that every single door in commercial and industrial buildings needs to comply.</p> <p>The problem is that knob type handles do not and cannot comply. Deadlocks do not comply.</p>
8.	D3.2	General building access requirements (Door widths)	The Access standard AS1428.1 has recently been amended to require a minimum of 800 mm wide door way openings. The problem is that a standard 820 mm door leaf is usually trimmed down and fitted to jambs with 10 mm reveals. That is, openings for standard 820 mm doors can never comply.
9.	D3.2	General building access requirements (Raised computer floors)	<p>Often computer floors will be installed only in the computer room to a height of up to 300 mm above the rest of the floor. This creates the following conflicts:</p> <ul style="list-style-type: none"> <li>• Disabled access – a 1:14 ramp should be provided</li> <li>• Thresholds – attention should be paid to clause D2.15 of the BCA as steps and ramps are not permitted in or leading to doorways without a landing.</li> </ul> <p>Stair tread dimensions- do not design a floor height that means the tread dimensions cannot be met (115 mm-190 mm is permissible. A height of between 190-230 mm cannot be designed for)</p>

Item	Clause	Description	Requirement to Satisfy BCA
10.	D3.3	Parts of buildings to be accessible (handrails)	Low rise retail, industrial and commercial premises do not have lifts but are required to have "accessible" stairs. This means that there are special requirements for handrails to the internal stairs including <ul style="list-style-type: none"> <li>• Handrails to both sides of the stair</li> <li>• Handrails must extend 300 mm beyond the stair</li> <li>• See clause 9 of AS1428.1 for further details.</li> </ul>
11.	D3.5	Carparking (disabled carparking)	These car spaces have a special requirement for 2.5 m of clear height to permit roof-mounted wheelchairs to be demounted
12.	D3.8	Tactile indicators	BCA clause D3.8 requires tactile ground indicators to be installed in certain locations. The "tactiles" must be 600 mm in depth and extend for the width of the stair, ramp, kerb ramp or other feature.  Tactiles are often seen as a last minute item. However, they are often required to be set into concrete or terrazzo which can lead to costly and time-consuming retrofit activity.
13.	E1.3	Hydrants (Walls adjacent to external hydrants)	External Hydrants are required to be located 10 m from a building. Where this is not proposed, the external wall of the building is required to achieve a 90/90/90 fire rating for 2 m side from the centre of the hydrant outlet and 3 m above the hydrant (or to the roof line if this is lower.) Note that tilt-up concrete panels supported by steel portal frames will not achieve the fire rating unless the supporting structure is also fire-rated.
14.	F2.4	Facilities for people with disabilities	Toilets for people with disabilities are required to comply with AS1428.1 in all respects.  The standard regulates the locations, dimensions and details associated with taps, pans, grab rails, roll holders, basins, soap dishes and floor wastes. In fact, almost every element is regulated with respect to heights, offsets from walls, height beneath etc.
15.	G1.1	Swimming Pools (pool safety fence)	Walls bounding the pool and entry doors and other openings are required to meet the strict design criteria set down in the Swimming Pools Act 1992.

## 10. STATUTORY FIRE SAFETY MEASURES

The Statutory Fire Safety Measures listed in Appendix H of this report are 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.

## 11. CONCLUSIONS

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

## 12. APPENDIX A – DETAILED ASSESSMENT DATA

### 12.1. FLOOR AREAS AND VOLUMES

<i>Floor / Building</i>	<i>Approx Area (m<sup>2</sup>)</i>	<i>Approx Volume (m<sup>3</sup>)</i>	<i>Comment</i>
Lower ground	6,280	20,000	
Ground	7,010	28,000	
Level 1	6,545	23,000	
Level 2	825	2,900	
Weemala 1 Ground	400	1,350	
Weemala 1 First Floor	400	1,350	
Weemala 2 Ground	550	1,850	
Weemala 2 First Floor	550	1,850	
Recreation Circle (community centre / Childcare centre)	585	2,700	
General store Ground	585	2,400	
General store First Floor	585	2,400	

### 12.2. NOMINATED FIRE COMPARTMENTS

<i>Compartment</i>	<i>Approx Area (m<sup>2</sup>)</i>	<i>Approx Volume (m<sup>3</sup>)</i>	<i>Comment</i>
Lower ground carpark (Zone A)	4,240	12,000	
Lower ground (Zone B)	2,040	8,000	
Ground health professional suites (Zone C)	170	600	
Ground floor carpark (Zone D)	1,630	5,000	
Ground floor and level one (Zone E)	5,900	26,000	Includes John Walsh Institute, conference room, l&drc, allied health offices, ward reception area, admin offices, polyclinic and level 2 offices.
Ground floor and level one (Zone F)	610	2,700	
Ground floor treatment (Zone G)	1,525	7,000	Treatment area
Level one wards (Zone J west corner)	810	2,800	
Level one wards (Zone J north corner)	415	1,400	
Level one wards (Zone J north east side)	740	2,600	
Level one wards (Zone J east corner)	420	1,500	
Level one wards (Zone J south corner)	610	2,100	

- Each floor of the Weemala aged care facilities forms a fire compartment.
- The recreation circle forms a single fire compartment.
- The general store forms a single fire compartment.

### 12.3. POPULATION

Relevant populations for the building are set out below.

<i>Location</i>	<i>Use</i>	<i>Class</i>	<i>Approx Area (m<sup>2</sup>)</i>	<i>Density m<sup>2</sup>/person</i>	<i>Population</i>	<i>Comments</i>
Lower Ground	Carpark	7a	4,240	30	142	
	kitchen		230	10	23	
Ground	Carpark	7a	1,630	30	55	
	Health suites	5	140	10	14	
	John Walsh	5	500	10	50	
	Conference	9b	-	-	150	Seats counted
	I & drc	9b	160	1	160	
	Café / dining	6	-	-	178	Seats counted
	Allied health	5	200	10	20	
	Therapy	9a	-	-	90 max (patients)	Numbers provided by RRSC
	Therapy	9a	-	-	73 max (staff)	
First floor	Polyclinic	5	650	10	65	
	Admin	5	1,300	10	130	
	Wards	9a			60 28	Patients (beds) Staff (provided by RRCS)
Second floor	Offices	5	650	10	65	
Recreation circle	Community centre	9b	250	1	250	
	Childcare centre	9b	235	4	59	
General Store – ground	Retail	6	480	3	160	
First floor		6	480	5	96	

Populations within the carpark are calculated for egress purposes only. The number calculated is not considered to be additional to those calculated within the remainder of the building.

## 12.4. EXITS SERVING REHABILITATION CENTRE

The exits from the building are set out below:

Exit No	Area	Type	Grid Ref	No of storeys connected	Comments
1.	Lower ground	Fire stair	1/A	2	
2.	Lower ground	Fire stair	7/A	2	
3.	Lower ground	Fire stair	10-11/A	2	Does not discharge anywhere
4.	Lower ground	Open stair	11/G	1	
5.	Lower ground	Horizontal exit	11/E	-	Exits provide egress from loading bay area to carpark
6.	Lower ground	Horizontal exit	11/A	-	
7.	Lower ground	External door	16/D	-	
8.	Ground	Fire stair	1/A	2	
9.	Ground	Fire stair	7/A	2	
10.	Ground	Stair	10-11/A	2	The stair serves as an exit for the lower ground level discharging onto the ground floor. The stair is fire separated but is not serving as a fire isolated stairway.
11.	Ground	External door	2/G	-	
12.	Ground	External door	5/G	-	
13.	Ground	External door	6-7/G	-	
14.	Ground	External door	9-10/C	-	
15.	Ground	External door	10/A	-	
16.	Ground	External door	10/E	-	
17.	Ground	External door	16/K	-	
18.	Ground	External door	16/A-B	-	
19.	Ground	External door	16/N	-	Does not swing in the direction of egress
20.	Ground	External door	10/O	-	
21.	Ground	External door	10/P	-	
22.	Ground	External door	16/K	-	
23.	First floor	External door	1/A	-	
24.	First floor	Fire stair	3-4/F	3	
25.	First floor	Fire stair	6-7/F	3	
26.	First floor	External door	6-7/A	-	
27.	First floor	Open stair	9/B	2	
28.	First floor	Fire stair	12/F	2	
29.	First floor	Fire stair	16/K	2	
30.	First floor	Fire stair	16/P	2	
31.	First floor	External door	10/Q	-	Door is required to swing in both directions
32.	First floor	Horizontal exit	15/P	-	

<i>Exit No</i>	<i>Area</i>	<i>Type</i>	<i>Grid Ref</i>	<i>No of storeys connected</i>	<i>Comments</i>
33.	First floor	Horizontal exit	15/K	-	
34.	First floor	Horizontal exit	13/Q	-	
35.	First floor	Horizontal exit	11/A	-	
36.	First floor	Horizontal exit	11/B	-	
37.	First floor	Horizontal exit	14/A-B	-	
38.	First floor	Horizontal exit	13/J	-	Door is required to swing in both directions
39.	Second floor	Fire stair	3-4/F	3	
40.	Second floor	Open stair	3/B	2	
41.	Second floor	Fire stair	7-8/A	2	

Note: Exits to other buildings have not been specified in the table above as it is not deemed necessary to identify those exits due to the small number of exits serving those buildings.

### 13. APPENDIX B – CLAUSE BY CLAUSE ASSESSMENT

#### 13.1. SECTION B - STRUCTURE

Clause	Description	Status	Comments
B1.1	Resistance to actions	Not Specified	The resistance of a building or structure must be greater than the most critical action effect resulting from different combinations of actions.
B1.2	Determination of individual actions	Not Specified	The magnitude of individual actions must be determined in accordance with Clause B1.2 of the BCA.
B1.3	Loads	Not Specified	The building or structure must resist loads determined in accordance with AS 1170 Parts 1 to 4 as listed in Clause B1.3.
B1.4	Determination of structural resistance of materials and forms of construction	Not Specified	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.

#### 13.2. SECTION C - FIRE RESISTANCE

Clause	Description	Status	Comments
C1.1	Type of construction required	Not Specified / Does Not Comply	<p>The Rehabilitation Centre is to be erected in Type A fire resisting construction in accordance with Specification C1.1 of the BCA. The community centre / childcare centre is to be constructed in Type B construction.</p> <p>The aged care facility is able to be constructed in Type C construction as permitted under Clause C1.5.</p> <p>Refer to Appendix B for the relevant fire resisting requirements.</p> <p>It is proposed to investigate the possibility of reducing the FRL's within the Class 6 portions 3 hours down to 2 hours.</p> <p>The roof is not required to have an FRL if its covering is non-combustible as the building is proposed to be sprinkler protected throughout.</p>
C1.2	Calculation of rise in storeys	Noted	Refer to Section 7.3.2 of this report.
C1.3	Buildings of multiple classification	Noted	
C1.4	Mixed types of construction	Not Applicable	
C1.5	Two storey Class 2, 3 or 9c buildings	Applicable	The aged care buildings are able to be constructed in Type C construction as they are to be sprinkler protected throughout in accordance with Specification E1.5.
C1.6	Class 4 parts of buildings	Not Applicable	
C1.7	Open spectator stands and indoor sports stadiums	Not Applicable	

Clause	Description	Status	Comments
C1.8	Lightweight construction	Not Specified	Lightweight construction used in a wall system must comply with Specification C1.8.  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.
C1.9	-	-	No provisions.
C1.10	Fire hazard properties	Not Specified	The fire hazard properties of all floor materials, floor coverings, wall and ceiling lining materials must comply with Specification C1.10a. The fire hazard properties of all other materials must comply with Specification C1.10.
C1.11	Performance of external walls in fire	Not Applicable	
C1.12	Non-combustible materials	Noted	Gypsum, metal and laminated non-combustible materials containing combustible components are deemed to be non-combustible.
C2.1	Application of Part	Applicable	Clauses C2.2, C2.3 and C2.4 do not apply to a sprinkler protected carpark, open deck carpark or open spectator stand.
C2.2	General floor area limitations	Complies	
C2.3	Large isolated buildings (NSW Excludes the need for the additional services in buildings less than 18,000m <sup>2</sup> )	Not Applicable	
C2.4	Requirements for open spaces and vehicular access	Not Applicable	

Clause	Description	Status	Comments
C2.5	Class 9a and 9c buildings	Not Specified / Does Not Comply	<p>In a Class 9a building <u>patient care areas</u> are to be divided into fire compartments not exceeding 2000m<sup>2</sup>.</p> <p><u>Ward areas</u> must be divided into areas of not more than 1000m<sup>2</sup> by walls with an FRL of not less than 60/60/60 and into smoke compartments of not more than 500m<sup>2</sup>.</p> <p>Where horizontal exits are required the walls are to be constructed as fire walls with an FRL not less than 120/120/120.</p> <p>The wards on level are not separated in 500m<sup>2</sup> smoke compartments. The west corner and south corner exceed 500m<sup>2</sup>.</p> <p><u>Treatment areas</u> must be divided into smoke compartments not exceeding 1000m<sup>2</sup>. The ground floor treatment area exceeds 1,000m<sup>2</sup>, further compartmentation is required to reduce the compartment into smoke compartments less than 1,000m<sup>2</sup>.</p> <p>Class 9c aged care buildings must be divided into smoke compartment not exceeding 500m<sup>2</sup>.</p> <p>Smoke compartments are to be divided by smoke-proof walls complying with Specification C2.5.</p> <p>The following ancillary use areas must be separated from the patient care area / remainder of the building by construction with an FRL of not less than 60/60/60:</p> <ul style="list-style-type: none"> <li>• Kitchen and related food preparation areas with a floor area of more than 30m<sup>2</sup>,</li> <li>• Room containing a hyperbaric chamber,</li> <li>• Room used predominately for the storage of medical / administrative records having a floor area of more than 10m<sup>2</sup>.</li> <li>• Laundry, where items of equipment are of the type that are potential fire sources</li> </ul> <p>Smoke proof doors are required to swing in the direction of egress or both directions in accordance with Specification C2.5. The double doors on grids 11/A, 11/B, 15/P and 15/K on the first floor are required to swing in the opposite direction for egress purposes. These doors are required to be both fire doors and smoke doors.</p> <p>The double doors on grid 13/Q and 13/J are required to swing in both directions for egress purposes. The doors are also required to be both fire and smoke doors.</p> <p>A fire and smoke door is required to separate the spinal lounge / gym area on the first floor from reception area.</p>
C2.6	Vertical separation of openings in external walls	Not Applicable	
C2.7	Separation by fire walls	Not Specified	Separation of fire compartments: A firewall must extend to the underside of a floor having an FRL required for a fire wall or the roof covering.

Clause	Description	Status	Comments
C2.8	Separation of classifications in the same storey	Not Specified	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.
C2.9	Separation of classifications in different storeys	Not Specified	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.
C2.10	Separation of lift shafts	Not Specified	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.  Any lift in a patient care area in a Class 9a or a residential use area in a Class 9c must be separated from the remainder of the building by a shaft having an FRL of not less than 120/120/120 in a Type A or B building or 60/60/60 in a Type C.  Openings for lift landing doors and services must be protected in accordance with the DTS provisions of Part C3 of the BCA
C2.11	Stairways and lifts in one shaft	Complies	
C2.12	Separation of equipment	Not Specified	Equipment that comprises lift motors, lift control panels, central smoke control plant, boilers or batteries must be separated from the remainder of the building by construction with an FRL as required under Specification C1.1 but not less than 120/120/120.
C2.13	Electricity supply system	Not Specified	Electrical substations and main switchboards sustaining emergency equipment operating in the emergency mode must be separated from the remainder of the building by construction with an FRL not less than 120/120/120.  All switchboards and electrical conductors are to comply with the requirements of Clause C2.13.
C2.14	Public corridors in Class 2 and 3 buildings	Not Applicable	
C3.1	Application of Part	Applicable	Concessions and definition of certain openings.
C3.2	Protection of openings in external walls (NSW (a) Deleted)	Not Applicable	
C3.3	Separation of external walls and associated openings in different fire compartments	Not Specified	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.  As there are a number of fire compartments where protection will be required to a number of external openings. Particular attention needs to be given to the courtyards and verandahs within the ward area and adjacent the dining room.

Clause	Description	Status	Comments
C3.4	Acceptable method of protection	Applicable	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.  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.
C3.5	Doorways in fire walls	Not Specified	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.
C3.6	Sliding fire doors	Not Specified	Doorways fitted with a sliding fire door are to be held open by an electromagnetic device, de-activated and the warning system activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1  The automatic closure of the door must allow the door to be closed in not less than 20 seconds and not more than 30 seconds after release.  An audible alarm together with a red flashing light of adequate intensity must be located near the doorway and activated by smoke or heat detectors which are installed in accordance with AS/NZS 1905.1 and the relevant provisions of AS 1670.1.  The doorway is to have the sign "WARNING - SLIDING FIRE DOOR" in capital letters not less than 50mm high in a colour contrasting with the background on each side of the doorway.
C3.7	Protection of doorways in horizontal exits	Not Specified	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.
C3.8	Openings in fire isolated exits	Not Specified	-/60/30 self-closing fire doors are required to doorways providing access to fire isolated stairways.
C3.9	Service penetrations in fire isolated exits	Not Specified	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.
C3.10	Openings in fire isolated lift shafts	Not Specified	Openings in lift shafts are to be protected by -/60/- fire doors complying with AS1735.11.  Lift indicator panels are to be backed by construction having an FRL of not less than -/60/60 if it exceeds 35,000mm <sup>2</sup> (175 X 200 mm).
C3.11	Bounding construction: Class 2, 3, 4 and 9 buildings	Not Applicable	

Clause	Description	Status	Comments
C3.12	Openings in floors for services	Not Specified	Services passing through floors are to be placed within fire resisting shafts or in accordance with Clause C3.15.  Loadbearing and non-loadbearing shafts are required to have an FRL complying with Specification C1.1 in the rehabilitation centre.
C3.13	Openings in shafts	Not Specified	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: <ul style="list-style-type: none"> <li>• 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</li> <li>• A self closing -/60/30 fire door or hopper, or</li> <li>• An access panel with an FRL of not less than -/60/30, or</li> <li>• If the shaft is a garbage shaft - a door or hopper of non-combustible construction.</li> </ul>
C3.14	-	-	No provisions
C3.15	Openings for service installation	Not Specified	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.
C3.16	Construction Joints	Not Specified	Construction joints are to be installed in accordance with a tested prototype in accordance with AS1530.4.
C3.17	Columns protected with lightweight construction	Not Specified	Columns must be protected in accordance with the identical tested prototype.

### 13.3. SECTION D – ACCESS AND EGRESS

Clause	Description	Status	Comments
D1.1	Application of Part	Applicable	Does not apply to the internal parts of a sole occupancy unit in a Class 2, 3 or 4 building.
D1.2	Number of exits required	Complies	
D1.3	When fire isolated exits are required	Complies	

Clause	Description	Status	Comments
D1.4	Exit travel distances	Does Not Comply	<p>The egress from the atrium on the ground floor towards the south east requires further detail.</p> <p>An exit door is assumed to be provided adjacent the vehicle ramp along grid 5 on the ground floor.</p> <p>The travel distances exceed the maximum permitted in the following areas:</p> <ol style="list-style-type: none"> <li>1) basement carpark (Approximately 53m to an exit which exceeds the maximum permitted of 40m)</li> <li>2) loading bay lower ground floor (approximately 26m to a point of choice.)</li> <li>3) ground floor plant room grid 10/R (approximately 23m to a point of choice)</li> <li>4) plant room on the second floor (approximately 30m to a single exit). (Further details of the plant area is required to determine the paths of egress)</li> <li>5) first floor of Weemala 1 and 2 (approximate worst case: 22m to single exit)</li> </ol>
D1.5	Distance between alternative exits	Does Not Comply	<p>The distance between alternative exits exceeds the maximum permitted in the following areas:</p> <ol style="list-style-type: none"> <li>1) basement carpark (approximately 75m, maximum permitted is 60m)</li> <li>2) carpark ground floor (approximately 65m)</li> <li>3) ground floor treatment area (Pool area) (approximately 50m, maximum permitted is 45m)</li> <li>4) Level one ward areas (distance between alternative exits exceeds 45m) Egress is possible via the balcony however, the door entering the adjoining compartment from the balcony is not defined as an exit under the BCA.</li> </ol>
D1.6	Dimensions of exits	Not Specified	<p>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.</p> <p>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.</p>
D1.7	Travel via fire-isolated exits	Does Not Comply	<p>The discharge point of the fire stairs from the Weemala aged care facility requires passing within 6m of the external wall of the same building.</p>
D1.8	External stairways in lieu of fire-isolated exits	Not Applicable	
D1.9	Travel by non-fire-isolated stairways or ramps	Complies	

Clause	Description	Status	Comments
D1.10	Discharge from exits	Does Not Comply	Suitable barriers such as bollards are to be provided to prevent the blockage of exits by vehicles, etc. The exits discharging from the treatment area on the first floor to the courtyard between grids 9-10/A-Q require travelling via a stairway to egress to the road. Exits in a Class 9a building discharging to open space that is at a different level to the road are required to have a path a travel to the road via ramps not steeper than 1:8.
D1.11	Horizontal exits	Does Not Comply	The loading bay area is served by three exits, two of which are horizontal exits. Horizontal exits within that area are not permitted to comprise more than half the required exits.
D1.12	Non-required stairs, ramps or escalators	Complies	
D1.13	Number of persons accommodated	Noted	Refer to section 7.3.2 of this report
D1.14	Measurement of distance	Noted	
D1.15	Method of measurement	Noted	
D1.16	Plant rooms and lift machine rooms: Concession	Not Applicable	
D1.17	Access to lift pits	Not Specified	Access to lift pits where the pit depth is not more than 3m must be through the lowest landing doors.
D2.1	Application of Part	Applicable	
D2.2	Fire isolated stairs or ramps	Not Specified	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.
D2.3	Non-fire-isolated stairways and ramps	Not Specified	Required stairs that are not required to be within a fire-resting shaft are to be constructed of concrete, steel, or timber of specified minimum dimensions.
D2.4	Separation of rising and descending stair flights	Complies	.
D2.5	Open access ramps and balconies	Not Applicable	
D2.6	Smoke lobbies	Not Applicable	

Clause	Description	Status	Comments
D2.7	Installations in exits and paths of travel	Not Specified	<p>Electrical boards and the like are to be located within and enclosed by non-combustible construction or have a fire-protective covering with the doorway suitably sealed against smoke spreading from the enclosure.</p> <p>Generally the services or equipment may be enclosed in non-combustible construction such as MDF with a solid core door.</p> <p>Electrical wiring may only be installed in a fire-isolated exit if the wiring is associated with:</p> <ul style="list-style-type: none"> <li>• a lighting, detection, or pressurisation system serving the exit, or</li> <li>• a security, surveillance or management system serving the exit, or</li> <li>• intercommunication system or audible or visual alarm system in accordance with Clause D2.2 or</li> <li>• the monitoring or hydrant or sprinkler isolation valves.</li> </ul>
D2.8	Enclosure of space under stairs and ramps	Not Specified	<p>If the space below a fire-isolated stairway is within the fire isolated shaft it must not be enclosed to form a cupboard or similar enclosed space.</p> <p>The space below non fire-isolated stairs must not be enclosed to form a cupboard or similar enclosed space unless the enclosing walls have an FRL of not less than 60/60/60 and any doorway to the enclosed space is fitted with a self closing -/60/30 fire door.</p>
D2.9	Width of stairways	Noted	<p>Stairway width is to be measured clear of obstructions such as handrails, projecting parts of balustrades or other barriers and the like and extend to a height of not less than 2m.</p> <p>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.</p>
D2.10	Pedestrian ramps	Not Specified	<p>Ramps serving as a required exit must not have a gradient steeper than 1:8. If the ramp is required for disabled access under Part D3 it must comply with AS1428.1.</p> <p>The surface of the ramp must have a non-slip finish.</p>
D2.11	Fire-isolated passageways	Not Specified	<p>Fire isolated passageways are to have an FRL equivalent to the fire resisting stair shaft as specified in Specification C1.1.</p>
D2.12	Roof as open space	Not Applicable	
D2.13	Goings and risers	Not Specified	<p>Stairs are to have risers measuring between 115-190mm and goings between 250-355.</p> <p>Goings and Risers are to satisfy the equation of <math>2R+G=700(\text{max})</math> and <math>550(\text{min})</math>.</p> <p>Goings and risers are to be consistent throughout in one flight. Any gap between risers must not permit a 125mm sphere to pass through it.</p> <p>All treads to be fitted with non-slip finish or non-skid strips.</p>

Clause	Description	Status	Comments
D2.14	Landings	Not Specified	Landings must comply with the requirements of Clause D2.14 of the BCA. Landings must be not less than 750mm long and have a non-slip finish throughout or an adequate non-skid strip near the edge of the landing where it leads to a flight below.
D2.15	Thresholds	Not Specified	<p>A 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:</p> <ul style="list-style-type: none"> <li>• In a Class 9a building the door sill is not more than 25mm above the finished floor</li> <li>• In a Class 9c building , a ramp is provided with a maximum grade 1 in 8 with maximum 25mm height over threshold.</li> <li>• In other Cases the door opens to a road or open space, external stair landing or external balcony. and the doorsill is not more than 190mm above the finished surface of the ground balcony or the like to which the door opens.</li> </ul>
D2.16	Balustrades	Not Specified	<p>Balustrades complying with Deemed-to-Satisfy provisions of the BCA are to be provided to where the level of the surface below is 1m or more.</p> <p>Where the level of the surface below is 4m or more, a balustrade or other barrier must not facilitate climbing of horizontal elements between 150mm and 760mm above the floor.</p> <p>Any opening in the balustrade must not permit a 125mm sphere to pass through the balusters.</p> <p>Wire balustrades must be constructed to comply with Clause D2.16(h) and Tables D2.16a and D2.16b.</p>
D2.17	Handrails	Not Specified	<p>Handrails are to be provided to at least one side of stair flights and located not less than 865mm above the nosings of stair treads and the floor surfaces of landings.</p> <p>Handrails must be not more than 2m apart in the case of intermediate handrails.</p> <p>Note that under the requirements of Clause D3.3a handrail may be required to both sides of the stairway.</p> <p>In a Class 9a health-care building must be provided along at least one side of every passageway or corridor</p> <p>In a Class 9c aged care building must be provided along both sides of every passageway or corridor.</p>
D2.18	Fixed platforms walkways, stairways, and ladders	Not Specified	Fixed platforms, walkways, stairways, ladders, landings, handrails, balustrades and any tread or riser in a plant room, lift motor room or the like is to comply with AS1657.

Clause	Description	Status	Comments
D2.19	Doorways and doors	Not Specified	<p>In a resident use area of a Class 9c building a doorway is generally restricted to swinging doors.</p> <p>In a Class 9a the sliding doors must be able to be opened manually under a force of not more than 110N.</p> <p>Sliding doors used as an exit that lead to an open space must automatically open if there is a power failure to the door or on the activation of a fire or smoke alarm anywhere in the fire compartment served by the door.</p> <p>The power-operated sliding doors must be able to be opened manually under a force of not more than 110N if there is a malfunction or failure of the power source.</p>
D2.20	Swinging doors	Does Not Comply	<p>The following exit doors do not swing in the direction of egress:</p> <ol style="list-style-type: none"> <li>1. external door grid 10/Q first floor</li> <li>2. door to fire stair grid 7/A second floor</li> <li>3. the double external doors to Weemala 1 and 2</li> <li>4. exit doors serving the general store</li> <li>5. The door discharging from stair on grid 11/A is required to swing outwards on the ground level.</li> </ol>
D2.21	Operation of latch	Not Specified	<p>The latch of a door in a required exit, forming part of a required exit or in the path of travel is to be readily openable without a key from the side of that faces a person seeking egress. It is to have a single downward action and to be located between 900mm and 1.20m from the floor unless it serves a sanitary compartment. This means lever handles are generally required.</p>
D2.22	Re-entry fire-isolated exits	Not Specified	<p>Doors of fire isolated exits must not be locked from the inside of a fire isolated exit in a Class 9a or 9c building, unless all doors are automatically unlocked by a failsafe device by activation of a fire alarm.</p> <p>Signage or an intercommunication system is to be additionally provided to the doors.</p>

Clause	Description	Status	Comments
D2.23	Signs on doors	Not Specified	<p>Signage on both sides is to be provided to fire and smoke doors alerting persons that the doors must not be impaired.</p> <p>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.</p> <p>The notice is to state the following:  <b>OFFENCES RELATING TO FIRE EXITS</b>  It is an offence under the Environmental Planning and Assessment Act 1979:</p> <ol style="list-style-type: none"> <li>to place anything in or near this fire exit that may obstruct persons moving to and from the exit, or</li> <li>interfere with or obstruct the operation of any fire doors, or</li> <li>to remove, damage or otherwise interfere with this notice.</li> </ol>
NSW D2.101	Doors in path of travel in a P.O.P.E.	Not Applicable	
D3.1	Application of Part	Applicable	
D3.2	Access to buildings	Not Specified	<p>Access complying with AS1428.1 is to be provided to the following areas:</p> <ol style="list-style-type: none"> <li>From the allotment boundary at the major points of entry.</li> <li>To and within all areas normally used by the public, patients or staff.</li> <li>From any accessible carparking space on the allotment.</li> <li>Through the principle public entrance</li> </ol>
D3.3	Parts of buildings to be accessible	Not Specified	<p>Access complying with AS1428.1 is to be provided to the following areas:</p> <ol style="list-style-type: none"> <li>Any sanitary compartment required for the use of people with disabilities.</li> <li>To areas used by occupants, excluding plantrooms, commercial kitchens, cleaners store rooms, maintenance accessways or the like.</li> <li>The passenger lift</li> </ol>
D3.4	Concessions	Noted	
D3.5	Carparking	Not Specified	<p>Carparking spaces for people with disabilities are to be provided in the ratio of one space for every 100-carparking spaces.</p> <p>Compliance with AS2890.1 is required.</p>

Clause	Description	Status	Comments
D3.6	Identification of access facilities, services and features	Not Specified	Braille and tactile signage complying with Specification D3.6 and incorporating the international symbol of access or deafness is to be provided to the sanitary facilities and the passenger lift within the building in accordance with AS1428.1.
D3.7	Hearing augmentation	Not Specified	Hearing augmentation installed in accordance with AS1428.1 is required in the conference room as the floor area exceeds 100m <sup>2</sup> .
D3.8	Tactile indicators	Not Specified	Tactile indicators are to be provided to all stairways, ramps and escalators used by the public. Tactile indicators are to Type B indicators complying with AS1428.4.  The Class 9c building is not required to be provided with tactile indicators if handrails incorporating a raised dome button in accordance with AS 1428.1 are provided.

#### 13.4. SECTION E – SERVICES AND EQUIPMENT

Clause	Description	Status	Comments
E1.1	-	-	No provisions
E1.2	-	-	No provisions
E1.3	Fire Hydrants	Does Not Comply	Fire hydrants must conform to the pressure and flow requirements and distance limitations specified in AS 2419.1.  Additional hydrants are likely to be required in non-compliant locations, (ie outside fire isolated exits and further than 4m from an exit) to achieve full coverage.
E1.4	Hose reels	Does Not Comply	Fire hose reels are to be installed internally within 4m of an exit or internally adjacent to a fire hydrant so that the fire hose reel will not need to pass through fire and smoke doors, except in a Class 9c aged care building.  Fire hose reels are to be installed accordance with AS2441.  Additional hose reels are likely to be required in non-compliant locations, (ie further than 4m from an exit) to achieve full coverage.  Depending on the fire and smoke compartmentation of the patient care areas certain rooms may not have hose reel coverage due to hose reels not being permitted to pass through fire or smoke doors.
E1.5	Sprinklers	Not Specified	The aged care facility is required to be provided with a sprinkler system throughout in accordance with Specification E1.5.  A carpark in a fire compartment that accommodates more than 40 cars is required to be provided with a sprinkler system.  A sprinkler valve enclosure must be located in a secure room or enclosure that has direct egress to road or open space.

Clause	Description	Status	Comments
E1.6	Portable fire extinguishers	Not Specified	<p>Portable fire extinguishers are required to be provided in accordance with Table E1.6 of the BCA and AS 2444.</p> <p>Portable extinguishers to cover Class A risk fires are only required in fire compartments less than 500m<sup>2</sup> not provided with hose reels.</p>
E1.7	-	-	No provisions.
E1.8	Fire control centres	Not Specified	<p>A fire control centre is to be provided in accordance with the requirements of Specification E1.8 of the BCA.</p> <p>The fire control centre must have egress to road or open space which does not involve a change in level of more than 300mm.</p> <p>Internal combustion engine, pumps, sprinkler control valves, pipes and pipe fittings must not be located in a fire control centre.</p>
E1.9	Fire precautions during construction	Not Specified	<p>During construction, not less than one fire extinguisher to suit Class A, B and C fires is required for each storey, and is required to be located adjacent to each exit.</p> <p>After the building has reached an effective height of 12m, hydrants and hose reels must be operational in at least every storey, except the 2 uppermost storeys, covered by the roof or the floor structure above and any required booster connections must be installed.</p>
E1.10	Provisions for special hazards	Not Applicable	
E2.1	Application of Part	Not Applicable	<p>Part is not applicable to</p> <ul style="list-style-type: none"> <li>• open deck car parks</li> <li>• open spectator stands</li> <li>• storerooms, etc less than 30m<sup>2</sup></li> <li>• sanitary compartments</li> <li>• plantrooms or the like</li> </ul>
E2.2	General requirements	Not Specified / Does Not Comply	<p><b>Rehabilitation Centre</b></p> <p>Fire isolated stairs serving the Class 9a portion are required to be provided with an automatic air pressurisation system in accordance with AS/NZS 1668.1. Fire isolated stairs in a Class 9a building with an rise in storeys of more than 2 are required to be provided with an automatic air pressurisation system.</p> <p><b>It is proposed to investigate the deletion of automatic air pressurisation systems from fire stairs via an alternative solution satisfying the Performance Requirements of the BCA.</b></p> <p>The Class 5, 6 and 9b portions are required to be provided with the following:</p> <ul style="list-style-type: none"> <li>• each fire isolated stairway to be provided with an automatic air pressurisation system in accordance with AS/NZS 1668.1, or</li> <li>• zone smoke control system in accordance with AS/NZS 1668.1, or</li> <li>• an automatic smoke detection and alarm system in</li> </ul>

Clause	Description	Status	Comments
			<p>accordance with Specification E2.2a, or</p> <ul style="list-style-type: none"> <li>a sprinkler system complying with Specification E1.5.</li> </ul> <p>The Class 9a portions are required to be provided with the following:</p> <ul style="list-style-type: none"> <li>an automatic smoke detection and alarm system in accordance with Specification E2.2a, and</li> <li>automatic shutdown of any air-handling system which does not form part of a zone smoke control system, and either of the following,</li> <li>a zone smoke control system in accordance with AS/NZS 1668.1, or</li> <li>a sprinkler system complying with Specification E1.5 throughout with residential sprinkler heads in patient care areas.</li> </ul> <p>The Class 7a carpark portions provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with Clause 5.5 of AS/NZS 1668.1 and have fans with metal blades suitable for operation at normal temperature and electrical power and control cabling need not be fire rated</p> <p>Class 9b assembly buildings (conference room) in a fire compartment more than 2,000m<sup>2</sup> must be provided with:</p> <ul style="list-style-type: none"> <li>an automatic smoke exhaust system complying with Specification E2.2b</li> </ul> <p><b>Weemala</b></p> <p>The Class 9c aged care building is to be provided with an automatic smoke detection and alarm system in accordance with Specification E2.2a and automatic shutdown of any air-handling system which does not form part of a zone smoke control system.</p> <p>Note that under Clause E1.5 a sprinkler system must be provided throughout the aged care building.</p>
E2.3	Provisions for special hazards	Not Applicable	
E3.1	-	-	No provisions.
E3.2	Stretcher facility in lifts	Not Specified	The stretcher lift is to have the minimum dimension of 600mm wide x 2000mm long and 1400mm high above floor level.
E3.3	Warning against use of lifts in fire	Not Specified	<p>A warning sign is to be displayed where it can be readily seen near every call button of the passenger lift.</p> <p>The warning sign is to comply with the details and dimensions set out in Figure E3.3 of the BCA.</p>
E3.4	Emergency lifts	Not Applicable	Class 9a portion are located on a level that has direct egress to the road or open space. Therefore, an emergency lift is not required

Clause	Description	Status	Comments
E3.5	Landings	Not Specified	Access and egress to and from the lift well landings is to comply with the Deemed-to-Satisfy provisions of Section D of the BCA.
E3.6	Facilities for people with disabilities	Not Specified	The passenger lift is required to comply with the requirements of AS1735.12 and be fitted with a door sensory device that will detect a 75mm diameter rod across the door opening between 50mm and 1550mm above floor level.
E3.7	Fire Services Control	Not Specified	Passenger lift cars are to be provided with fire service controls in accordance with AS1735.2.
E3.8	Aged care buildings	Not Applicable	In a Class 9c building with levels which do not have direct access to the street, are to be provided with a lift to accommodate a stretcher or a ramp in accordance with AS 1428.1
E4.1	-	-	No provisions.
E4.2	Emergency light requirements	Not Specified	<p>Emergency lighting is to be provided throughout the building in accordance with Clause E4.2 of the BCA.</p> <p>Emergency lighting is to be provided in :</p> <ul style="list-style-type: none"> <li>• every fire-isolated stairway, fire-isolated ramp or fire-isolated passageway.</li> <li>• Every passageway, hallway, corridor or the like, serving a ward area, and</li> <li>• In patient care areas having a floor area more than 120m<sup>2</sup>.</li> <li>• Every passageway, hallway, corridor or the like, that is part of the path of travel to an exit.</li> <li>• In every room having a floor area more than 100m<sup>2</sup> that does not open to a corridor or space that has emergency lighting or to a road or open space.</li> <li>• In any room having a floor area more than 300m<sup>2</sup>.</li> <li>• In every required non-fire isolated stairway</li> <li>• To every room or space that has public access in a Class 6 or 9b building if: <ul style="list-style-type: none"> <li>• the floor area is more than 300m<sup>2</sup>;</li> <li>• or if any point on the floor is more than 20m from the nearest doorway opening directly to the road or open space; or</li> <li>• if the egress involves a vertical rise within the building of more than 1.5m.</li> </ul> </li> <li>• In every Class 9c excluding within sole-occupancy units</li> </ul>
E4.3	Measurement of distance	Noted	
E4.4	Design and operation of emergency light	Not Specified	Emergency lighting shall be provided throughout the building in accordance with the requirements of Clause E4.4 of the BCA and AS 2293.1.

Clause	Description	Status	Comments
E4.5	Exit signs	Not Specified	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; <ol style="list-style-type: none"> <li>1. A door providing direct egress from a storey to a stairway, passageway or ramp serving as a required exit.</li> <li>2. A door from an enclosed stairway, passageway or ramp at every level of discharge to a road or open space.</li> <li>3. A horizontal exit.</li> <li>4. A door serving as or forming part of a required exit in a storey required to be provided with emergency lighting.</li> </ol>
E4.6	Direction signs	Not Specified	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 in accordance with Clause E4.6 of the BCA.
E4.7	Class 2, 3 and 4 buildings: Exemptions	Not Applicable	
E4.8	Design and operation of exit signs	Not Specified	Exit signs are to operate in accordance with AS 2293.1 and be clearly visible at all times while the building is occupied.
E4.9	EWIS systems	Not Specified	An emergency warning and intercommunication system complying where applicable with AS 1670.4 and AS 4428.4 must be installed throughout the rehabilitation centre.

### 13.5. SECTION F – HEALTH AND AMENITY

Clause	Description	Status	Comments
F1.1	Stormwater drainage	Not Specified	Stormwater drainage design shall be in accordance with AS/NZS 3500.3
F1.2	-	-	No provisions
F1.3	-	-	No provisions
F1.4	-	-	No provisions
F1.5	Roof coverings	Not Specified	Roof coverings are to comply with the relevant Australian Standards as per Clause F1.5.
F1.6	Sarking	Not Specified	Sarking type materials used for weatherproofing of roofs and walls must comply with AS/NZS 4200 Parts 1 and 2.
F1.7	Waterproofing of wet areas	Not Specified	Shower enclosure surfaces, floor surfaces in bathrooms, shower rooms, slop hoppers, sink compartments, laundry and sanitary compartments is required to be waterproofed in accordance with AS 3740.
F1.8	-	-	No provisions

Clause	Description	Status	Comments
F1.9	Damp-proofing	Not Specified	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.  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.
F1.10	Damp-proofing of floors on the ground	Not Specified	A vapour barrier in accordance with AS2870 is to be provided beneath the lower ground floor slab.
F1.11	Provision of floor wastes	Not Applicable	
F1.12	Sub-floor ventilation	Not Applicable	
F1.13	Glazed assemblies	Not Specified	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.
F2.1	Facilities in residential buildings	Does Not Comply	The Class 9c aged care building is not provided with a bath (fixed or mobile) or a clinical hand wash basin. One clinical hand wash basin is required for each 16 residents or part thereof.
F2.2	Calculation of number of occupants and fixtures	Noted	
F2.3	Facilities in Class 3 to 9 buildings	Complies / Not Specified / Does Not Comply	Refer to Appendix F of this report.  The ward areas are provided with sanitary facilities for each bed or for 2 beds and include showers.  A plunge bath is provided on the storey containing the wards.  The shortfall of 1 female WC on the second floor is addressed with the additional facilities provided on the ground floor.  Adequate facilities have been provided for staff within the Weemala 1 and 2.  Sanitary facilities within the General Store have not been detailed. Sanitary facilities will only be required for staff.  An additional urinal is required for the Community Hall based on the population calculated.
F2.4	Facilities for people with disabilities	Not Specified	The number of sanitary facilities for people with disabilities have been provided in accordance with Table F2.4.  Sanitary facilities for people with disabilities are to be designed in accordance with AS1428.1.
F2.5	Construction of sanitary compartments	Not Specified	Doors to the fully enclosed toilets are to open outwards, slide or be readily removable from the outside of the sanitary compartment.
F2.6	Interpretation: Urinals and washbasins	Noted	

Clause	Description	Status	Comments
F2.7	Warm water installations (NSW – deleted)	Not Applicable	Not Applicable in NSW
F2.8	Waste	Not Specified	In a Class 9a building at least one slop hopper or other device, other than a water closet or urinal, must be provided on any storey containing ward areas and bedrooms.  A slop hopper or other device and an appliance for the disinfection must be provided in a Class 9c building for every 60 beds on each storey. The device is to contain a flushing apparatus, tap and grating.
F3.1	Height of rooms and other spaces	Not Specified	
F4.1	Provision of natural light	Not Applicable	
F4.2	Methods and extent of natural light	Not Applicable	
F4.3	Natural light borrowed from adjoining room	Not Applicable	
F4.4	Artificial lighting	Not Specified	Lighting shall be provided throughout the building to comply with AS1680.0 in accordance with the requirements of Clause F4.4 of the BCA.
F4.5	Ventilation of rooms (NSW Reference to AS/NZS 3666.1 deleted for NSW)	Not Specified	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.
F4.6	Natural ventilation	Not Applicable	
F4.7	Ventilation borrowed from adjoining room	Not Applicable	
F4.8	Restriction on position of water closets and urinals		
F4.9	Airlocks		
F4.10	-	-	No Provisions
F4.11	Carparks	Not Specified	The carpark is to be provided with ventilation complying with AS1668.2 or have an adequate system of permanent natural ventilation.
F4.12	Kitchen local exhaust	Not Specified	A commercial kitchen must be provided with a kitchen exhaust hood complying with AS/NZS 1668.1 and AS 1668.2, where,  any cooking apparatus has a total maximum electrical power input exceeding 8kW, or  a total gas power input exceeding 29 MJ/h, or  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.

Clause	Description	Status	Comments
F5.1	Application of part	Applicable	Applicable to Class 2, 3 and 9c buildings only. The sound transmission and insulation requirements are only applicable to the Weemala building.
F5.2	Determination of airborne sound insulation ratings	Not Specified	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.
F5.3	Determination of impact sound insulation ratings	Not Specified	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.  A wall in a class 9c building that is required to have an impact sound insulation rating must for other than masonry be of two or more leaves without rigid mechanical connections or be identical with a prototype that is no less resistant to the transmission of impact sound when tested in accordance with Specification F5.5 that a wall listed in Table 2 of Specification F5.2.
F5.4	Sound insulation rating for floors	Not Specified	Floors in a class 9c building separating sole occupancy units must have an $R_w$ of not less than 45.
F5.5	Sound insulation rating of walls	Not Specified	A wall in a Class 9c aged care building must have an $R_w$ not less than 45 if it separates sole-occupancy units or a sole-occupancy unit from a kitchen, bathroom, sanitary compartment (not being an associated ensuite), laundry, plant room or utilities room. A wall separating a sole-occupancy unit from a kitchen or laundry must comply with <a href="#">F5.3(b)</a> .  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.  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.
F5.6	Sound insulation rating of services	Not Specified	A wall separating a bathroom, sanitary compartment, laundry or kitchen in one sole occupancy unit from a habitable room (other than a kitchen) in an adjoining unit must have <ul style="list-style-type: none"> <li>• an <math>R_w</math> of not less than 50;</li> <li>• not incorporate a duct which reduces the <math>R_w</math> of the wall below 50; and</li> <li>• provide a satisfactory level of insulation against impact sound.</li> </ul>
F5.7	Isolation of pumps	Not Specified	A flexible coupling must be used at the point of connection between the service pipes in a building and any circulating or other pump.

### 13.6. SECTION G – ANCILLARY PROVISIONS

Clause	Description	Status	Comments
G1.1	Swimming Pools (NSW – added subclause (c))	Not Specified	Swimming pool safety fencing and the restriction of access to swimming pools in NSW is to be regulated under the Swimming Pools Act 1992. Compliance with AS 1926 Part 1 and 2 is required.  Water reticulation and filtration systems must comply with AS 1926.3.
G1.2	Refrigerated chambers, strong-rooms and vaults	Not Specified	A refrigerator, cooling chamber, strong room or vault that is sufficient in size for a person to enter, must be provided with a door openable from the inside, internal lighting controlled internally, and indicator lamp positioned outside the chamber, and an alarm controllable from within the chamber.
G1.101	Provision for cleaning windows	Not Specified	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.
G2.1	-	-	No provisions.
G2.2	Installation of appliances	Not Applicable	
G2.3	Open fireplaces	Not Applicable	
G2.4	Incinerator rooms	Not Applicable	
G3.1	Atriums affected by this Part	Not Applicable	Only applicable to atriums connecting 3 storeys or more than 3 storeys if sprinkler protected. The building is proposed to be sprinkler protected throughout.
G3.2	Dimensions of atrium well	Not Applicable	
G3.3	Separation of atrium by bounding walls	Not Applicable	
G3.4	Construction of bounding walls	Not Applicable	
G3.5	Construction of balconies	Not Applicable	
G3.6	Separation at roof	Not Applicable	
G3.7	Means of egress	Not Applicable	
G3.8	Fire and smoke control systems	Not Applicable	
G4.1	Application of Part	Not applicable	Construction in alpine areas.
G4.2	-	-	No provisions.
G4.3	External doorways	Not Applicable	

Clause	Description	Status	Comments
G4.4	Emergency lighting	Not Applicable	
G4.5	External ramps	Not Applicable	
G4.6	Discharge of exits	Not Applicable	
G4.7	External trafficable structures	Not Applicable	
G4.8	Fire-fighting services and equipment	Not Applicable	
G4.9	Fire orders	Not Applicable	
G5.1	Application of Part	Not Applicable	Construction in bushfire prone areas.
G5.2	Protection	Not Applicable	

### 13.7. SECTION H – SPECIAL USE BUILDINGS

Not Applicable

### 13.8. SECTION J – ENERGY EFFICIENCY

Clause	Description	Status	Comments
NSW J(B)	Energy Efficiency - Class 3 and Class 5 to 9 Buildings	Noted	
NSW J(B)1	Compliance with BCA provisions	Applicable	Class 3 and Class 5 to 9 buildings must comply with all of the national provisions of Section J that are applicable to the relevant classifications, except as varied by NSW J1.6 for Class 3 buildings, NSW J3.1 and NSW J8.2 for Class 3 and Class 5 to 9 buildings.  The proposed development is located in Climate Zone 5.
J1.1	Application of Part	Applicable	Applies to building elements forming the envelope of a Class 3 and Class 5 to 9 building.
J1.2	Thermal construction general	Not Specified	Insulation must comply with AS/NZS 4859.1 and be installed in accordance with Clause J1.2.  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.
J1.3	Roof and ceiling construction	Not Specified	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.  The minimum total R-Value required for roofs or ceilings are specified in Appendix G.

Clause	Description	Status	Comments
J1.4	Roof lights	Not Specified	Roof lights serving a habitable room, public area or an interconnecting space such as a corridor, hallway, stairway in a Class 3 building or forming part of the envelope of a Class 5 to 9 building must comply with Table J1.4 if the total roof light area is more than 1.5% but not more than 10% of the floor area of the room or space they serve.  Roof lights may exceed 10% of the floor area of the room or space they serve only under certain circumstances.
J1.5	Walls	Not Specified	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.  Refer to Appendix G for required minimum R-Values and other requirements.
NSW J1.6	Floors	Not Specified	A suspended floor that is part of a building envelope with an unenclosed perimeter must achieve the Total R-Value specified in Table J1.6. Refer to Appendix G for the minimum R-Value.  A concrete slab-on-ground with an in-slab heating system or located climate zone 8 must have insulation installed around the vertical edge of its perimeter.  Floor construction is deemed to have thermal properties as specified in Specification J1.6.  A suspended floor that is part of a Class 3 building must comply with the NSW provisions of Clause J1.6.
J2.1	Application of Part	Applicable	
J2.2	Applicable glazing provisions	Applicable	Glazing of a building must be designed and installed, as appropriate, in accordance with: <ul style="list-style-type: none"> <li>- J2.3 for Class 2, 3 or 9c aged care buildings,</li> <li>- J2.3 or J2.4 for a Class 6 building with a total floor area of not more than 500m<sup>2</sup>.</li> <li>- J2.4 for a Class 6 building with a floor area more than 500m<sup>2</sup> and a Class 5, 7, 8, 9a and 9b building.</li> </ul>
J2.3	Glazing – Method 1	Not Specified	The glazing in each storey of a sole occupancy unit, public space or other occupied space must be assessed separately in accordance with Clause J2.3(b) and (c).  The glazing calculator for Method 1 must be completed and submitted with the Construction Certificate application as evidence of compliance.
J2.4	Glazing – Method 2	Not Specified	The glazing in each storey of a building and facing each orientation must be assessed separately in accordance with Clause J2.4(b) and (c).  The glazing calculator for Method 2 must be completed and submitted with the Construction Certificate application as evidence of compliance.

Clause	Description	Status	Comments
J2.5	Shading	Not Specified	Where shading is required to comply with Clause J2.3 or J2.4, it must: <ul style="list-style-type: none"> <li>a) be provided by a permanent projection, such as a verandah, balcony, fixed canopy, eaves or shading hood which <ul style="list-style-type: none"> <li>i. extends horizontally on both sides of the glazing for the same projection distance P in figure J2.4 of the BCA, or</li> <li>ii. provides the equivalent shading to that above with a reveal or the like, or</li> </ul> </li> <li>b) be provided an external shading device such as a blind, vertical or horizontal building screen with blades, battens or slats, which <ul style="list-style-type: none"> <li>i. is capable of restricting at least 80% of summer solar radiation, and</li> <li>ii. is adjustable</li> </ul> </li> </ul>
NSW J3.1	Application of Part	Applicable	Applies to elements forming the envelope of a Class 3, and Class 5 to 9 building other than as specified.
J3.2	Chimneys and flues	Not Specified	A chimney or flue of an open solid-fuel burning appliance must be provided with a chimney damper or flap that can be closed to seal the chimney or flue.
J3.3	Roof lights	Not Specified	A roof light must be sealed or be capable of being sealed when serving a conditioned space or a habitable room in climate zones 4, 6, 7 and 8.  Roof lights must be constructed in accordance with the requirements of Clause J3.3(b).
J3.4	Windows and doors	Not Specified	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 or in climate zones 4, 6, 7 and 8 when serving habitable rooms.
J3.5	Exhaust fans	Not Specified	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 or a habitable room in climate zones 4, 6, 7 and 8.
J3.6	Construction of roofs, walls and floors	Not Specified	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 or a habitable room or a public area in climate zones 4, 6, 7 and 8.  These requirements do not apply to openings, grilles and the like required for smoke hazard management.
J3.7	Evaporative coolers	Not Specified	An evaporative cooler must be fitted with a self-closing damper or the like when serving a heated space or a habitable room or a public area in climate zones 4, 6, 7 and 8.
J4.1	Application of Part	Not Applicable	Not Applicable in NSW. Applicable only to habitable rooms in a Class 2 building or Class 4 part of a building.
J5.1	-	-	No Provisions

Clause	Description	Status	Comments
J5.2	Air conditioning and ventilating systems	Not Specified	An air-conditioning unit or system must comply with the requirements of Clause J5.2 and Specification J5.2
J5.3	Time switch	Not Specified	A time switch in accordance with Specification J6 must be provided to control: <ul style="list-style-type: none"> <li>an air-conditioning system of more than 10kW<sub>r</sub>, or</li> <li>a ventilation system with an air flow rate or more than 1000L/s, or</li> <li>a heating systems of more than 10kW<sub>heating</sub></li> </ul>
J5.4	Heating and chilling systems	Not Specified	Systems that provide heating or chilling for air-conditioning systems must comply with Clause J5.4 and Specification J5.4.
J5.5	Miscellaneous exhaust systems	Not Specified	A miscellaneous exhaust system with an air flow rate of more than 1000L/s that is associated with equipment having a variable demand such as a stove in a commercial kitchen or a chemical bath in a factory must have the means for the operator to reduce the energy used or stop the motor when the system is not needed. It must be designed to minimise exhausting of air conditioning.
J6.1	Application of Part	Applicable	
J6.2	Interior artificial lighting	Not Specified	In a Class 3 or 9c building the artificial lighting must not exceed the maximum lamp power density in Table J6.2a or in a bathroom, dressing room or the like, provide an average artificial light source efficacy of not less than 40 Lumens/W.  In a Class 5, 6, 7, 8, 9a or 9b the artificial lighting
J6.3	Interior artificial lighting and power control	Not Specified	The power control for artificial interior lighting is to comply with the requirements of Clause J6.3.
J6.4	Interior decorative and display lighting	Not Specified	Interior decorative and display lighting, such as for foyer mural or art displays, must be controlled as specified in Clause J6.4.
J6.5	Artificial lighting around the perimeter of a building	Not Specified	Artificial lighting around the perimeter of a building must be controlled as specified in Clause J6.5.
J6.6	Boiling water and chilled water storage units	Not Specified	Power supply to a boiling water or chilled water storage unit must be controlled by a time switch in accordance with Specification J6.
J7.1	-	-	No provisions
J7.2	Hot water supply	Not Specified	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
J8.1	Application of Part	Applicable	
NSW J8.2	Access for maintenance	Not Specified	Access to service must be provided to all services and their components.

## 14. APPENDIX C – REFERENCED DOCUMENTATION

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

<i>Drawing No.</i>	<i>Title</i>	<i>Issue</i>	<i>Date</i>	<i>Drawn By</i>
AR PA 1 05	Site Plan	01	31/03/08	Bates Smart
AR PA 2 01	Lower Ground Floor Plan	01	31/03/08	Bates Smart
AR PA 2 02	Ground Floor Plan	01	31/03/08	Bates Smart
AR PA 2 03	First Floor Plan	01	31/03/08	Bates Smart
AR PA 2 04	Second Floor Plan	01	31/03/08	Bates Smart
AR PA 2 05	Roof Level Plan	01	31/03/08	Bates Smart
AR PA 2 06	Weemala Ground, First Floor and Roof Plans	01	31/03/08	Bates Smart
AR PA 2 07	Recreation Circle Ground Floor Plan	01	31/03/08	Bates Smart
AR PA 2 08	Recreation Circle First Floor Plan	01	31/03/08	Bates Smart
AR PA 2 09	General Store Ground, First Floor and Roof Plans	01	31/03/08	Bates Smart
AR PA 5 04	Recreation Circle Elevations & Sections	01	31/03/08	Bates Smart
AR PA 5 04	Site Sections	01	31/03/08	Bates Smart
AR PA 6 01	Sections Sheet 1	01	31/03/08	Bates Smart
AR PA 6 02	Sections Sheet 2	01	31/03/08	Bates Smart
AR PA 6 03	Sections Sheet 3	01	31/03/08	Bates Smart
AR PA 6 04	Weemala Sections	01	31/03/08	Bates Smart

**15. APPENDIX D – CONSTRUCTION DETAILS**

<b>TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS</b>				
Building element adequacy/Integrity/Insulation	Class of building - FRL: (in minutes)			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
<b>EXTERNAL WALL</b> (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	- / - / -	- / - / -	- / - / -	- / - / -
<b>EXTERNAL COLUMN</b> 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	- / - / -	- / - / -	- / - / -	- / - / -
<b>COMMON WALLS and FIRE WALLS</b>				
	90/90/90	120/120/120	180/180/180	240/240/240
<b>INTERNAL WALLS-</b>				
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
<b>OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS</b>				
	90/ - / -	120/ - / -	180/ - / -	240/ - / -
<b>FLOORS</b>	90/90/90	120/120/120	180/180/180	240/240/240
<b>ROOFS</b>	90/60/30	120/ 60/ 30	180/60/30	240/ 90/ 60

<b>TYPE C CONSTRUCTION: FRL OF BUILDING ELEMENTS</b>				
Building element adequacy/Integrity/Insulation	Class of building - FRL: (in minutes) Structural			
	2, 3 or 4 part	5, 9 or 7a	6	7b or 8
<b>EXTERNAL WALL</b> (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-				
less than 1.5m	90/90/90	90/90/90	90/90/90	90/90/90
1.5 to less than 3 m	-/-	60/60/60	60/60/60	60/60/60
3 m or more	-/-	-/-	-/-	-/-
<b>EXTERNAL COLUMN</b> not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is-				
less than 1.5 m	90/ - / -	90/ - / -	90/ - / -	90/ - / -
1.5 or less than 3 m	- / - / -	60/ - / -	60/ - / -	60/ - / -
3 m or more	- / - / -	- / - / -	- / - / -	- / - / -
<b>COMMON WALLS and FIRE WALLS</b>	90/90/90	90/90/90	90/90/90	90/90/90
<b>INTERNAL WALLS-</b>				
Bounding public corridors, public lobbies and the like-	60/60/60	- / - / -	- / - / -	- / - / -
Between or bounding sole-occupancy units-	60/60/60	- / - / -	- / - / -	- / - / -
Bounding a stair if required to be rated-	60/60/60	- / - / -	- / - / -	- / - / -
<b>ROOFS</b>	- / - / -	- / - / -	- / - / -	- / - / -

## 16. APPENDIX E – OPTIONS FOR SMOKE HAZARD MANAGEMENT

Requirements and options are set out in the table below:

<i>Position</i>	<i>Space</i>	<i>Class</i>	<i>Requirement</i>
Rehabilitation centre	Patient care areas, including ward and treatment areas	Class 9a	<p>Fire isolated stairs serving the Class 9a portion are required to be provided with an automatic air pressurisation system in accordance with AS/NZS 1668.1.</p> <ul style="list-style-type: none"> <li>an automatic smoke detection and alarm system in accordance with Specification E2.2a, and</li> <li>automatic shutdown of any air-handling system which does not form part of a zone smoke control system, and either of the following, and either of the following</li> <li>a zone smoke control system in accordance with AS/NZS 1668.1, or</li> <li>a sprinkler system complying with Specification E1.5 throughout with residential sprinkler heads in patient care areas.</li> </ul>
Rehabilitation centre	Office, retail, café, conference and library	Class 5, 6 and 9b	<p>The Class 5, 6 and 9b portions are required to be provided with the following:</p> <ul style="list-style-type: none"> <li>each fire isolated stairway to be provided with an automatic air pressurisation system in accordance with AS/NZS 1668.1, or</li> <li>zone smoke control system in accordance with AS/NZS 1668.1, or</li> <li>an automatic smoke detection and alarm system in accordance with Specification E2.2a, or</li> <li>a sprinkler system complying with Specification E1.5</li> </ul>
Rehabilitation centre	Carpark	Class 7a	<p>The Class 7a carpark portions provided with a mechanical ventilation system in accordance with AS 1668.2 must comply with Clause 5.5 of AS/NZS 1668.1 and have fans with metal blades suitable for operation at normal temperature and electrical power and control cabling need not be fire rated</p> <p>Carpark containing more than 40 carpark is required to be sprinkler protected in accordance with Specification E1.5.</p>
Rehabilitation centre	Conference room	Class 9b	<p>Class 9b assembly buildings (conference room) in a fire compartment more than 2,000m<sup>2</sup> must be provided with:</p> <ul style="list-style-type: none"> <li>an automatic smoke exhaust system complying with Specification E2.2b</li> </ul>

<i>Position</i>	<i>Space</i>	<i>Class</i>	<i>Requirement</i>
Weemala	Whole building	Class 9c	<p>The Class 9c aged care building is to be provided with an automatic smoke detection and alarm system in accordance with Specification E2.2a and automatic shutdown of any air-handling system which does not form part of a zone smoke control system.</p> <p>Under Clause E1.5 a sprinkler system must be provided throughout the aged care building</p>

## 17. APPENDIX F – REQUIREMENTS FOR SANITARY FACILITIES

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

Area	Occupant Numbers			WC Required / Provided		Urinal Required / Provided		Basin Required / Provided	
	Total								
Lower Ground Floor*	50	Male	20	1	2	1	-	1	2
		Female	30	2	2	N/A	N/A	2	2
		Unisex Disabled	-	-	-	N/A	N/A	-	-
Ground floor – Staff (Class 5 and 9b)	157	Male	79	4	12	3	8	3	13
		Female	79	6	14	N/A	N/A	3	13
		Unisex Disabled	-	-	6	N/A	N/A	-	6
Ground – conference / l&drc	310	Male	155	2	#	4	-	2	#
		Female	155	4	#	N/A	N/A	3	#
		Unisex Disabled	-	-	#	N/A	N/A	-	#
Ground – café / dining	178	Male	89	1	#	2	-	2	#
		Female	89	3	#	N/A	N/A	2	#
		Unisex Disabled	-	-	#	N/A	N/A	-	#
First floor – Polyclinic / offices	195	Male	98	5	4	3	3	4	3
		Female	98	7	5	N/A	N/A	4	3
		Unisex Disabled	-	-	3	N/A	N/A	-	3
Second floor- offices	65	Male	33	2	1	2	2	2	1
		Female	33	3	1	N/A	N/A	2	1
		Unisex Disabled	-	-	1	N/A	N/A	-	1
Community Centre	250	Male	125	2	1	3	2	2	2
		Female	125	4	3	N/A	N/A	2	2
		Unisex Disabled	-	-	1	N/A	N/A	-	1

\*Refer e-mail dated 21 January. Staff population 20 male, 30 female

# total number of sanitary facilities provided on the ground floor have been indicated in Ground Floor Staff.

## 18. APPENDIX G – ENERGY EFFICIENCY R-VALUES

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

Climate zone	1	2		3	4	5	6	7	8	
		Below 300 m altitude	At or above 300 m altitude							
(a) Class 2 or 3 building, Class 4 part of a building or Class 9c <i>aged care building</i>										
Minimum <u>Total R-Value</u> for a roof or ceiling generally	2.2	2.2	2.5	2.2	3.0	2.7	3.2	3.8	4.3	
Minimum <u>Total R-Value</u> for a ceiling below a non- <u>conditioned space</u> such as a plant room, lift machinery room, store room or the like	1.1	1.1	1.25	1.1	1.5	1.35	1.6	1.9	2.15	
Direction of heat flow	Downwards		Downwards and upwards		Upwards					
(b) Class 5, 6, 7, 8, 9a or 9b building										
Minimum <u>Total R-Value</u> for a roof or ceiling generally	3.2						3.2	4.3		
Minimum <u>Total R-Value</u> for a ceiling below a non- <u>conditioned space</u> such as a plant room, lift machinery room, store room or the like	1.6						1.6	2.15		
Direction of heat flow	Downwards						Upwards			

### OPTIONS FOR EACH PART OF AN EXTERNAL WALL OF A CLASS 2 OR 3 BUILDING, CLASS 4 PART OF A BUILDING OR CLASS 9C AGED CARE BUILDING (Table J1.5a)

Climate zone	Options		
1, 2 and 3	(a)	Achieve a minimum <u>Total R-Value</u> of 1.4.	
	(b)	Shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, carport or the like which projects at a minimum angle of 15 degrees in accordance with <u>Figure J1.5</u> .	
4	(a)	Achieve a minimum <u>Total R-Value</u> of 1.7.	
	(b)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> .	
5	(a)	Achieve a minimum <u>Total R-Value</u> of 1.4.	
	(b)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> .	
6	(a)	Achieve a minimum <u>Total R-Value</u> of 1.7.	
	(b)	(i)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
		(ii)	the <u>storey</u> be constructed on a flooring system that is in direct contact with the ground, such as a concrete slab-on-ground or the like.
	(c)	(i)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
(ii)		incorporate insulation with an <u>R-Value</u> of not less than 1.0.	
7	(a)	Achieve a minimum <u>Total R-Value</u> of 1.9.	
	(b)	(i)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
		(ii)	incorporate insulation with an <u>R-Value</u> of not less than 1.0.

**OPTIONS FOR EACH PART OF AN EXTERNAL WALL OF A CLASS 5, 6, 7, 8, 9a AND 9b BUILDING (Table J1.5b)**

Climate zone	Options
1, 3, 4 and 6	(a) Achieve a minimum <u>Total R-Value</u> of 1.8.
	(b) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
	(ii) incorporate a cavity of 20 mm to 35 mm; and
	(iii) shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, covered <u>carpark</u> , carport or the like which projects at a minimum angle of 15 degrees in accordance with <u>Figure J1.5</u> ; and
	(iv) incorporate insulation with an <u>R-Value</u> of not less than 1.0.
	(c) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> with masonry that has a thermal conductivity of less than 0.8; and
	(ii) incorporate a cavity of 20 mm to 35 mm; and
	(iii) incorporate insulation with an <u>R-Value</u> of not less than 1.0.
	(d) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> with masonry that has a thermal conductivity of less than 0.8; and
	(ii) shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, covered <u>carpark</u> , carport or the like which projects at a minimum angle of 30 degrees in accordance with <u>Figure J1.5</u> ; and
	(iii) incorporate insulation with an <u>R-Value</u> of not less than 0.5.
	(e) For an <u>external wall</u> where the only space for insulation is provided by a furring channel—
	(i) achieve a minimum <u>Total R-Value</u> of 1.4; and
(ii) satisfy <u>glazing</u> energy index option B of <u>Table J2.4a</u> .	
2 and 5	(a) Achieve a minimum <u>Total R-Value</u> of 1.8.
	(b) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> with masonry that has a thermal conductivity of less than 0.8; and
	(ii) shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, covered <u>carpark</u> , carport or the like which projects at a minimum angle of 30 degrees in accordance with <u>Figure J1.5</u> .
	(c) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
	(ii) incorporate a cavity of 20 mm to 35 mm; and
	(iii) shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, covered <u>carpark</u> , carport or the like which projects at a minimum angle of 15 degrees in accordance with <u>Figure J1.5</u> ; and
	(iv) incorporate insulation with an <u>R-Value</u> of not less than 0.5.
	(d) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> with masonry that has a thermal conductivity of less than 0.8; and
	(ii) incorporate a cavity of 20 mm to 35 mm; and
	(iii) incorporate insulation with an <u>R-Value</u> of not less than 0.5.
	(e) For an <u>external wall</u> where the only space for insulation is provided by a furring channel—
	(i) achieve a minimum <u>Total R-Value</u> of 1.4; and
	(ii) satisfy <u>glazing</u> energy index option B of <u>Table J2.4a</u> .
7	(a) Achieve a minimum <u>Total R-Value</u> of 1.8.
	(b) (i) Achieve a surface density of not less than 220 kg/m <sup>2</sup> ; and
	(ii) incorporate a cavity of 20 mm to 35 mm; and

**OPTIONS FOR EACH PART OF AN EXTERNAL WALL OF A CLASS 5, 6, 7, 8, 9a AND 9b BUILDING (Table J1.5b)**

	(iii)	shade the <u>external wall</u> of the <u>storey</u> with a verandah, balcony, eaves, overhang, covered carpark, carport or the like which projects at a minimum angle of 15 degrees in accordance with <u>Figure J1.5</u> ; and	
		incorporate insulation with an <u>R-Value</u> of not less than 1.0.	
	(c)	(i)	Achieve a surface density of not less than 220 kg/m <sup>2</sup> with masonry that has a thermal conductivity of less than 0.8; and
		(ii)	incorporate a cavity of 20 mm to 35 mm; and
		(iii)	incorporate insulation with an <u>R-Value</u> of not less than 1.0.
	(d)	For an <u>external wall</u> where the only space for insulation is provided by a furring channel—	
		(i)	achieve a minimum <u>Total R-Value</u> of 1.4; and
		(ii)	satisfy <u>glazing energy index</u> option B of <u>Table J2.4a</u> .
	8	Achieve a minimum <u>Total R-Value</u> of 2.8.	

**SUSPENDED FLOOR WITH AN UNENCLOSED PERIMETER - MINIMUM TOTAL R-VALUE (Table J1.6)**

Class of building	Climate zone								
	1	2		3	4	5	6	7	8
		Below 300 m altitude	At or above 300 m altitude						
2, 3, 4 and 9c <u>aged care building</u>	Nil	Nil	Nil	Nil	Nil	Nil	1.0	1.0	2.5
5, 6, 7, 8, 9a and 9b	1.5	Nil	Nil	1.5	1.5	Nil	1.5	2.5	
Direction of heat flow	Upwards		Downwards and upwards			Downwards			
<i>Note: Altitude means the height, above the Australian Height Datum, of the location where the building is to be constructed.</i>									

## 19. APPENDIX H – STATUTORY FIRE SAFETY MEASURES

### Schedule of Statutory Fire Safety Measures (Rehabilitation Centre)

Measure	Standard of Performance
Access panels, doors and hoppers to fire resisting shafts	BCA2007 Clause C3.13 and tested prototypes (AS 1530.4 – 2005)
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2007 Clause D2.21.
Automatic fire detection and alarm system ( <i>smoke detection system</i> )	BCA2007 Specification E2.2a and AS 1670.1 – 2004 ( <i>note Class 9a also requires manual call points</i> ) ( <i>System monitoring in accordance with AS1670.3-2004</i> )
Automatic fire detection and alarm system ( <i>smoke detection system to operate zone smoke control or stair pressurisation system</i> )	BCA2007 Clause 5 of Specification E2.2a and AS/NZS 1668.1 – 1998 and AS 1670.1 - 2004
Automatic fire detection and alarm system ( <i>smoke detection system to automatically shutdown air-handling system or smoke detection system to activate smoke exhaust system or smoke and heat vents</i> )	BCA2007 Clause 5 and 7 of Specification E2.2a and AS/NZS 1668.1 – 1998 ( <i>System monitoring in accordance with AS1670.3-2004</i> )
Automatic fire suppression systems ( <i>Sprinklers</i> )	BCA2007 Specification E1.5 and AS 2118.1 – 1999
Emergency lighting	BCA2007 Clause E4.2, E4.4 and AS 2293.1 – 2005
Emergency warning and intercommunication system	BCA2007 Clause E4.9, and AS 1670.4 – 2004 and AS 4428.4 – 2004
Exit signs	BCA2007 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire control centre	BCA2007 Specification E1.8
Fire dampers	BCA2007 Clause C3.15 and AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Fire doors	BCA2007 Specification C3.4 and AS 1905.1 – 2005
Fire hydrants systems	BCA2007 Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2007 Clause C3.15, Specification C3.15 and AS 1530.4 – 2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Fire shutters	BCA2007 Specification C3.4 and AS 1905.2 – 2005
Fire windows	BCA2007 Specification C3.4 and AS 1530.4 – 2005
Hose reel system	BCA2007 Clause E1.4 and AS 2441 – 2005
Lightweight construction	BCA2007 Specifications C1.8, Clause A2.3 and AS 1530.4-2005
Mechanical air handling system ( <i>automatic shut down of air-handling system</i> )	BCA2007 Clause E2.2 and AS/NZ 1668.1-1998

Measure	Standard of Performance
Mechanical air handling system (automatic air pressurisation system)	BCA2007 Table E2.2a and AS/NZ 1668.1-1998
Mechanical air handling system (zone smoke control system)	BCA2007 Table E2.2a and AS/NZ 1668.1-1998
Mechanical air handling system (carpark mechanical ventilation system)	BCA2007 Table E2.2a and Clause 5.5 of AS/NZ 1668.1-1998 and fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated
Portable fire extinguishers	BCA2007 Clause E1.6 and AS 2444 – 2001
Smoke dampers	AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Smoke detectors and heat detectors (detectors for the automatic closing operation of fire doors and fire shutters in fire walls)	BCA2007 Clause C3.5 and AS 1670.1 – 2004
Smoke detectors and heat detectors (detectors for the de-activation of electromagnetic device for sliding fire doors)	BCA2007 Clause C3.6 and AS 1670.1 – 2004
Smoke detectors and heat detectors (detectors for the automatic closing operation of horizontal exits)	BCA2007 Clause C3.7 and AS 1670.1 – 2004
Smoke detectors and heat detectors (detectors for the automatic closing operation of fire doors to fire isolated exits)	BCA2007 Clause C3.8 and AS 1670.1 – 2004
Smoke detectors and heat detectors (detectors for the automatic closing operation of smoke doors)	BCA2007 Specification C3.4 and AS 1670.1 – 2004
Smoke doors	BCA2007 Specifications C2.5 and C3.4 and AS 1288 – 2006
Wall wetting sprinkler and drencher systems	BCA2007 Clause C3.4, and AS 2118.2 – 1995
Warning and operational signs	BCA2007 Clauses C3.6, D1.17, D2.23 and E3.3

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

## Schedule of Statutory Fire Safety Measures (Weemala Aged Care Facility)

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2007 Clause D2.21.
Automatic fire detection and alarm system ( <i>smoke detection system</i> )	BCA2007 Specification E2.2a and AS 1670.1 – 2004 ( <i>Class 9c requires manual call points and mimic panels</i> ) ( <i>System monitoring in accordance with AS1670.3-2004</i> )
Automatic fire suppression systems ( <i>Residential sprinkler system</i> )	BCA2007 Specification E1.5 and AS2118.4 – 1995
Emergency lighting	BCA2007 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2007 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire doors	BCA2007 Specification C3.4 and AS 1905.1 – 2005
Fire hydrants systems	BCA2007 Clause E1.3 and AS 2419.1 – 2005
Fire seals protecting opening in fire resisting components of the building	BCA2007 Clause C3.15, Specification C3.15 and AS 1530.4 – 2005 and AS 4072.1 – 2005 and installed in accordance with the tested prototype.
Fire shutters	BCA2007 Specification C3.4 and AS 1905.2 – 2005
Fire windows	BCA2007 Specification C3.4 and AS 1530.4 – 2005
Lightweight construction	BCA2007 Specifications C1.8, Clause A2.3 and AS 1530.4-2005
Mechanical air handling system ( <i>automatic shut down of air-handling system</i> )	BCA2007 Clause E2.2 and AS/NZ 1668.1-1998
Portable fire extinguishers	BCA2007 Clause E1.6 and AS 2444 – 2001
Smoke dampers	AS/NZS 1668.1 – 1998 (AS 1682.1-1990 and AS 1682.2-1990)
Smoke detectors and heat detectors ( <i>detectors for the automatic closing operation of fire doors to fire isolated exits</i> )	BCA2007 Clause C3.8 and AS 1670.1 – 2004
Smoke detectors and heat detectors ( <i>detectors for the automatic closing operation of smoke doors</i> )	BCA2007 Specification C3.4 and AS 1670.1 – 2004
Smoke doors	BCA2007 Specifications C2.5 and C3.4 and AS 1288 – 2006
Wall wetting sprinkler and drencher systems	BCA2007 Clause C3.4, and AS 2118.2 – 1995
Warning and operational signs	BCA2007 Clauses D2.23 and E3.3

## Schedule of Statutory Fire Safety Measures (Recreation Circle)

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2007 Clause D2.21.
Emergency lighting	BCA2007 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2007 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire hydrants systems	BCA2007 Clause E1.3 and AS 2419.1 – 2005
Hose reel system	BCA2007 Clause E1.4 and AS 2441 – 2005
Portable fire extinguishers	BCA2007 Clause E1.6 and AS 2444 – 2001
Warning and operational signs	BCA2007 Clauses E3.3

## Schedule of Statutory Fire Safety Measures (General Store)

Measure	Standard of Performance
Automatic fail safe devices	Scheduled devices release upon trip of smoke detection, fire detection or sprinkler activation in accordance with BCA2007 Clause D2.21.
Emergency lighting	BCA2007 Clause E4.2, E4.4 and AS 2293.1 – 2005
Exit signs	BCA2007 Clause E4.5, NSW E4.6, E4.8 and AS 2293.1 – 2005
Fire hydrants systems	BCA2007 Clause E1.3 and AS 2419.1 – 2005
Hose reel system	BCA2007 Clause E1.4 and AS 2441 – 2005
Portable fire extinguishers	BCA2007 Clause E1.6 and AS 2444 – 2001