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BCA & ACCESS COMPLIANCE REVIEW

Proposed Hillsong Greater West Development

Hillsong Church – Greater West

DATE_31ST OCTOBER 2017

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ISSUED	REVIEW	ISSUED BY
Date. 31st October 2017	Issue for DA	Trevor Eveleigh
Date. 5th April 2017	Issue for Review	Trevor Eveleigh

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1.0 INTRODUCTION

1.1 GENERAL

NBRS Architecture have been engaged by Hillsong Church to design and document the Proposed Hillsong Greater West Church Development at the site of 1 Water Street Werrington, 2747

As part of the design process a review has been undertaken of the proposed design against current building regulations and to ensure that the design provides equitable access to all appropriate areas of the facility.
This Report sets out the outcome of the BCA Compliance and Access review, and has been prepared to accompany the Development Approval Application.
The review compares the proposed design, against the requirements set out in the following documents:

- The Building Code of Australia 2016 version (BCA) and
  - The associated relevant standards

The proposed design for the development is represented in the following plans prepared by NBRS Architecture which have been used as part of this review.

Table 1

Drawing No.	Issue	Description
15467 -101	31/10/17	Proposed Site Plan
15467 -102.2	31/10/17	Ground Floor – Stage 1a
15467 -102.3	31/10/17	Ground Floor – All Stages
15467 – 102.4	22/09/17	Level 1 All Stages
15467 – 102.5	22/09/17	Level 2 All Stages
15467 - 106	22/09/17	Staging Diagram
15467 - 110	22/09/17	Childcare Plan
15467 - 300	22/09/17	Elevations
15467 - 400	22/09/17	Sections

1.2 SITE DETAILS

The site for the proposed development is No. 1 Water Street Werrington NSW, 2747.
The current site is

- Lot 1 DP 1176624

The site is within the Penrith Local Government area and therefore Climate Zone 6.
The following figure shows the site and the surrounding area.

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Figure 1- Site location

1.3 THE PROPOSED DEVELOPMENT

The proposal is for the construction of new Place of Public Worship facility, to be constructed in two stages, with main auditorium having a seating capacity of approximately 650 in stage 1a and 1350 in a future stage 2.

As an extension of the church facility a child care centre is to be constructed to the side of the main church building and will be constructed as Stage 3.

Stage1a

Stage 1a of the development will be a single central building and includes:

- Auditorium for 400 occupants,
- Temporary / movable stage
- Associated child areas and meeting rooms
- First and second floor meeting rooms and administration offices.
- Foyer space with café and resource centre
- Temporary office
- Associated toilets,
- Approximately 3700 m2 of floor area.

Stage 1b

Stage 1b will be to repurpose the existing stage 1a to being:

- Auditorium to Youth Hall
- City Care office area and street team on ground floor level.
- Administration office and green room on the first floor.
- Adding a rack room to the rear of the ground floor auditorium.

Stage 2

Stage 2 of the Development will be an addition to the main building of stage 1a and includes:

- Addition to the auditorium to extend seating to 1350 occupants.
- A 3 storey extension to the main building for administration offices on the upper levels and a loading dock and community services office on the ground floor.
- A two storey multi purpose hall to the north end of the main building.

Stage 3

Stage 3 of the development is a child care centre to the southern end for 89 children with indoor play rooms around a central outdoor play area and will have a building floor area of approximately 900 m2.

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The following table from the project brief sets out the areas proposed and functional use.

Table 2- Brief Area Schedule

	Space	Notes	Use	Design Area (m2)
AUDITORIUM	Auditorium	Stage 1- 400 seats Stage 2- 1350 seats Church Services and potential for facility to be hired out for special events	Class 9b EV	1380
	Main Foyer		Class 9b EV	330
	Parents Room		Class 9b EV	80
	Resources Centre		Class 9b EV	30
	Café		Class 9b EV	30
	Toilets	General use toilets	Class 9b	130
	Stage		Class 9b EV	115
	Back Stage Area		Class 9b EV	140
	Loading Dock			30
	Store			116
	Circulation & Stairs			400
			Total	2771
KIDS MINISTRY	GF- Kid foyer	One or two entry and exit points to create a child safe zone	Class 9b EV	30
	GF - Treasure Chest/Special Needs	Four rooms with central foyer Physical room, Sensory room Spiritual room, Education room	Class 9b EV	137
	GF - The Ark	Free play space Small group space	Class 9b EV	170
	FF - All Stars /Voltage	Free play space Small group space	Class 9b EV	307
	FF - Rally	Free play space Small group space	Class 9b EV	187
	SF – All Stars	Free play space Small group space	Class 9b EV	187
	SF – Voltage Rally	Free play space Small group space	Class 9b EV	307
	Toilets	Located on each level for number of occupants		120
	Circulation & Stairs			115
			Total	1560
YOUTH MIN.	Youth/ Basketball Court	500 seats Multi use space Storage for equipment	Class 9b EV	573
	Toilets	For number of occupants		70
	Kitchen			16
	Rack Room			24
	Stair & Circulation			10
			Total	693
OFFICE/ GREEN	FF - Office Space (Church)	Cater for future staff needs including Offices, Meeting rooms & Interview rooms Volunteer workstation area Church reception	Class 5	393
	Green Room	Assembly point before going on stage	Class 9b EV	153
	Toilets	For number of occupants		40
	Circulation & Stairs			40
			Total	646

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	Space	Notes	Use	Design Area (m2)
CITY CARE	CityCare	Separate entry but located within main building	Class 5	
	Reception Area	Reception and waiting area	Class 5	30
	Counselling / Emergency Relief	Consult Rooms	Class 5	200
	Office space	Offices & Workstation area		
	Toilets	To suite number of people		40
	Street Teams Storage & Garage	To accommodate two trailers and repairs and maintenance space	Class 7a	88
	Annual Campaign	Storage & Facilitation Area Storage shelving and area for sorting/packing tables	Class 7b	30
	Storehouse	Supermarket style food relief program	Class 7b	30
	Storehouse Storage Area	Food storage area	Class 7b	12
	Storehouse Cold Room	Cold food storage	Class 7b	12
	Stair & Circulation			24
			Total	466
			Total Building	6136 m2
	Child Care Centre			
	Cubby House Child Care Centre	Child Care Centre for 90-100 children Hillsong Kids weekend Child Care Centre midweek	Class 9b	To Suite 90 child places & Staff

1.4 SITE ACCESS

The site is identified as being No.1 Water Street Werrington. A new road is proposed to the east side of the site, being Lander Street Extension.
Access to the site will be from the adjacent roads on both the southern and eastern sides of the site through the car parking areas.

1.5 BCA REQUIREMENTS

The Building Code of Australia (BCA) sets out number of Performance Requirements that a building solution must meet to achieve a reasonable level of safety, access to buildings, and functional performance.
Where due to the configuration within individual building or site applications, the detailed design does not meet the Deemed to Satisfy Provisions of the BCA, there is an opportunity for the design to be assessed as an Alternative Solution, against the Performance Requirements of the BCA.
Any Alternative Solutions will be subject to the approval of the Principal Certifying Authority.
The requirements for the building are based on the scale of the building, the number of occupants and the usage of the building.
The building is proposed as a community based church facility that provides a bases for serving the needs of the community as well as religious functions. To enable a variety of functions within the facility the building will also be designed to meet the requirements of an Entertainment Venue as defined under the Environmental planning and assessment Act.

The following table sets out the BCA classifications of usage and scale.

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1.6 BUILDING HEIGHT, RISE IN STOREYS & EFFECTIVE HEIGHT

		Rise in storeys
Assembly Building (Church & Entertainment Venue)	Class 9b	3
Administration Office	Class 5	
Child Care Centre	Class 9b	1

2.0 BCA DEEMED TO SATISFY PROVISIONS

2.1 PART A – FIRE COMPARTMENTS AND FIRE RATINGS

The proposed building is considered as one development with the building split up into different functional areas.

The Administration office areas on the ground and first floors are of class 5 usage in associated with the main class 9b usage.

The entire building is considered to be of Class 9b usage, with the child care centre not considered an Entertainment Venue, and will be considered as a separate building in terms of fire safety. Additionally the functionality and evacuation arrangements will be different for this part of the building.

As the building is of three stories and of class 9b use it is required to be of Type A construction.

The following table sets out the relevant BCA classifications of proposed building and construction requirements:

Table 3- Building Details

Hillsong Greater West Development			15467	BCA 2016
				Key
Class	9b - Assembly Building			Fill in the details
				BCA Requirements
Rise in Storeys	3			
Effective Height	-			
Building Floor Area	7500	M2		
Containing Atrium	Yes			
Place of Public Entertainment	Yes		Stage & Backstage Area	4- More than 150m2
Basement Car park	No	-	Prescenium type	No Prescenium Wall
	0			
Class 9B Building Specific use	7-Other Assembly Buildings			
	Zone Map		Zone Maps	
Building Location Zone	Zone 6	Western Sydney, South Coast NSW & Hunter Valley	NSW	\\Siza\admin\Reference Documents\BCA\bca2009
			VIC	R:\Reference Documents\BCA\315 Climate Zone
Type of Construction	A			
Maximum Compartment				
Area	8000	M2		
Volume	48000	M3		

The total floor area of the all levels of the building is approximately 7,500 m2 including the child care centre. There could be a potential for the floor area of the entire building exceeding the 8,000 m2 maximum set for a single building of type A construction in the BCA.

If this does occur then it would be reasonable to separate the building into the two functional areas, the child care centre and the Church facility.

2.2 BOUNDARY SEPARATION

The proposed building is located at least 3m from the side boundaries on all sides and therefore non fire rated openings, such as windows and doors could be provided to the building.

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2.3 BUILDING SEPARATION

There would be a number of benefits in separating the child care centre from the main church building, including;

- The child care centre could be addressed as a separate building, not part of the entertainment venue and therefore not requiring the additional fire safety measures associated with an Entertainment Venue.
- As the child care centre is only a single storey, it would be required to be of Type C construction, while the main church building remained as Type A construction. This would reduce the fire rating requirements for the child care centre.
- The two separate building would function as two separate entities and therefore the potential number of people that would need to be evacuated in a risk event would be reduced.
- The two would benefit from the fire separation of the two buildings, as one area could be evacuated into the adjacent area.

If separated, a fire wall (FRL120/120/120) would be required to prevent fire transfer between the buildings and openings in each part would need to separated by a distance to prevent fire transfer, at 90 degrees between the two wall faces a distance of 3m as required by Clause C3.3.
This would be confirmed and detailed in the design development stage.

2.4 PART C- FIRE RESISTANCE

The Following table sets out the requirements for fire resistance dependent upon the classification and distance of the building from the site boundaries or other buildings, taken from Clause 3.1 and Table 3 of Specification C1.1.

Table 4- Required Fire ratings for Class 9b Usage

Fire Rating Required (Part C)				
External Walls	Distance from Boundary/Fire S	**Loadbearing**	Distance from Fire source	**Non-Loadbearing**
(Including columns in walls)	< 1.5 m	120/120/120	< 1.5 m	"-/120/120"
	1.5 to 3 m	120/90/90	1.5 to 3 m	"-/90/90"
	3 to 9 m	120/60/30	More than 3m	"--/--/--"
	9 to 18 m	120/60/30		
	More than 18 m	120/60/30		
External Columns	< 1.5 m	120/--/--		
	1.5 to 3 m	120/--/--		
	More than 3m	120/--/--		
Internal Columns		**120/--/--**		
	Top Floor Columns	**-/-/-**	-	
Fire Wall		**120/120/120**	**Note: 1HR Fire rated stores in a PoPE**	
		Loadbearing		**Non Loadbearing**
Fire Stairs, lifts shafts		**120/120/120**		**"--/120/120"**
		Loadbearing		**Non Loadbearing**
Walls to SOU, & Public Corridors		**120/--/--**		**NA**
Floors		**120/120/120**	**Note: Fire rated spandrel required at perimeter windows/openings unless sprinkler protected.**	
Roofs		**"--/--/--"**	-	
			-	

Applying the details of the table above to the project:

- Floors will require a FRL of 120/120/120
- Structural elements will require a FRL of 120/--/--
- External structural walls will require a FRL of 120/120/120
- Top floor columns do not require a FRL if a sprinkler system is installed.
- Any Fire isolated stair and any lift shaft, have a FRL of 120/120/120

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2.4.1 SEPARATION OF CHILD CARE CENTRE

If the Child care centre is fire separated from the main building, as a single storey building, of Type C construction, less stringent fire ratings would be required as indicated in the following table..

Table 5- Fire Rating Requirements for Child Care if Fire separated from Main Building

Fire Rating Required (Part C)				
External Walls	Distance from Boundary/Fire S	**Loadbearing**	Distance from Fire source	**Non-Loadbearing**
(Including columns in walls)	< 1.5 m	90/90/90	< 1.5 m	90/90/90
	1.5 to 3 m	60/60/60	1.5 to 3 m	60/60/60
	3 to 9 m	"--/--/--"	More than 3m	"--/--/--"
	9 to 18 m	"--/--/--"		
	More than 18 m	"--/--/--"		
External Columns	< 1.5 m	90/--/--		
	1.5 to 3 m	60/--/--		
	More than 3m	"--/--/--"		
Internal Columns		"--/--/--"		
	Top Floor Columns	"--/--/--"	-	
Fire Wall		120/120/120	Note: 1HR Fire rated stores in a PoPE	
		Loadbearing		**Non Loadbearing**
Fire Stairs, lifts shafts		120/120/120		"--/120/120"
		Loadbearing		**Non Loadbearing**
Walls to SOU, & Public Corridors		120/--/--		NA
Floors		"--/--/--"		
Roofs		"--/--/--"	-	
			-	

2.4.2 FLOOR BY FLOOR SEPARATION.

As the building is a class 9b building and of Type A Construction, floor by floor fire compartmentation is required, with a FRL of at least 120/120/120.
If a sprinkler protection system is not installed, then fire rated spandrels will be required between floors with a FRL of at least 60/60/60, refer to BCA Clause C2.6.

2.4.3 ENTERTAINMENT VENUE FIRE SEPARATION REQUIREMENTS.

As a Class 9b Entertainment Venue NSW Part H1.1 requires additional fire safety measures, including:

- NSW H101.2 requires that an Entertainment Venue be separated from other areas with a fire wall having a FRL of at least 60/60/60.
- NSW H101.3, requires a foyer space of at least 0.25m2 per occupant where auditorium is exhibiting films or conducting live stage productions.
- NSW H101.4, requires a multi theatre facility with a common foyer to have sprinkler protection.
- NSW H101.15 requires a dressing room with a floor area of more than 50m2 to fire separated from other areas with a FRL of 60/60/60.
- NSW H101.16 requires any store room to be fire separated from other areas with a FRL of 60/60/60.

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2.5 PART D – ACCESS AND EGRESS

The requirements for access to and egress from a building are dependent upon the number of occupants within the building and their characteristics.

2.5.1 OCCUPANTS

The following table sets out he various areas and the associated occupant numbers, based on BCA Clause D1.13 and Table D1.13. It is noted that not all areas will be fully occupied at all time, but as a conservatism these occupant numbers are used for the provision of exits and exit paths.

	Space	Notes	Use	Design Area (m2)	Population to BCA
AUDITORIUM	Auditorium	Stage 1- 400 seats Stage 2- 1350 seats Church Services and potential for facility to be hired out for special events	Class 9b EV	1380	1350
	Main Foyer		Class 9b EV	330	330
	Parents Room		Class 9b EV	80	30
	Resources Centre		Class 9b EV	30	30
	Café		Class 9b EV	30	30
	Toilets	General use toilets	Class 9b	130	
	Stage		Class 9b EV	115	58 (2m2/p)
	Back Stage Area		Class 9b EV	140	11
	Loading Dock			30	1
	Store			116	
	Circulation & Stairs			400	
			Total	2771	1840
KIDS MINISTRY	GF- Kid foyer	One or two entry and exit points to create a child safe zone	Class 9b EV	30	
	GF - Treasure Chest/Special Needs	Four rooms with central foyer Physical room, Sensory room Spiritual room, Education room	Class 9b EV	137	70 (2m2/p)
	GF - The Ark	Free play space Small group space	Class 9b EV	170	85 (2m2/p)
	FF - All Stars /Voltage	Free play space Small group space	Class 9b EV	307	154 (2m2/p)
	FF - Rally	Free play space Small group space	Class 9b EV	187	99 (2m2/p)
	SF – All Stars	Free play space Small group space	Class 9b EV	187	99 (2m2/p)
	SF – Voltage Rally	Free play space Small group space	Class 9b EV	307	154 (2m2/p)
	Toilets	Located on each level for number of occupants		120	
	Circulation & Stairs			115	
			Total	1560	661
YOUTH MIN.	Youth/ Basketball Court	500 seats Multi use space Storage for equipment	Class 9b EV	573	500 seats
	Toilets	For number of occupants		70	
	Kitchen			16	2
	Rack Room			24	
	Stair & Circulation			10	
			Total	693	502

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	Space	Notes	Use	Design Area (m2)	Population to BCA
OFFICE/ GREEN RM	FF - Office Space (Church)	Cater for future staff needs including Offices, Meeting rooms & Interview rooms Volunteer workstation area Church reception	Class 5	393	40 (10m2/p)
	Green Room	Assembly point before going on stage	Class 9b EV	153	51 (3m2/p)
	Toilets	For number of occupants		40	
	Circulation & Stairs			40	
			Total	646	91
CITY CARE	CityCare	Separate entry but located within main building	Class 5		
	Reception Area	Reception and waiting area	Class 5	30	15
	Counselling / Emergency Relief	Consult Rooms	Class 5	200	20
	Office space	Offices & Workstation area			
	Toilets	To suite number of people		40	
	Street Teams Storage & Garage	To accommodate two trailers and repairs and maintenance space	Class 7a	88	3
	Annual Campaign	Storage & Facilitation Area Storage shelving and area for sorting/packing tables	Class 7b	30	6
	Storehouse	Supermarket style food relief program	Class 7b	30	6
	Storehouse Storage Area	Food storage area	Class 7b	12	0
	Storehouse Cold Room	Cold food storage	Class 7b	12	0
	Stair & Circulation			24	
			Total	466	50
			Total Building	6136 m2	3144
	Child Care Centre				
	Cubby House Child Care Centre	Child Care Centre for 90-100 children Hillsong Kids weekend Child Care Centre midweek	Class 9b	To Suite 90 child places & Staff	90 children + staff

It is not expected that all areas of the building will be occupied at the same time, however during services and special events there could be occupants in the main auditorium as well as the children's areas.
Therefore each area has been addressed as having separate exits.
For conservatism the potential for the Auditorium being occupied as well as the childrens areas at the same time could have an impact on the exits through the foyer stairs. This has been considered in section 2.5.7.

2.5.2 EXITS.

Clause D1.6 of the BCA sets out the required width of exits based on the number of people in the area.
Clause D1.3 of the BCA requires that a stairway that connects more than two floors, or three floors where the building is sprinkler protected be fire separated.

2.5.3 NUMBER OF EXITS AND DISTANCES TO EXITS

A class 9b Assembly building of three storeys is required by Clause D1.2 to have at least two exits from each level.

Travel distances to exits is set by Clause D1.4 which requires the following:

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General Areas

- No point on the floor of each level is to be more than 40m from one of two exits with travel to a point of choice of two exits within 20m.
- Travel distance between alternative exits via the point of choice to be a maximum of 60m.
- Travel distance to an open space when using an open internal star is to be a maximum of 80m.

Within the design a number of fire isolated stairs, non fire isolated stairs and exits are provided and located so as to enable compliant access to stairs and exit travel distances.

2.5.4 ENTERTAINMENT VENUE EXITS

As an Class 9b, Entertainment Venue, NSW Part H101 requires the following additional exit requirements:

- NSW H101. Requires a stage and backstage with a floor area of more than 50m2 to have 2 exits, not through the stage proscenium.

Within the design two exits are required from the stage and backstage areas to meet the BCA requirements.

2.5.5 EXIT WIDTH

The required exit width is based on the number of occupants within the area.

- NSW D1.6 requires that exit widths in an Entertainment Venue be between 1m and 3m wide and that the width required for more than 200 occupants is 2m plus 0.5m per 50 occupants.

2.5.6 EXITS PROVIDED

Within the design exits are provided for the occupants to meet the deemed to satisfy provisions of the BCA, for the number of occupants, assuming the following:

- The building is sprinkler protected, to enable the main foyer entry area and stairs to be open and not fire isolated.
- The exit stair adjacent to Treasure Chest Foyer and the stair adjacent to the loading dock are fire isolated.
- The western wall of the building is constructed as a fire wall to protect the path of travel from the fire isolated exit to the carpark open area and the street frontage.

The western southern walls of the child care centre are constructed as fire walls to protect the path of travel from the child care outside play areas to the carpark open area and the street frontage.

2.5.6.1 YOUTH MINISTRIES

The youth ministries hall will have 500 seats for 500 occupants and is provided with multiple exits to the northern end leading out onto the open court area. At least 3 pairs of double doors are to be designated as exits with panic bars, spaced along the north wall.

The exits provided will meet the deemed to satisfy provision of the BCA for the number of occupants. Refer to the figure below.

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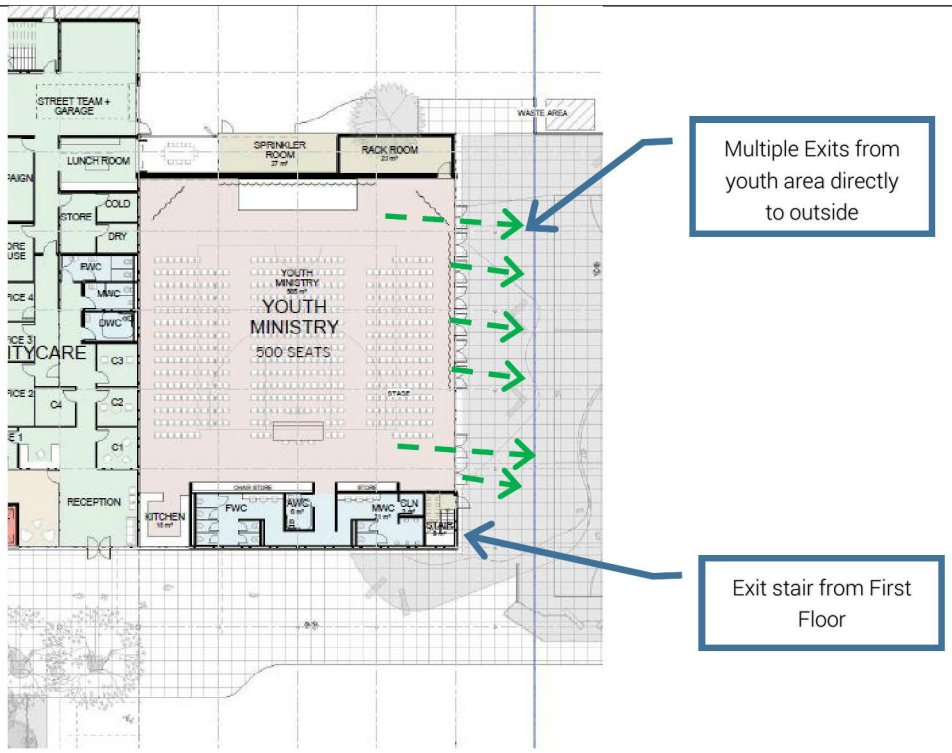

Figure 2- Stage 1 -Auditorium, Stage 3 - Youth Ministries

2.5.6.2 MAIN AUDITORIUM

The Main Auditorium will seat approximately 1350 occupants and is classified as being an Entertainment Venue.

The exit requirements applicable to the space are:

- Minimum of 13.5m of clear exit width.
- At least two exits.
- Each exit width to be more than 1m and up to 3m wide.
- A maximum of 50% of exit width is to be via the main foyer area. This would equate to at least 6.75m of exit width is to be not through the main entry foyer.

Within the design, three exits are provided with a total exit width of 7m is provided to the western side of the building leading directly to outside.

On the ground floor level there are two exits via the main entry foyer and two more exits on the first floor that lead via the open stairs in the main foyer to ground floor and to outside.

There are a total of 13 pairs of exit doors provided from the main foyer that are expected to have a clear width of least 1500mm, giving a total exit width form the Foyer of 19.5m which will be sufficient for the occupants of the auditorium and the foyer area.

The total of the four exit paths via the foyer would be more than 6.5m and therefore the exit widths will meet the deemed to satisfy provision of the BCA for the number of occupants.

Refer to the figure below.

Due to the multiple exits and their locations the travel distance to an exit is less than 40m and therefore meets the DTS provisions for travel distance to an exit.

The stage and backstage area will accommodate approximately 70 occupants and is provided with two exits leading directly to outside which is sufficient for the number of occupants.

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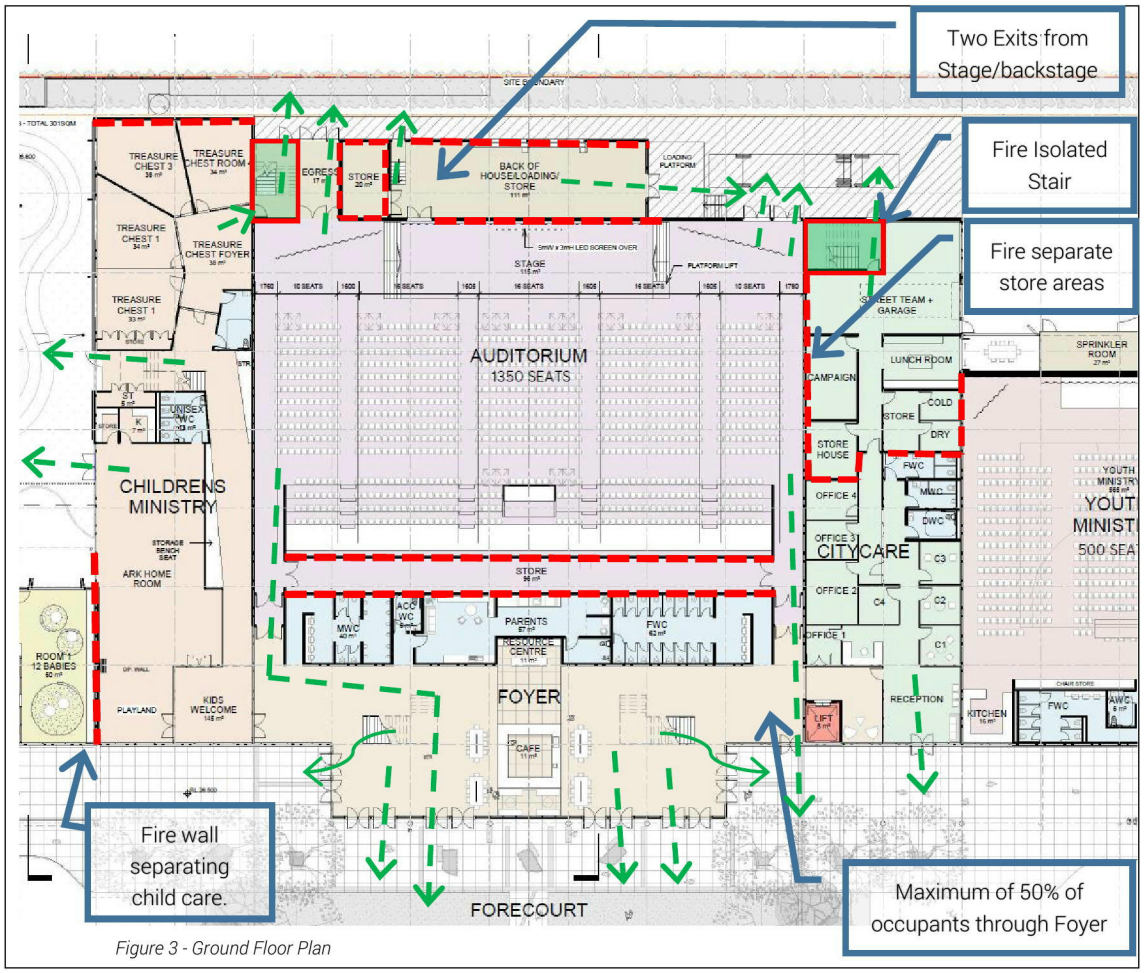

Figure 3 - Ground Floor Plan

2.5.6.1 CITY CARE AREA

The City Care area has an entry and exit to the east side as well as a second exit via the garage to the western side of the building. The area will accommodate less than 100 occupants and therefore will only require a 1m wide exit. The exits provided will meet the deemed to satisfy provision of the BCA for the number of occupants.

2.5.6.2 CHILDRENS MINISTRIES - GROUND FLOOR LEVEL

The Childrens ministries area of the ground floor will accommodate up to 85 occupants.
The area has an entry from the main foyer, via the lift the Kids Welcome Foyer.
There is an additional exit directly to the outside play area on the south side of the building.
These two exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure above.

The Treasure Chest Childrens Ministry are will accommodate up to 70 occupants.
The area has access from the Kids welcome foyer via the central corridor.
The area is provided with an exit via the western fire isolated stair as well and an exit via the central corridor to the Outdoor play area, giving the area at least 2 exits.
These exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure above.

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2.5.6.3 FIRST FLOOR OFFICE

The First Floor Office area & Green Room will accommodate up to 91 occupants.
The area has an entry from the main foyer, via the lift and the main foyer stair. The stair is also used as an exit form this level.
The area is provided with an exit via the western fire isolated stair as well and an exit via a stair to the northern end of the building. The third exit stair at the northern end of the building is required to ensure than a point of choice is reached within 20m of all part of the office.
These three exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure below.

2.5.6.4 FIRST FLOOR CHILDRENS AREAS

The Childrens ministries areas on the first floor will accommodate up to 253 occupants.
The area has an entry from the main foyer, via the lift and the main foyer stair. The stair is also used as an exit form this level.
The area is provided with an exit via the western fire isolated stair as well and an exit via the open stair to the southern end of the building leading into the adjacent play area.
These three exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure below.

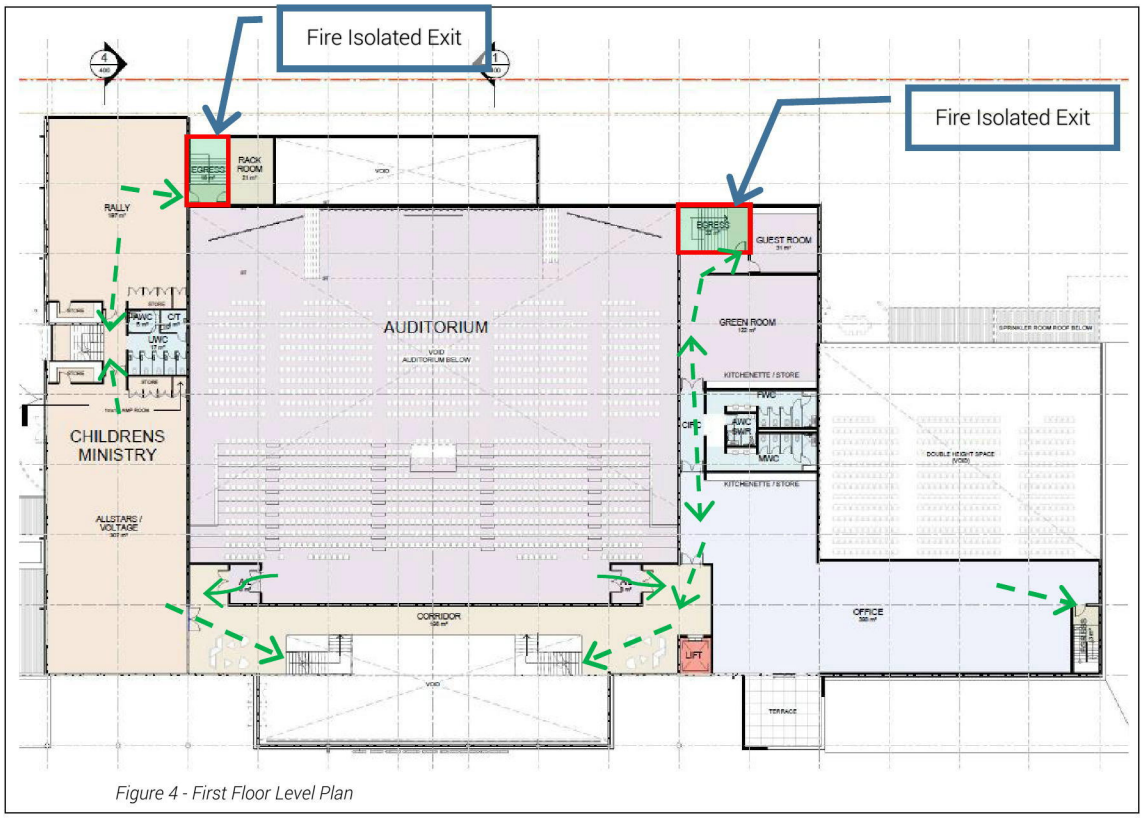

Figure 4 - First Floor Level Plan

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2.5.6.5 SECOND FLOOR VOLAGE RALLY AND ALL STARS

The second floor area is divided into two separate functions of the Voltage group and the All Stars group.
The Voltage Rally area on the second floor will accommodate up to 154 occupants.
The area has an entry from the main foyer, via the lift and the main foyer open stair. The stair is also used as an exit form this level.
The area is provided with a second exit via the open stair to the southern end of the building leading into the adjacent play area.
These two exits have a total width of at least 3.5m and therefore will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure below.

The All Stars area on the second floor will accommodate up to 99 occupants.
The area is provided with an exit via the western fire isolated stair as well and an exit via the open stair to the southern end of the building leading into the adjacent play area.
These two exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure below.

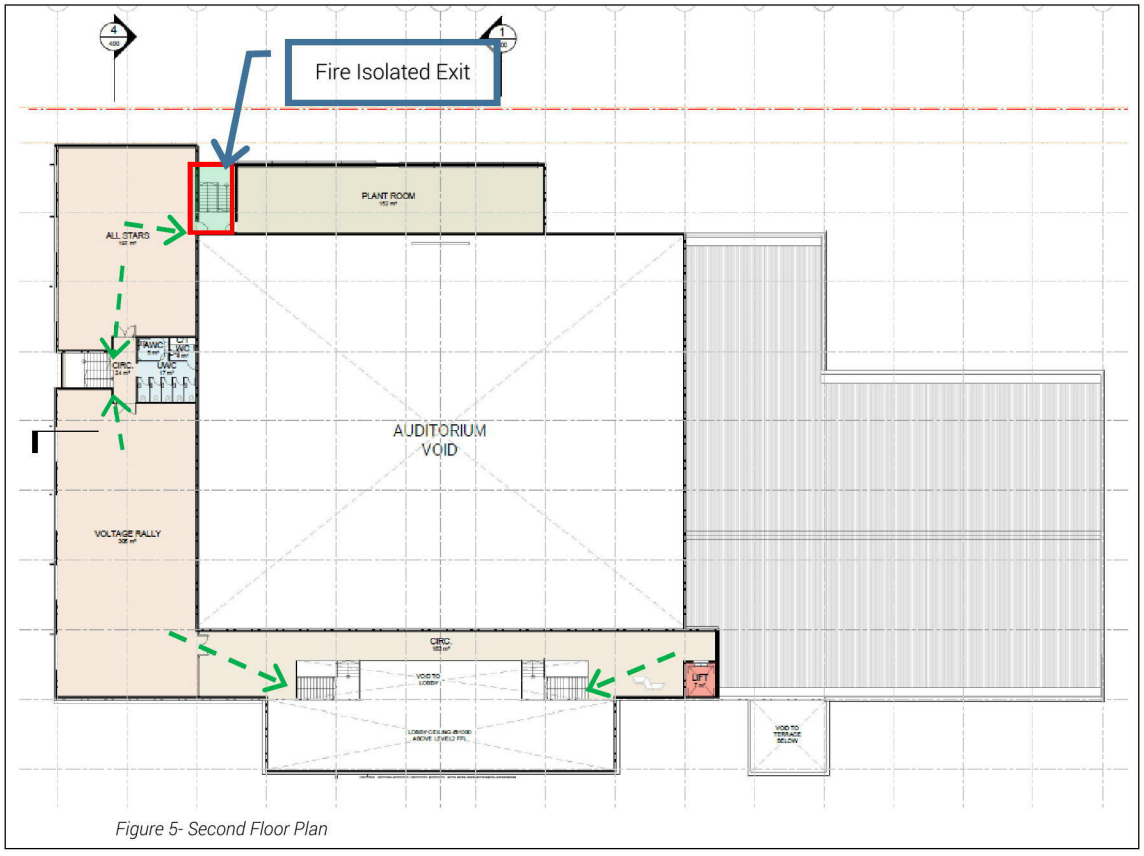

Figure 5- Second Floor Plan

2.5.6.6 CHILD CARE CENTRE - GROUND FLOOR LEVEL

The Child care centre is located to the southern side of the main building and will accommodate up to 90 children plus up to 20 staff.
The main entry to the area is to the eastern side of the building from the main forecourt area, which also functions as an exit. Each of the play rooms have direct access to the central outdoor play area, which will be used as an evacuation muster area.
The western side of the main auditorium is to be provided with a fire wall to protect the exit path to the street via the carpark.

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These two exits will provide sufficient exit width for the number of occupants and exit travel distances to meet the Deemed to Satisfy provisions of the BCA. Refer to the figure below.

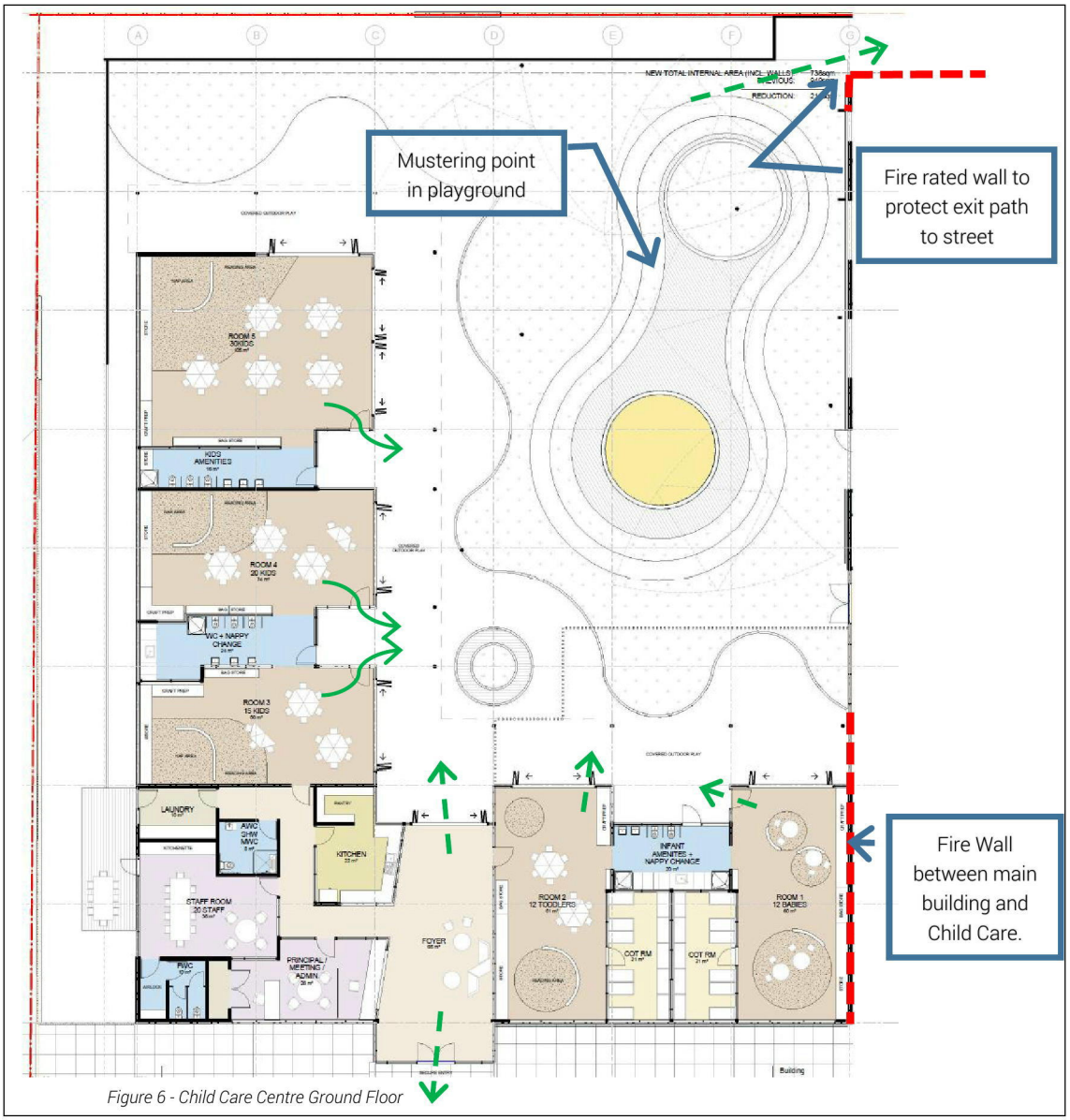

Figure 6 - Child Care Centre Ground Floor

2.5.7 MAIN BUILDING COMBINED EXITS

The main building includes three levels with different functions that are served by a combination of open and fire isolated stairs. The main foyer includes the two main open stairways, each 2.1m wide and there is a third open stair to the southern side which is 1.4m wide. The total width is 5.6m and provides an exit path for the following:

- Auditorium - First Floor with 250 occupants (two 2m wide ground floor exits through foyer, not via stair)
- Childrens Ministry – First floor 154
- Second Floor Voltage Rally - 154
- (Note that the Rally room 99 occupants would use the western fire isolated stair.)
- Total of 558 occupants.

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2.5.8 CONSTRUCTION OF EXITS PART D2

The stairs and exit paths are to be designed to meet the requirements of Part D2 of the BCA, which will include

- Store rooms or other enclosed spaces under stairs are to be fire rated enclosures (FRL 60/60/60).
- Going lengths and riser heights for the new stair are to meet the following requirements.
  - Riser – Max 190mm high, - Min 115mm high.
  - Going – Max 355mm long, - Min 250mm long
  - 2 x R + G – Max 700mm – Min 550mm.
- Conspicuous nosing to each of the stair treads.
- Threshold height at any external door to be less than 50mm. however to ensure that an accessible path is provided the change in level needs to be less than 6mm and threshold ramps should be included.
- Handrails to be provided to both sides of the new stair, with extensions at the ends to comply with AS1428.1.
- Door locks and latches are to be located between 900mm and 1100mm above the floor.
- Balustrades to edges of landings to be at least 1m high internally and 1.2m high externally.
- Tactile ground surface indicators will be required at the top and bottom of all stairs except enclosed fire stairs.
- Landings ramps and stairs to have the following slip resistant characteristics.

Table D2.14 SLIP-RESISTANCE CLASSIFICATION

APPLICATION	SURFACE CONDITIONS	
	DRY	WET
Ramp steeper than 1:14	P4 or R11	P5 or R12
Ramp steeper than 1:20 but not steeper than 1:14	P3 or R10	P4 or R11
Tread or landing surface	P3 or R10	P4 or R11
Nosing or landing edge strip	P3	P4

2.5.9 PART D3.1 – GENERAL ACCESS REQUIREMENTS

Under the BCA requirements in Part D3.1, an access pathway is required to areas depending upon the usage of the area as indicated in the table below, except as permitted by Clause D3.4.

Applying this requirement to the proposed works, access is required to all areas as indicated in the following table.

Table 6 Access Requirements

USAGE TYPE	BCA REQUIREMENTS(D3.1)	APPLICATION TO DESIGN	COMPLIANCE
Class 9b Assembly	To wheelchair seating spaces provided in accordance with D3.9. To and within all other areas normally used by the occupants, except that access need not be provided to tiers or platforms of seating areas that do not contain wheelchair seating spaces.	Access to be provided to all areas except access not required to all levels of the tiered seating in the Auditorium.	Yes
Class 5 Office	To and within all areas normally used by the occupants	Access to be provided to all areas via lift	Yes
Class 9b Child Care	To and within all areas normally used by the occupants.	Access to be provided to all areas	Yes

2.5.10 PART D3.2 GENERAL BUILDING ACCESS REQUIREMENTS

Part D3.2 of the BCA requires an accessible pathway to be provided from the main street frontage, at least 50% of all entries and the accessible parking space to the building.

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Within the proposed design an accessible path will be provided from the street frontage to the main entry of the auditorium building as well as the child care centre.
The proposed design also includes accessible parking spaces within the new carpark.

Therefore the proposed design meets the Deemed to Satisfy requirements for the provision of an accessible pathway to the building under part D3.2.

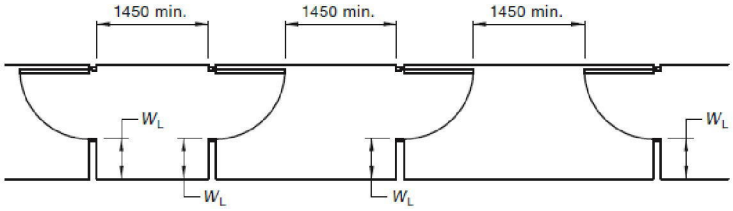
2.5.11 PART D3.3 PARTS OF BUILDING TO BE ACCESSIBLE.

Where access is required under part D3.2 of the BCA, access is required to all areas normally used by the occupants and includes areas such as toilet facilities, meeting rooms and kitchens etc. Access paths, door widths and door clearances are to comply with AS1428.1 - 2009

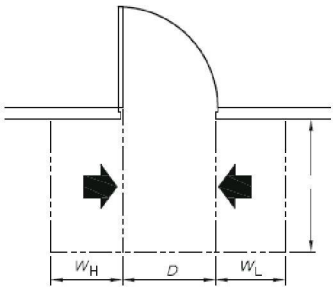
The current design for the room layouts indicate that access will be provided to all areas on all three levels using the lifts indicated .

The following criteria from As1428.1 sets out the requirements for providing access, that should be included within the detailed design:

- All doorways should be minimum 850mm clear (requires min. 920mm leaf doors)
- Provide side clearances to doors as per Figure 31 of AS1428.1 (refer below.)
- Provide lobbies with min 1450mm clear lengths to enable usability. (refer below)

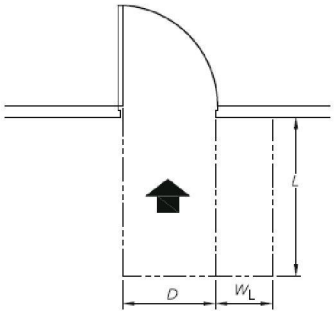


(a) Continuous accessible path of travel



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1240	560	660
900	1210	510	660
950	1175	460	660
1000	1155	410	660

(c) Either side approach, door opens away from user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	0	510
900	1450	0	510
950	1450	0	510
1000	1450	0	510

(d) Front approach, door opens away from user

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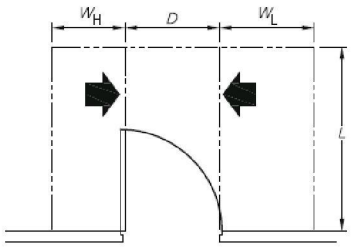
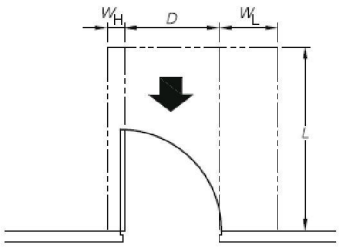


Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1670	660	900
900	1670	610	900
950	1670	560	900
1000	1670	510	900

(g) Either side approach, door opens towards user



Dimension D	Dimension L	Dimension W_H	Dimension W_L
850	1450	110	530
900	1450	110	530
950	1450	110	530
1000	1450	110	530

(h) Front approach, door opens towards user

2.5.12 LIFT

The BCA sets out the requirements for the size of a lift based on the height of the building and the functional use.
For a Class 9b building of 3 floors with access between the levels the following Lift criteria is required.

Lift Requirements						
Lift Travel distance	Less than 12m		Depth	Width	Emergency Lift	Not Required
	Lift Required	Lift Car dimensions	1400mm	1100mm	Streatcher Facilities	Required if effective height > 12m

A lift is included within the design as an accessible path to the first floor and second floors, to meet the DTS requirements.

Additionally a platform lift is to be included to provide an accessible path up to the main stage.

2.5.13 ACCESSIBLE TOILET FACILITIES

The current concept drawings indicate that accessible facilities will be provided adjacent to the location of other toilet facilities.
The documented design indicates a reasonable area is included for the facilities and the detailed design of the facilities appear to meet the requirements of AS1428.1-2009 would be achievable to meet the requirements of the BCA.

2.5.14 PART D3.5 CAR PARKING

Where car parking is provided part D3.5 of the BCA requires a minimum of 1 accessible space per 50 car parking spaces is to be provided.
The proposed works includes 385 car parking spaces over the two stages.
The required number of car parking spaces is set out in the table below which shows that the number of spaces provided meets the Deemed to Satisfy provisions of the BCA.

Stage	Parking Spaces	Required Accessible	Provided Access Parking	Compliance
Stage 1a	125	3	4	Yes
Stage 2	260	6(or 5 extra to 1a)	4	Yes
Total	385	8	8	Yes

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2.5.15 PART D3.6 IDENTIFICATION OF ACCESSIBLE FACILITIES, SERVICE AND FEATURES

Part D3.6 requires signage complying with Specification D3.6 to be included within the building in, a number of locations to identify the following:

- All sanitary facilities
- Identification of exit (where exit signage is included.)

Signage is to be included as part of the detailed design.

2.5.16 PART D3.7 HEARING AUGMENTATION

Part D3.7 requires that where an amplification system within a meeting room of more than 100m^2 a hearing augmentation system is to be installed.

Within the design where sound amplification systems are included a Hearing augmentation system will be required.

2.5.17 PART D 3.8 TACTILE GROUND SURFACE INDICATORS

Part D3.8 of the BCA requires that tactile ground surface indicators (TGSI's) be installed at the top and bottom of open stairs and ramps to warn occupants of the associated hazard, where the area is to be accessible.

The detailed documented design is to include tactile indicators to the top and bottom of all stairs and ramps to meet the DTS requirements.

2.5.1 PART D3.9 WHEELCHAIR SEATING SPACES IN CLASS 9B ASSEMBLY BUILDINGS.

Clause D3.9 sets out the requirements for the provision of Wheelchair seating spaces within an auditorium and will apply to the proposed auditorium.

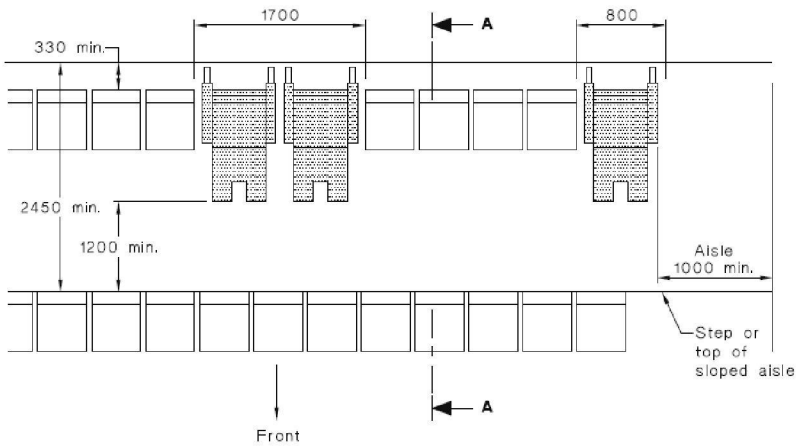
For an Auditorium with more than 150 occupants Table D3.9 requires 3 seating spaces plus 1 extra space for each additional 50 occupants above 150. Therefore in Stage 1, 8 wheelchair seating spaces would be required in the Auditorium.

For an Auditorium with more than 800 occupants Table D3.9 requires 16 seating spaces plus 1 extra space for each additional 100 occupants above 800.

As the proposed Auditorium has a seating capacity of 1350 occupants at least 22 wheelchair seating spaces will be required spread across the varied seating options, with at least 2 single seats and a maximum of 5 seats grouped together.

Australian Standard AS1428.1 sets out the wheelchair seating space requirements and arrangements that are to be followed in the detailed layout of the auditorium seating.

AS 1428.1—2009 94



PLAN—APPROACH FROM THE FRONT

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2.6 PART E – ESSENTIAL FIRE SAFETY MEASURES.

The Essential Fire Safety Measures to be installed in the building are based on the type size and scale of the building,
Due to the scale of the building and the large open foyer area, the building is expected to be sprinkler protected.
As an entertainment Venue with a stage and backstage area of more than 150m2 the main Auditorium will require a smoke exhaust system above the stage, along with associated make up air, this is to be detailed within the detailed design of the development.

Additionally the following essential fire safety measures are required:

Essential Fire Safety Measures (Part E)			
Fire Hydrants	Required	Located externally, in fire stairs or next to required stair	
Fire Hose Reels	Required	Within 4m of an Exit	-
Sprinkler Protection	No Refer to BCA Part H1		**Sprinkler Protection of Stage Required**
Carpark	-		
Fire Control Centre	Not Required		
Smoke Hazard Management			
	Above Ground Only Exits	**Basement Level Exits**	
Stair Pressurisation	**No**	-	
Smoke Detection	Required		**Note: Shutdown of ducted air handling system required using detection**
Smoke Exhaust System			
General Area	Smoke Exhauist		
Stage Requirements	**Smoke Exhaust over stage and Two exits from stage required.**		
Exit Signs & Lighting	Exit signs & Emergency Lighting Required		
SSISEP	SSISEP Required if Theatre or Public Hall		
Sound Systems and Intercom Systems for Emergency Purposes			

2.6.1 NSW FIRE BRIGADE REFERRAL

It I noted that due to the scale of the proposed building, under the Environmental Planning and Assessment Regulations 2000 Clause 144, if Deemed to Satisfy Provisions of the BCA can not be achieved and a Performance Solution is to be developed that includes any Category 2 Fire Safety measures the Fire Engineered Performance Solution (or Alternative Solution) is to be referred to the NSW Fire Brigade for approval.

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2.7 PART F – HEALTH AND AMENITY

2.7.1 PART F1 – DAMP AND WEATHERPROOFING

Part F1 of the BCA requires that the external façade of the building be designed to maintain weatherproofing and prevent water ingress to the building.
This is to be included in the detailed design.

2.7.2 PART F2 – SANITARY AND OTHER FACILITIES

Part F2 of the BCA sets out the required number of toilets to be provided based on the number of people that will be catered for within the building and the use of the building.

2.7.2.1 GROUND FLOOR MAIN AUDITORIUM & FOYER

For the main Auditorium(1350) and the foyer area (330), the following facilities are required;

Table 7- Facilities for Auditorium and Foyer

Toilet Requirements			Female		Male			
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	Access
1350	R-Public hall 9b over 250 - Patrons	50%	11	5	4	10	5	1
1800	R-Public hall 9b over 250 - Patrons	50%	13	6	5	12	6	1
2400	R-Public hall 9b over 250 - Patrons	50%	16	8	7	15	7	1

The proposed design includes the following:

	WC's	U	Hand Basins	Comments
Female	16	-	5	Sufficient for 1200 Female occupants
Male	4	10	5	Sufficient for 700 Male occupants
Access	1		1	Sufficient

Based on the the numbers above the facilities provided are sufficient for the number of occupants, but there would be benefit in altering the design to include 2 more Male wc's and 2 less Female wc's.

2.7.2.2 GROUND FLOOR CITY CARE

For the City Care area with 50 occupants, the following facilities are required;

Table 8- Facilities for City Care Office Area

Toilet Requirements			Female		Male			
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	Access
50	A-Class 3,5,6 & 9 other than school - Employees	50%	2	1	2	1	1	1

The proposed design includes the following:

	WC's	U	Hand Basins	Comments
Female	2	-	2	Sufficient
Male	1	1	1	Sufficient
Access	1	-	1	Sufficient

Based on the the numbers above the facilities provided are sufficient for the number of occupants, based on the accesible also being availible for use by Male occupants.

2.7.2.3 GROUND FLOOR YOUTH HALL

For the Youth Hall area with 500 occupants, the following facilities are required;

Table 9- Facilities for Youth Hall

Toilet Requirements			Female		Male			
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	Access
500	R-Public hall 9b over 250 - Patrons	50%	6	3	2	5	3	1

The proposed design includes the following:

	WC's	U	Hand Basins	Comments
Female	6	-	3	Sufficient
Male	2	5	3	Sufficient
Access	1	-	1	Sufficient

Based on the the numbers above the facilities provided are sufficient for the number of occupants.

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2.7.2.4 GROUND FLOOR CHILDRENS MINISTRIES

For the Children Area with 155 occupants, the following facilities are required;

Table 10- Facilities for Childrens Ministries

Toilet Requirements			Female		Male			
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	Access
155	Q-Public hall function room 9b - Patrons	50%	3	2	1	2	1	1

The proposed design includes the following:

	WC's	U	Hand Basins	Comments
Unisex	4	-	4	Sufficient
Access	1	-	1	Sufficient

Assuming the use of the Accessible wc by both male & female occupants, and that there are facilities located in the adjacent Foyer, there is sufficient in the area for the number of occupants.

2.7.2.5 FIRST FLOOR CHILDRENS MINISTRIES

For the childrens ministry to the southern end of the first floor, the following facilites are required,

Table 11- Facilities to South End First Floor

Toilet Requirements			Female		
Occupants	Use for toilets	Split /Females	WC	HB	Access
250	Q-Public hall function room 9b - Patrons	100%	6	3	1

The proposed design includes 5 unisex wc cubicles each with their own hand basin, which can be allocated to either male or female usage plus an accessible facility. Additionally there are also other facilites in the adjacent areas.
Subject to detailed design the facilities provided will be sufficient for the number of occupants in the area.

2.7.2.6 FIRST FLOOR GREEN ROOM & OFFICE

For the Green Room and Office area to the outhern end of the first floor, the following facilites are required,

Table 12- Facilities to North End First Floor

Toilet Requirements			Female		Male			
Occupants	Use for toilets	Split /Females	WC	HB	WC	U	HB	Access
60	I-Class 9b - Participants	50%	2	3	2	3	3	1
35	A-Class 3,5,6 & 9 other than school - Employees	50%	2	1	1	Not Req	1	1

The proposed design includes the following:

	WC's	U	Hand Basins	Comments
Female	4	-	2	Sufficient
Male	4	-	2	Sufficient
Access	1	-	1	Sufficient

The Office will be used mainly during the weekand the Green room used prior to and after the church services for the gathering of those involved with the church services or other stage functions when the facility is used as an entertainment Venue therefore both the green room and the office area are unlikely to be fully occupied at the same pointin time.
Therefore assuming the use of the Accessible wc by both male & female occupants, and that there are facilities located in the adjacent Foyer that could be used, it is considered that sufficient facilities are provided for the number of occupants.

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2.7.2.7 SECOND FLOOR CHILDRENS MINISTIRES

For the childrens ministry to the southern end of the Second floor, the following facilites are required,

Table 13- Facilities to South End First Floor

Toilet Requirements			Female		
Occupants	Use for toilets	Split /Females	WC	HB	Access
250	Q-Public hall function room 9b - Patrons	100%	6	3	1

The proposed design includes 5 unisex wc cubicles each with their own hand basin, which can be allocated to either male or female usage plus an accessible facility. Additionally there are also other facilites in the adjacent areas.
Subject to detailed design the facilities provided will be sufficient for the number of occupants in the area.

2.7.2.8 CHILD CARE CENTRE

For the Child Care Centre the following facilites are required.

Toilet Requirements				
Occupants	Use for toilets	Split /Females	WC	HB
24	M - Chilcare Centre 9b- Children	100%	2	2
15	M - Chilcare Centre 9b- Children	100%	1	1
20	M - Chilcare Centre 9b- Children	100%	2	2
20	M - Chilcare Centre 9b- Children	100%	2	2

Based on the above the current design is provided with sufficient facilites for the number and type of occupants, subject to final detailed design.

The detail layout of the Ambulant cubiles and accessilbe wc facilities appears to meet the layout requirements as set out within AS1428.1, subject to final detailed design.

2.8 PART F3 – ROOM SIZES

Part F3 of the BCA requires the following ceiling heights in certain rooms within a building:

- Airlocks bathrooms storerooms, tea prep areas and the like – 2.1m
- General area – 2.4m
- Above stairways, measured vertical above the nosing – 2m
- Auditoriums and corridors leading to auditoriums that accommodate more than 100 occupants – 2.7m

The design appears to be able to meet these requirements.

2.9 PART F4 – LIGHT & VENTILATION

2.9.1.1 LIGHTING

Lighting is required to all rooms in the building. This can be achieved by either natural daylight, or other lighting methods. If daylight is used the area of windows is to be at least 10% of the floor area. Therefore an external window and the size of the windows are to be at least 10% of the floor area of the room served to meet the requirements of Clause F4.1.
The indoor play rooms of the Child Care centre will require windows to provide natural daylight.

2.9.1.2 VENTILATION

Ventilation is to be provided to all rooms and this can be achieved by either natural ventilation through operable windows and doors or by mechanical ventilation to AS1668. If natural ventilation is to be used then the area of the operable windows should be at least 10% of the floor area of the room.
It is anticipated that the building will be fully air conditioned.

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2.9.2 PART F5 – SOUND INSULATION

The BCA under Part F5 requires sound insulation of walls and floors that separate Sole Occupancy Units from other adjacent SOU's or other spaces within the building. Particularly in Class 2 & 3 buildings.
This does not apply to the proposed woks which is of class 9b use.

2.10 PART H – SPECIAL USE BUILDINGS

Part H of the BCA applies to buildings which are used as Entertainment Venues.
The project is proposed to be designed as an Entertainment Venue, except that the child care centre may be separated from the main building. For the main building, as an Entertainment Venue the following will be required, as set out in Section H101.

- The auditorium seating is required to be setout in accordance with Clause H101
- A maximum of 16 seats in a row between aisles.
- Aisle lighting and Lighting emergency on switch.
- Fire separation of stage and backstage areas from the auditorium.
- Two exits from stage and backstage areas, not through the proscenium wall.
- Smoke exhaust from stage and backstage areas, with make up supply air.
- Fire separation of store rooms with a FRL of 60/60/60 is required.

2.11 PART J – ENERGY EFFICIENCY

Energy efficiency requirements of the BCA generally apply to part of a building that are air conditioned, which are not of Class 2 usage. NSW Basix legislation applies to the Residential Class 2 buildings

2.11.1 PART J1 – BUILDING FABRIC

The proposed building is class 9b use located in climate zone 6 and will require the following thermal performance of the various parts.

2.11.2 PART J1.2 THERMAL CONSTRUCTION

The installation of materials associated with the thermal performance of the building are to be in accordance with AS 4859.1.
Assuming that the roofing material colour is a mid to dark colour (Solar Absorbance of 0.6 or more) Then the following table shows the insulation requirements for the roof and ceiling combination for the various zones from Table J1.3a. These values assume that more than 99% of the roof area is insulated.

Table 14

Insulation Requirements (Part J)			External Walls		Suspended Slab if Open Under	Space above /below Encl & witth <1.5 AC/hr		Insulation to Slab on Ground	
Zone 6	Roof & Ceiling	Internal envelope walls							
Roof Colour	R 3.2	space enclosed and vent <1.5AC = R1.0, otherwise R1.8	Total R2.8		R2.0	No Slab Heating	R1.0	No Slab Heating	Nil
Other	Downwards				Downwards	With Slab Heating	R1.25	With Slab Heating	R1.25
	Allows for less than 0.5% of ceiling area to be uninsulated			Other Wall Options		OR Cavity masonry with insulation(total R2.3)			
						or Cavity masonry, 30 degree shaded and insulation (Total R 1.8)			
	Shaft index	Shylight % of floor area	Max SHG Value	Max total U Value		or Cavity masonry, 60 degree shaded and insulation (R1.3)			
Skylight Requirements	< 0.5	4 to 5%	0.34	3.4		Or where space is top hats, Total R1.4 & Glazing option B			

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2.11.3 PART J1.3 ROOF AND CEILING INSULATION

The combined roof and ceiling insulation is to give a total R value of R3.2 or more. This is normally achieved by insulation under the roofing and at ceiling level.
Generally the under roof insulation (sarking & Blanket) will have an thermal performance of up to R1.4 which will mean that the ceiling and ceiling insulation will need to have a thermal performance of at least R1.8

2.11.4 PART J1.4 ROOF LIGHTS

Part J1.4 of the BCA sets out specific requirements for roof lights when the area exceeds 1.5% of the floor area and permits skylights to be up to 5% of the floor area.
No skylights are indicated within the design at this stage.

2.11.5 PART J1.5 WALLS

External walls are required to achieve a minimum Total R-Value of at least R2.8.

2.11.6 PART J1.6 FLOORS

Specific thermal performance requirements are set out in Part J1.6 of the BCA for suspended floors with unenclosed perimeters on the lower levels.
If there are any suspended floors that are open below, they will be required to be insulated to prevent heat loss.

2.11.7 PART J2 – EXTERNAL GLAZING

2.11.7.1 PART J2.4 GLAZING METHOD 2

Compliance with Part J2.4 is achieved by analysis of the areas of the external façade and the proportional areas of the external glazing. The analysis is undertaken during the detailed design to show compliance based on the building façade elements and is required as part of the Construction Certificate documentation..
Where the design can not meet the Deemed to Satisfy provisions of Part J an Alternative Solution based on a JV3 modelling process may be required subject to final detailed design
A preliminary assessment has been undertaken on the design and indicates that compliance could be achieved based on detailed design.

WINDOWS TYPES				
	GLAZING	Colour	Uw	SHG CW
Commercial Aluminium frame 150mm	6.38mm Comfort Plus	Neutral	4.6	0.48

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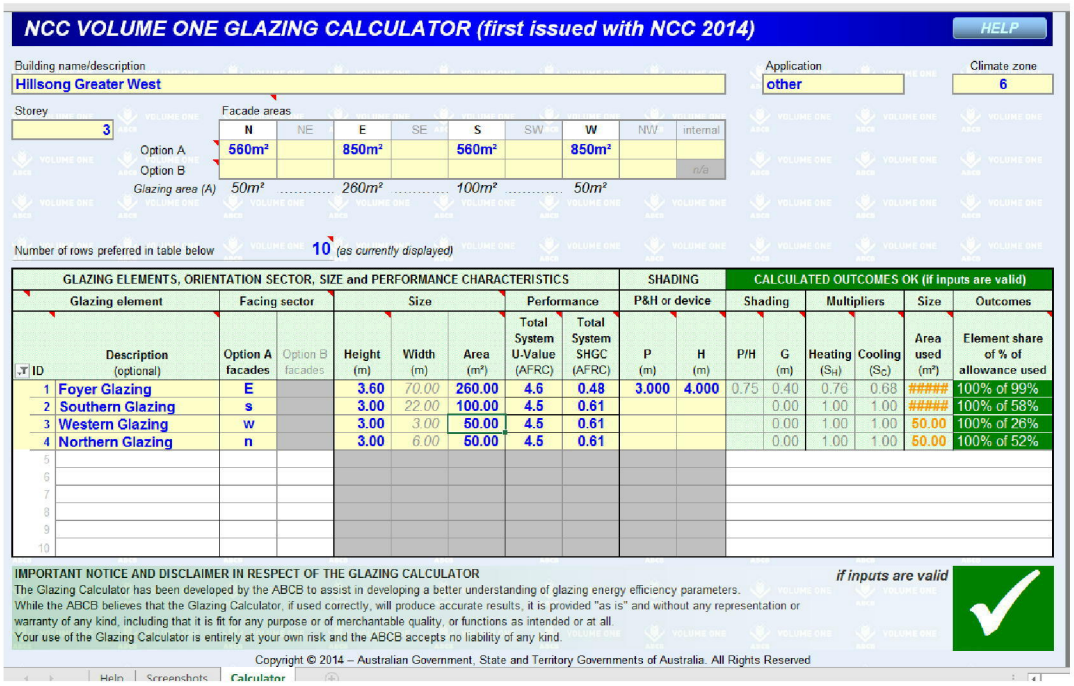

NCC VOLUME ONE GLAZING CALCULATOR (first issued with NCC 2014)

HELP

Building name/description: Hillsong Greater West | Application: other | Climate zone: 6

Storey: 3

Facade areas

	N	NE	E	SE	S	SW	W	NW	internal
Option A	560m²		850m²		560m²		850m²		
Option B									n/a
Glazing area (A)	50m²		260m²		100m²		50m²		

Number of rows preferred in table below: 10 (as currently displayed)

GLAZING ELEMENTS, ORIENTATION SECTOR, SIZE and PERFORMANCE CHARACTERISTICS								SHADING		CALCULATED OUTCOMES OK (if inputs are valid)					
Glazing element		Facing sector		Size			Performance		P&H or device		Shading		Multipliers		Size	Outcomes
ID	Description (optional)	Option A facades	Option B facades	Height (m)	Width (m)	Area (m²)	Total System U-Value (AFRC)	Total System SHGC (AFRC)	P (m)	H (m)	P/H	G (m)	Heating (S_H)	Cooling (S_C)	Area used (m²)	Element share of % of allowance used
1	Foyer Glazing	E		3.60	70.00	260.00	4.6	0.48	3.000	4.000	0.75	0.40	0.76	0.68	#####	100% of 99%
2	Southern Glazing	s		3.00	22.00	100.00	4.5	0.61				0.00	1.00	1.00	#####	100% of 58%
3	Western Glazing	w		3.00	3.00	50.00	4.5	0.61				0.00	1.00	1.00	50.00	100% of 26%
4	Northern Glazing	n		3.00	6.00	50.00	4.5	0.61				0.00	1.00	1.00	50.00	100% of 52%
5																
6																
7																
8																
9																
10																

IMPORTANT NOTICE AND DISCLAIMER IN RESPECT OF THE GLAZING CALCULATOR

The Glazing Calculator has been developed by the ABCB to assist in developing a better understanding of glazing energy efficiency parameters. While the ABCB believes that the Glazing Calculator, if used correctly, will produce accurate results, it is provided "as is" and without any representation or warranty of any kind, including that it is fit for any purpose or of merchantable quality, or functions as intended or at all. Your use of the Glazing Calculator is entirely at your own risk and the ABCB accepts no liability of any kind.

if inputs are valid

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Help | Screenshots | Calculator

2.12 PART J3 - BUILDING SEALING

2.12.1 PART J3.3 ROOFLIGHTS

Any roof lights are to be sealed roof lights or if ventilated are to meet the requirements of Clause J3.3.

2.12.2 PART J3.4 WINDOWS AND DOORS

Part J3.4 of the BCA requires seals to be fitted to doors and windows that are part of the conditioned envelope.
Compliance is achieved by specifying windows to comply with AS2047

2.12.3 PART 3.5 – EXHAUST FANS

Exhaust fans to conditioned spaces, where installed, are to be fitted with self closing dampers.

2.13 PART 3.6 - CONSTRUCTION OF ROOFS, WALLS AND FLOORS

Construction documented will comply if linings specified to internal surfaces with sealed junctions by caulking, skirting, architraves, cornices or the like.

2.14 PART 3.7 – EVAPORATIVE COOLERS

Any evaporative coolers installed in the building are to be fitted with self closing dampers to reduce heating loss when not used or during winter.

2.15 PART J5 – AIR CONDITIONING AND VENTILATION SYSTEMS

Compliance with Part J5 is not assessed in this review as the system is designed by the mechanical engineer, who will provide a detailed assessment of the design of the systems

2.16 PART J6 – ARTIFICIAL LIGHTING AND POWER

Compliance with Part J6 is not assessed in this review as the system is designed by the specialist engineer, who will provide a detailed assessment of the design of the systems

2.17 PART J7 – HEATED WATER SUPPLY AND SWIMMING POOL AND SPA PLANT.

Compliance with Part J7 is not assessed in this review as the system is designed by the specialist engineer, who will provide a detailed assessment of the design of the systems

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3.0 CONCLUSION & RECOMENDATIONS

Based on the review of the proposed design, as outlined in the assessment above, it is considered that the proposed design as indicated on the drawings generally will be able to meet the relevant Deemed to Satisfy Provisions of the Building Code of Australia 2016.

It I noted that due to the scale of the proposed building, under the Environmental Planning and Assessment Regulations 2000 Clause 144, if Deemed to Satisfy Provisions of the BCA can not be achieved and a Performance Solution is to be developed that includes any Category 2 Fire Safety measures the Fire Engineered Performance Solution (or Alternative Solution) is to be referred to the NSW Fire Brigade for approval.

Trevor Eveleigh
Associate DIrector - Compliance & Sustainability
(M.FSE, Grad. Dip Build. Surv. & Assess)
NBRSARCHITECTURE.

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