

15-205426-1R

**AUDIT REPORT ON COMPLIANCE WITH THE  
BUILDING CODE OF AUSTRALIA  
EXISTING GOODS SHED  
BALLARAT TRAIN STATION**

Report prepared for: Victrack  
Level 8, 1010 Latrobe Street  
DOCKLANDS VIC 3001

Report prepared by: Philip Chun Building Code Consulting  
Level 2  
120 Jolimont Road  
JOLIMONT 3002

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## EXECUTIVE SUMMARY

The key compliance matters that should be considered with respect to the new convention centre use of the existing goods shed building include:

1. Confirmation that the existing structure will comply with Part B of the BCA with respect to the new use including the requirements of the Earthquake Actions Australian Standard AS 1170.4-2007

It is noted that Cardno have suggested that the existing structure be to be assessed against the provisions of AS 3826 (1998) (Strengthening existing buildings for earthquake) in lieu of AS 1170.4 (2007) as required by BCA Clause B1.2. This approach would require validation via a modification determination by the Building Appeals Board.

2. Upgrade of external walls to be located within 18m of another building on the allotment (i.e. new hotel building) to achieve a 2 hour fire rating. This based upon Type B construction.

Should the building be broken into fire compartments not exceeding an area and volume of 3,000m<sup>2</sup> and 18,000m<sup>3</sup> respectively, Type C construction may be adopted; this would require external walls within 3m of another building to be fire rated.

Note: a fire engineered alternative solution may be developed to utilise the inherent fire rating achieved by the existing bluestone external walls.

3. Class 6 components (retail, bar, cafe, restaurant) exceeding 10% of the floor area of the building are to be fire separated from the remainder of the building via a 3 hour fire rating if the building is of Type B construction (refer item 2 above).
4. Upgrade / fire rating of external windows and doors where located within 3m of another building on the allotment (i.e. proposed hotel) – as applicable.
5. Provision of compliant external exit doors including compliant door hardware. Population number of proposed convention centre to be determined; however based upon the floor area, the population as calculated by D1.13 of the BCA is 3,800. This would require an aggregate exit width of 32m.
6. Upgrading of any existing steps / handrails / balustrading (that are to remain as part of the redevelopment) to comply with current BCA requirements.
7. Provision of compliant access for people with a disability including:
  - Level entrance to the principal public entrance and 50% of all other pedestrian entrances.
  - Compliant path of travel from the allotment boundary to the goods shed (i.e. 1:33 walkways or 1:14 maximum gradient ramps)
  - Compliant path of travel between buildings and to accessible carspaces (i.e. 1:33 walkways or 1:14 maximum gradient ramps).
8. Provision of accessible carparking spaces complying with AS/NZS 2890.6. The minimum required numbers are:
  - 1 space per 50 (up to 1000 cars) +
  - 1 space per 100 in excess of 1000 cars)
9. Provision of a new hydrant system serving the building complying with AS 2419.1-2005 (note: due to significant non-compliance issues with the existing hydrant system within the building it is suggested that allowance is made for a new fire hydrant system).
10. Provision of new fire hose reel system to serve the building.
11. The smoke hazard management system requirements depending on the use and area of certain uses. The following is a breakdown of the requirements:



## EXHIBITION HALLS

All buildings, or parts of building used as an exhibition hall are to be provided with:

- Smoke detection system to AS 1670.1-2004
- Automatic shutdown of any air-handling system

In addition to this, the following is required where the exhibition hall exceeds 2,000m<sup>2</sup>:

- a. Exhibition hall with a floor area between 2,000m<sup>2</sup> to 3,500m<sup>2</sup>:
  - A sprinkler system complying with AS 2118.1-1999; **or**
  - Smoke exhaust comprising of:
    - i. automatic smoke exhaust system complying with BCA Spec E2.2b; or
    - ii. automatic smoke-and-heat vents complying with Specification E2.2c.
- b. Exhibition hall with a floor area greater than 3,500m<sup>2</sup>:
  - a sprinkler system complying with AS 2118.1-1999; **and**
  - smoke exhaust comprising of:
    - iii. automatic smoke exhaust system complying with BCA Spec E2.2b; or
    - iv. automatic smoke-and-heat vents complying with Specification E2.2c.

## PUBLIC HALL (Convention Centre)

- i. All buildings, or parts of building used as a public hall are to be provided with:
    - o Automatic shutdown of any air-handling system on activation of a smoke detection system complying with BCA Spec E2.2a
  - ii. A public hall (convention centre) with a stage / backstage area exceeding 200m<sup>2</sup> or a stage with a rigging loft must be provided with
    - o An automatic smoke exhaust system complying with BCA Spec E2.2b; or
    - o Automatic smoke-and-heat vents complying with Specification E2.2c
  - iii. Public halls with an area between 2,000m<sup>2</sup> to 5,000m<sup>2</sup> require smoke detection and alarm complying with BCA Specification E2.2a
12. Provision of Exit signage and emergency lighting throughout the building.
  13. Provision of a sound systems and intercom systems for emergency purposes (aka EWIS).
  14. Provision of adequate sanitary facilities. Based upon the population calculated in D1.13 (3,800) the following toilet numbers will be required:

Male Toilets (1520 patrons + 380 staff)

WC	Urinal	WB
27	27	21

Female Toilets (1520 patrons +380 staff)

WC	Urinal	WB
44	n/a	21





15. Provision of compliant unisex accessible bathroom and ambulant toilet cubicles.
16. Upgrade of the existing building fabric to comply with the energy efficiency requirements of Section J of the BCA including:
  - The roof / ceiling is to be treated to achieve an R value of R3.7
  - External walls to achieve an R value of R2.8
  - The slab on ground is to achieve an R value of R1.0
  - Roof lights are not permitted to exceed 5% of the area of the room / space served and comply with the U and SHGC values provided by BCA Table J1.4
  - Upgrade of any glazing within the building envelope to comply with Part J2 of the BCA

It is noted that achieving compliance with some of the above requirements may be difficult to achieve. This being the case it is suggested that in lieu of complying with the prescriptive requirements of the BCA, that the building be subject to a JV3 analysis to demonstrate compliance.



## CONTENTS

1.	EXECUTIVE SUMMARY .....	2
2.	CONTENTS AND BRIEF .....	5
3.	METHODOLOGY.....	5
4.	DESCRIPTION OF THE BUILDING .....	7
5.	BUILDING REGULATION ASSESSMENT .....	7
	5.1 BCA Part A - General Requirements .....	7
	5.2 BCA Part B – Structure.....	7
	5.3 BCA Part C – Fire Compartmentation & Fire Resistance .....	8
	5.4 BCA Part D – Access & Egress .....	12
	5.5 BCA Part E – Services & Equipment.....	17
	5.6 BCA Part F – Health & Amenity .....	20
	5.7 BCA Part G – Ancillary Provisions.....	22
	5.8 BCA Part J – Energy Efficiency.....	22
6.	BUILDING REGULATION CODE UPGRADE LEGISLATION .....	25
7.	DISABILITY DISCRIMINATION LEGISLATION.....	25
8.	REPORT LIMITATIONS .....	26

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R2.0	16 October 2015	Issue	Final	
			Prepared by	Reviewed by
		Name	Ben Thompson	Richard Wells
		Signed		



## 2. CONTENTS AND BRIEF

- 2.1 The purpose of this report is to establish the level of compliance of the existing goods shed building at Ballarat Railway Station. The existing building is vacant, with the proposal for the building to be converted into a Convention Centre.
- 2.2 This compliance report has been prepared for VicTrack and with their authority, for the use of consultants for the good shed building located at Ballarat Railway Station.
- 2.3 This report represents a review of the existing building against the current building legislation, including the Building Act ('Act') the Building Regulations ('the regulations'), the Building Code of Australia 2015 ('BCA')<sup>1</sup> and relevant Maintenance Standards.
- 2.4 This report has been prepared based on the available time allocated to conduct the review, and all reasonable attempts have been made to identify the main compliance matters pursuant to the BCA and relevant Maintenance Standards.
- 2.5 This report aims to identify in particular areas within the existing building which require consideration relative to compliance with relevant Building / Code legislation. No testing has been carried out of building structure, installations, systems or equipment, and the review has concentrated on the base building characteristics to the exclusion of individual tenancy / sole occupancy unit characteristics.
- 2.6 In areas where access was not readily available, assumptions may have been made to aid in preparation of this report. These assumptions have been documented and are based on findings during the inspection and which are typical of other features of the building.
- 2.7 This report should not be construed as an exhaustive report as insignificant issues in the opinion of Philip Chun Building Code Consulting, an in context with the object of the report have not been documented.
- 2.8 This report must not be used for any other purpose without prior permission from Philip Chun Building Code Consulting.
- 2.9 Philip Chun Building Code Consulting accepts no responsibility for any loss suffered as a result of any reliance upon such assessment or report other than as being accurate at the date the property was inspected for the purposes of the assessment or report.

## 3. METHODOLOGY

In preparing this report the following methodology was adopted by Philip Chun Building Code Consulting:

- 3.1 Carry out a walk through site inspections of the existing building relative to the requirements of the Building Code of Australia and relevant codes or standards as applicable.
- 3.2 Review documentation of the existing building available relative to building code compliance matters available.

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<sup>1</sup> Building Code of Australia, ABCB, Canberra



#### 4. DESCRIPTION OF THE BUILDING

- 4.1 The existing building is located at Lydiard Street North, Ballarat. The building is a single storey building however does incorporate some mezzanine areas.
- 4.2 The building is of is required to be of Type A construction (Type C construction required based upon number of storeys however Type B required based upon the volume and area of the building for Class 9b /5 use) and is proposed to be of Class 9b / 5 Occupancy based on the classifications outlined in the Building Code of Australia. Note: the current BCA classification of the building is Class 7b / 5
- 4.3 The building has a total floor area of 3,902m<sup>2</sup>, and 23,990 m<sup>3</sup> including the office addition to the north-west end of the building.
- 4.4 The building is constructed of bluestone external walls, asbestos roof sheeting and timber internal frame.

#### 5. BUILDING REGULATION ASSESSMENT

##### 5.1 BCA Part A - General Requirements

The building uses are summarised as follows

###### Building Use

Level	Use	Classification
Ground Floor	Goods Sheds (current use)	Class 7b
	Convention Centre (proposed use)	Class 9b
Ground Floor	Office (current use)	Class 5

##### 5.2 BCA Part B – Structure

Clause	Comment	Compliance
B1.1, B1.2, B1.3 Structural Actions and Loads	The structural adequacy of the building is to be in accordance with its intended use.	To be confirmed by Structural Engineer including upgrade requirements to comply with Earthquake Actions Australian Standard AS 1170.4-2007.  It was noted the some columns have disconnected and no longer supporting roof structure. The Structural Engineer is to review and confirm.  It is noted that Cardno have suggested that the existing structure be to be assessed against the provisions of AS 3826 (1998) (Strengthening existing buildings for earthquake) in lieu of AS 1170.4 (2007) as required by BCA Clause B1.2. This approach would require validation via a modification determination by the Building Appeals Board.
B1.4 Structural resistance and forms of construction	The structural design of the building is to be in accordance with the following suite of reference standards.	To be confirmed by Structural Engineer



Masonry	AS 3700	
Concrete	AS 3600	
Steel	AS 4100	
	AS 4600	
Timber	AS 1720	
	AS 1684	
Piling	AS 2159	
Glass	AS 1288	
	AS 2047	
Termite Risk Management	AS 3660	
Other		

### 5.3 BCA Part C – Fire Compartmentation & Fire Resistance

#### C1 Fire Resistance and Stability

Clause	Comment	Compliance
C1.1 Type of construction required.	Type C construction required based upon number of storeys however Type B required based upon the volume and area of the building for Class 9b /5 use.	<p>Compliance achievable for Type B construction on the basis the building has a minimum separation from other buildings on the allotment of 18m and the building is single storey allowing for the concession for internal columns not to be fire rated.</p> <p>External wall of goods shed may require upgrade to achieve a fire rating should the hotel be constructed within 18m of the good. Note: There may be some scope for a fire engineered alternative solution to permit the use of the bluestone external wall to form the fire rating.</p> <p>Should the building be broken into fire compartments not exceeding an area and volume of 3,000m<sup>2</sup> and 18,000m<sup>3</sup> respectively, Type C construction may be adopted; this would require external walls within 3m of another building to be fire rated.</p>
C1.2 Calculation of rise in storeys.	The building has a rise in storey's of one	No issue





<p>C1.3 Building of multiple classification.</p>	<p>The proposed building is to accommodate Class 9b and Class 5 component.</p>	<p>There is no BCA requirement to separate Class 9b from Class 5 components.</p> <p>Class 6 components (retail, bar, cafe, restaurant) exceeding 10% of the floor area of the building are to be fire separated from the remainder of the building via a 3 hour fire rating if the building is of Type B construction.</p>
<p>C1.10 Early Fire hazard indices.  Spec C1.10 or C1.10A.</p>	<p>The materials in the building are required to comply with specified Early Fire Hazard Indices.</p>	<p>It is not possible to determine the performance of the finishes and linings used from visual inspection. The finishes and linings used within the building are consistent with common finishes and linings used within commercial buildings and it would be unlikely that any of the materials within the building would exceed BCA allowances.</p> <p>It is however expected that new surface finishes should be provided as part of any proposed works.</p>

**C2**      *Compartmentation and Separation*

Clause	Comment	Compliance
<p>C2.2 General floor area limitations.</p>	<p>The floor area of the building / compartment is not to exceed 5,500m<sup>2</sup> area or 33,000 m<sup>3</sup> volume for Type B construction (note: the building exceeds the maximum area / volume criteria for Type C construction).</p>	<p>Compliance achievable for Type B construction on the basis the building has a minimum separation from other buildings on the allotment of 18m and the building is single storey allowing for the concession for internal columns not to be fire rated.</p> <p>Should the building be broken into fire compartments not exceeding an area and volume of 3,000m<sup>2</sup> and 18,000m<sup>3</sup> respectively, Type C construction may be adopted; this would require external walls within 3m of another building to be fire rated.</p>



C2.3	Large isolated buildings	The building compartments may exceed the requirements of C2.2 if the building is provided with perimeter vehicle access, and a sprinkler system / smoke hazard management system to Specification E2.2a / E2.2b.	On the basis the building complies with Type B construction (refer items C2.2 and C1.1, the goods shed building need not comply as a large isolated building.
C2.4	Open space and vehicular access	Perimeter vehicle access must not be obstructed nor more than 18 metres from the building.	On the basis the building complies with Type B construction (refer items C2.2 and C1.1, the goods shed building need not comply as a large isolated building.
C2.6	Vertical separation of openings in external walls.	Spandrels are required to the perimeter where the building does not have sprinklers.	Not applicable based upon single storey construction.
C2.7	Separation by fire walls	Fire walls to be constructed where fire separation of buildings or compartments is required.	Not applicable.
C2.8	Separation of classifications in the same storey	A building with different classifications must be constructed to the higher FRL or be fire separated.	On the basis the goods shed is used for a Convention Centre (Class 9b) and office (Class 5) there are no fire separation requirements. Should the goods shed abut or accommodate the hotel component, a fire separation between classifications will be required.
C2.9	Separation of classifications in different storeys.	Floors to the building are required to provide the specified level of FRL between classifications.	Not applicable
C2.10	Separation of lift shafts.	Lift shafts are to be fire separated by an FRL / non combustible construction.	Not applicable based upon single storey construction.
C2.12	Separation of equipment.	Essential / emergency equipment including lift motor rooms, switch rooms, emergency generators, central smoke control plant, boilers or batteries are to be separated by FRL 120/120/120 construction.	This equipment was not noted within the building however any future provision of these components within the building will require fire separation.
C2.13	Electricity supply system.	An electricity substation must be separated by a FRL. A main switchboard which supports any emergency equipment must be fire separated with FRL construction.  Fire rated cabling is between the switchboard and the substation.	No substation was noted within the building however any future provision of these components within the building will require fire separation



C3 Protection of Openings

Clause	Comment	Compliance
C3.2 Protection of openings in external walls	Openings less than 3 metres of a fire source feature ie. the side boundaries of a site must be protected with FRL construction. eg. fire window or drenchers	Currently complies  External windows / doors of goods shed may require upgrade to achieve a fire rating should the hotel be constructed within 3m of the good shed.
C3.6 Sliding fire doors	Sliding fire doors require red flashing lights, audible warning devices, signs and be held open by electromagnetic hold open devices.	Not applicable
C3.8 Openings in fire-isolated exits.	FRL -/60/30 Fire doors are required to fire isolated exits.	Not applicable
C3.9 Service penetrations in fire-isolated exits.	Penetrations are not permitted in a fire isolated exit.	Not applicable
C3.10 Openings in fire-isolated lift shafts.	Lift shaft doors to be FRL -60/-  Call buttons and indicator panels to be backed by -/60/60 FRL if openings exceed 35,000 mm <sup>2</sup> .	Not applicable
C3.12 Openings in floors for services.	All penetrations must be protected by a proprietary system that has been tested in accordance with AS 1530.4 and AS 4072, to maintain the FRL integrity of the floor.	Not applicable
C3.13 Openings in shafts.	Openings in shafts must be protected with an FRL to protect the integrity of the shaft.	Not applicable
C3.15 Openings for service installations.	Penetrations for service installations must be protected by an approved tested system (unless specifically exempted)	Not applicable
C3.16 Construction Joints	Construction joints must be protected by an approved tested system.	Not applicable



*Specifications*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
C1.1 Fire-Resisting construction.	Fire resistant construction to comply with Table C1.1 including: Lintels Attachments to building Steel Columns Timber Columns Structures on roofs Curtain walls Balconies and Verandahs Mezzanine floors Shaft Carparks	Compliance achievable for Type B construction on the basis the building has a minimum separation from other buildings on the allotment of 18m and the building is single storey allowing for the concession for internal columns not to be fire rated.  Should the hotel be constructed within 18m of the good sheds, external walls of the goods shed are to be fire rated to maintain compliance.
C1.11 Performance of external wall in fire	External panel walls must be designed to collapse inward in a fire situation.	Not applicable
C3.4 Fire Doors and Smoke Doors	Fire door installations are to be in accordance with AS 1905.  Smoke doors are to be constructed to be self-closing, non-combustible, fitted approved smoke seals.	No fire doors currently installed.

**5.4 BCA Part D – Access & Egress**

*D1*

*Provision for Escape*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
D1.2 Number of exits required	A building must have at least one exit from each storey. A minimum of two per storey are required in the building	Complies
D1.3 When fire-isolated exits are required.	Where stairs connect more than two / three consecutive floors they are required to the fire isolated stairs.	Not applicable
D1.4 Exit travel distances.	The maximum distance of travel to an exit is 20m and 40m to one alternative exit.	Compliance achievable (refer item D2.19, D2.21).
D1.5 Distance between alternative exits.	Exit must not be less than 9 m apart and not more than 60 m apart.	Compliance achievable (refer item D2.19, D2.21)



<p>D1.6 Dimensions of exits.</p>	<p>Aggregate exit width to cater for the number of occupants is based on the population.</p> <p>Paths of exit are to be no less in clear width than 1000mm and no less than 2000mm clear height.</p> <p>Width of exit must not diminish in the direction of travel.</p>	<p>Based upon the area of the goods shed, building a population of 3,800 occupants is calculated in accordance with BCA Clause D1.13. To accommodate a population of 3,800 an aggregate exit width of 32m is required.</p> <p>This could be accommodated via the external doors located along the sides of the good shed (note: refer to item D2.19, D2.21 with respect to upgrade of these doors to comply as exits).</p>
<p>D1.7 Travel via fire-isolated exits.</p>	<p>Fire isolated stairs, passageways must discharge directly to a road or open space.</p> <p>Only doors from SOU, sanitary facilities or public lobbies can open into a fire-isolated passage.</p> <p>If more than two doors open to a fire-isolated passageway the exit needs a smoke lobby or a pressurisation system.</p>	<p>Not applicable</p>
<p>D1.9 Travel by non-fire-isolated stairways or ramps</p>	<p>Non fire isolated exit stairs must discharge at the level of egress to a road or open space.</p> <p>The maximum travel distance to and exit is 30m / 60m.</p>	<p>Not applicable</p>
<p>D1.10 Discharge from exits.</p>	<p>Discharge points from exits must not be blocked.</p>	<p>Compliance achievable.</p>
<p>D1.12 Non required stair ramps or escalators</p>	<p>Non required stairs, ramps etc may not connect more than 2 storeys or 3 storeys if the building is sprinkler protected.</p>	<p>Not applicable</p>
<p>D1.13 Number of persons to be accommodated</p>	<p>The number of persons to be accommodated in a building or storey is determined by area per person according to use.</p>	<p>Based upon D1.13 of the BCA a population of 3,800 is calculated.</p> <p>This may be refined if the client has a more accurate expectation of likely population numbers.</p>
<p>D1.16 Plant rooms and lift motor rooms</p>	<p>Egress from plant rooms</p> <ul style="list-style-type: none"> <li>- less than 100m<sup>2</sup> can be served by a ladder,</li> <li>- between 100 and 200m<sup>2</sup> can be served by a stair and a ladder, and</li> <li>over 200m<sup>2</sup> two stairs.</li> </ul>	<p>Compliance achievable.</p>



D1.17	Access to lift pits	An exit stair is required from a lift pit > 3m deep.	Not applicable
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**D2 Construction of Exits**

Clause	Comment	Compliance	
D2.4	Separation of rising and descending stairways	There must be no direct connection between rising and descending stairs in a building.	Not applicable
D2.7	Installations in exits and paths of travel.	Access to and installation of equipment is not permitted to be installed in fire isolated stairways  Doors to electrical cupboards must be non-combustible and/or smoke sealed.	Compliance achievable
D2.8	Enclosure of space under stairs.	Enclosures under fire isolated stairs are not permitted. Enclosures under non fire isolated stairs must be protected with FRL construction	Not applicable.
D2.9	Width of stairways.	The minimum width of a stairway is 1000mm in clear width and extend 2000mm above the nosing line of the stairs	Not applicable
D2.10	Pedestrian ramps	Ramp grades must be maximum 1:8 or to AS1428.1	Refer Part D3 of this report.
D2.11	Fire isolated passages	Fire isolated passageways must be at least 60/60/60 FRL	Not applicable
D2.12	Roof as open space	Exits discharging via a roof must have a roof with a FRL 120/120/120 and connect a road or open space.	Not applicable
D2.13	Treads and risers	Minimum tread is 250 mm Maximum riser height is 190 mm. All treads to have a non slip finish or adequate non skid strip.	Compliance achievable (if applicable)  Existing steps located within and external to the building were noted as non-compliant. It is expected that these would be removed and/or replaced as part of any redevelopment.
D2.14	Landings	Landings must have a minimum dimension of 750mm	Compliance achievable (if applicable)



D2.16 Balustrades	Balustrades are required along any stair, ramp etc at a minimum height 1000 mm. Spacing of balustrades to be maximum 125mm.	Compliance achievable (if applicable). It was noted the internal and external level changes were not protected by a balustrade. It is expected that these level changes would be removed and/or replaced as part of any redevelopment.
D2.17 Handrails	All stairs and ramps require handrails for safe passage.	Compliance achievable (if applicable)
D2.19 Doorways and doors	Exits must be swinging doors and not be revolving, roller shutter or tilt up.	It is noted that there are a number of sliding external doors. External sliding doors are not permitted as exits unless the same can be opened with a force of not more than 110N.  It is suggested that the external doors would be upgraded to a compliant door as part of any redevelopment.
D2.20 Swinging doors.	Exit doors must swing in the direction of travel and must not obstruct exit routes.	The external swing doors swung against the direction of egress. If these doors were to remain and are to be considered as exit (dependent on the future layout of the convention centre), the same would be required to be re-swung in the direction of egress.
D2.21 Operation of latch.	Exit doors must be readily openable with lever handles from the side where exit is sought.	Door hardware was found to be non-compliant.  It is expected that the existing door hardware would be removed and/or replaced as part of any redevelopment.
D2.22 Re-entry from fire isolated exits	Re-entry must be available in a building with an effective height >25m.	Not applicable
D2.23 Signs on doors.	Signage is required to all fire, smoke and exit doors.	Not applicable.



D3 Access for People with Disabilities

Clause	Comment	Compliance
D3.2 Access to buildings.	<p>Access is required from the street boundary to the principal pedestrian entrance. In addition to the principal pedestrian entrance not less than 50% of all pedestrian entrances are to comply.</p> <p>Should a pedestrian entrance not comply an accessible entrance must be located within 50m.</p> <p>Access is required to other accessible buildings on the site which are connected with a pedestrian link.</p> <p>Access is required from any accessible carparking spaces on the allotment.</p>	<p>Currently no compliant access is provided to the building.</p> <p>As part of the redevelopment consideration must be given to external levels to ensure:</p> <ul style="list-style-type: none"> <li>- Level entrance to the principal public entrance and 50% of all other pedestrian entrances.</li> <li>- Compliant path of travel between buildings and to accessible carpaces (i.e. 1:33 walkways or 1:14 maximum ramps).</li> </ul>
D3.3 Parts to be accessible. D3.4	All parts of a building are to be accessible to people with disabilities with the exception of service and exempt areas.	Currently does not comply based upon level changes within the building. Compliance to be achieved as part of the redevelopment.
D3.5 Carparking.	Carparking for people with disabilities is required where carparking is provided	<p>Accessible carparking to be provided as part of the redevelopment complying with AS/NZS 2890.6. The minimum required numbers are:</p> <ul style="list-style-type: none"> <li>- 1 space per 50 (up to 1000 cars) +</li> <li>- 1 space per 100 in excess of 1000 cars)</li> </ul>
D3.6 Identification of access facility	Signage is required to identify access for people with disabilities to lifts, entrances and sanitary facilities.	Compliant signage to be provided as part of the redevelopment.
D3.7 Hearing Augmentation	Where an inbuilt amplification system is installed, hearing augmentation is required.	Compliance to be provided as part of redevelopment
D3.8 Tactile Indicators	Required to stairways escalators and ramps accessible to the public.	Currently no tactile indicators are provided. Compliance to be provided as part of redevelopment.





## 5.5 BCA Part E – Services & Equipment

### E1 Fire Fighting Equipment

Clause	Comment	Compliance
E1.3 Fire hydrants	Fire hydrants are required to be installed in a building with a floor area exceeding 500m <sup>2</sup> .	<p>An existing hydrant system was noted within the building (4 internal hydrants + 1 external hydrant).</p> <p>A number of non-compliances were noted with the existing hydrant system including:</p> <ul style="list-style-type: none"> <li>- Non provision of hydrant booster</li> <li>- Location of internal hydrants</li> <li>- Pipework size to hydrants</li> </ul> <p>It is expected that as part of the redevelopment a new compliant hydrant system would be installed.</p>
E1.4 Hose reels	Hose reels are required and must be located within 4.0m of exits.	<p>An existing fire hose reel system (FHR) was noted within the building (3 internal fire hose-reels).</p> <p>It was noted that these FHR's were located in non-compliant locations (located greater than 4m from an exit).</p> <p>It is expected that as part of the redevelopment a compliant FHR system would be installed.</p>
E1.5 Sprinklers	<p>Sprinklers are required:</p> <ul style="list-style-type: none"> <li>- if a buildings effective height is &gt; 25 metres</li> <li>- in carparks with &gt; 40 vehicles</li> <li>- where excessive hazards exist, and</li> <li>- where fire compartments floor areas are exceeded.</li> </ul>	Refer E2.2 (smoke hazard management requirements)
E1.6 Portable fire extinguishers	Portable fire extinguishers are required in special risk areas.	To be provided as part of the redevelopment works.
E1.8 Fire Control Room	<p>A FCR is required:</p> <ul style="list-style-type: none"> <li>- if a buildings effective height is &gt; 25 metres, or</li> <li>- if the floor area is &gt; 18,000 m<sup>2</sup>.</li> </ul>	Not applicable.



E2 Smoke Hazard Management

Clause	Comment	Compliance
<p>E2.2 Smoke Hazard Management</p>	<p>Smoke Hazard Management is required in buildings where the effective height is &gt; 25m, large floor areas and / or specific occupancies or use.</p> <p>SHM can be in the form of:</p> <ul style="list-style-type: none"> <li>- automatic sprinklers,</li> <li>- smoke exhaust,</li> <li>- smoke detection or,</li> <li>- stair pressurisation</li> </ul> <p>SHM is required as outline in Specification E2.2a and E2.2b</p>	<p><b>EXHIBITION HALLS</b></p> <p>All buildings, or parts of building used as an exhibition hall are to be provided with:</p> <ul style="list-style-type: none"> <li>• Smoke detection system to AS 1670.1-2004</li> <li>• Automatic shutdown of any air-handling system</li> </ul> <p>In addition to this, the following is required where the exhibition hall exceeds 2,000m<sup>2</sup>:</p> <p>a. Exhibition hall with a floor area between 2,000m<sup>2</sup> to 3,500m<sup>2</sup>:</p> <ul style="list-style-type: none"> <li>• A sprinkler system complying with AS 2118.1-1999; <b>or</b></li> <li>• Smoke exhaust comprising of:               <ul style="list-style-type: none"> <li>i. automatic smoke exhaust system complying with BCA Spec E2.2b; or</li> <li>ii. automatic smoke-and-heat vents complying with Specification E2.2c.</li> </ul> </li> </ul> <p>b. Exhibition hall with a floor area greater than 3,500m<sup>2</sup>:</p> <ul style="list-style-type: none"> <li>• a sprinkler system complying with AS 2118.1-1999; <b>and</b></li> <li>• smoke exhaust comprising of:               <ul style="list-style-type: none"> <li>i. automatic smoke exhaust system complying with BCA Spec E2.2b; or</li> <li>ii. automatic smoke-and-heat vents complying with Specification E2.2c.</li> </ul> </li> </ul> <p><b>PUBLIC HALL (Convention Centre)</b></p> <p>i. All buildings, or parts of building used as a public hall are to be provided with automatic shutdown of any</p>



		<p>air-handling system on activation of a smoke detection system complying with BCA Spec E2.2a</p> <p>ii. A public hall (convention centre) with a stage / backstage area exceeding 200m<sup>2</sup> or a stage with a rigging loft must be provided with</p> <ul style="list-style-type: none"> <li>o An automatic smoke exhaust system complying with BCA Spec E2.2b; or</li> <li>o Automatic smoke-and-heat vents complying with Specification E2.2c</li> </ul> <p>iii. Public halls with an area between 2,000m<sup>2</sup> to 5,000m<sup>2</sup> require smoke detection and alarm complying with BCA Specification E2.2a</p>
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**E3**      *Lift Installations*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
E3.2      Stretcher facility in lifts	A stretcher facility is required in at least one emergency lift. 600mm x 2000mm x 1400mm	Not applicable
E3.3      Warning against use of lifts in fire	Warning signs are required adjacent to call buttons	Not applicable
E3.4      Emergency lifts	Emergency Lifts are required in buildings exceeding 25m in effective height.	Not applicable
E3.6      Facilities for people with disabilities	Every passenger lift must accommodate facilities for people with disabilities	Not applicable
E3.7      Fire service controls	Fire service controls must be provided to all passenger lifts	Not applicable



*E4 Emergency Lighting, Exit Signs and Warning Systems*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
E4.2 Emergency lighting requirements	Emergency lighting is required throughout the building.	Inadequate emergency lighting is currently provided. It is expected that a system of compliant emergency lighting will be provided as part of the redevelopment.
E4.5 Exit signs	Exit signs are required throughout the building.	Inadequate Exit signage is currently provided. It is expected that a system of compliant exit signage will be provided as part of the redevelopment.
E4.6 Directional exit signs	Directional exit signs are required throughout the building.	As above.
E4.9 EWIS	EWIS is required in a building exceeding 25m in effective height.	An EWIS system will be required for the proposed convention centre use.

**5.6 BCA Part F – Health & Amenity**

*F1 Damp and Waterproofing*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
F1.1 Stormwater drainage	Stormwater drainage must be connected to a legal point of discharge.	To be provided as part of the redevelopment
F1.7 Waterproofing of wet areas	Building elements in wet areas must be waterproof or water resistant.	To be provided as part of the redevelopment
F1.11 Floor wastes	Floor wastes are required where wall hung urinals are installed.	To be provided as part of the redevelopment
F1.13 Glazed assemblies.	Glazed assemblies must be installed to prevent water penetration.	To be provided as part of the redevelopment



**F2 Sanitary and other facilities**

Clause	Comment	Compliance												
F2.2 Calculation of number of occupants and fixtures.	Sanitary facilities for building occupants are assessed based on a 50 / 50 male / females ratio.	<p>Based upon the population calculated in D1.13 (3,800) the following toilet numbers will be required:</p> <p>Male Toilets (1520 patrons + 380 staff)</p> <table border="1"> <tr> <td>WC</td> <td>Urinal</td> <td>WB</td> </tr> <tr> <td>27</td> <td>27</td> <td>21</td> </tr> </table> <p>Female Toilets (1520 patrons +380 staff)</p> <table border="1"> <tr> <td>WC</td> <td>Urinal</td> <td>WB</td> </tr> <tr> <td>44</td> <td>n/a</td> <td>21</td> </tr> </table> <p>Note: This is based upon the following assumptions:</p> <ul style="list-style-type: none"> <li>- 50/50 male / female split</li> <li>- 80/20 patron / staff ratio</li> <li>- Unisex accessible bathroom counted once for each sex.</li> </ul>	WC	Urinal	WB	27	27	21	WC	Urinal	WB	44	n/a	21
WC	Urinal	WB												
27	27	21												
WC	Urinal	WB												
44	n/a	21												
F2.3 Sanitary facilities in class 2 to 9 buildings.	Sanitary facilities are required based on the number of persons within the building.	Refer above												
F2.4 Facilities for people with disabilities.	Sanitary facilities are required for people with disabilities.	A uni-sex accessible bathroom is required to 50% of all toilet banks.												
F2.5 Construction of sanitary compartments.	Sanitary compartments are to be separated by partitions and with adequate space to access unconscious persons.	Compliance to be documented as part of the redevelopment.												

**F3 Room Sizes**

Clause	Comment	Compliance
F3.1 Height of rooms.	Minimum ceiling heights to be 2.4m and 2.1m respectively for habitable spaces and corridors, passageways etc.	Complies



**F4**      *Light and ventilation*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
F4.1    Natural lighting	Natural lighting is required to; <ul style="list-style-type: none"> <li>- all habitable rooms in a Class 2 and 4</li> <li>- all bedrooms and dormitories in a Class 3</li> <li>- all rooms used for sleeping in a Class 9c</li> <li>- all general purpose classrooms in a 9b</li> </ul>	Not applicable
F4.4    Artificial lighting	Artificial lighting is required to all areas not covered by natural light	Required as part of redevelopment
F4.5    Ventilation of rooms	All areas must be provided with natural ventilation or mechanical ventilation	Required as part of redevelopment
F4.9    Airlocks	Sanitary facilities must be mechanically exhausted or provided with an airlock.	Required as part of redevelopment
F4.11    Carparks	Carparks must be provided with adequate natural ventilation or a mechanical ventilation system.	Not applicable
F4.12    Kitchen local exhaust ventilation	Commercial kitchens must be provided with a kitchen exhaust system.	Required as part of redevelopment (as applicable)

**5.7**      **BCA Part G – Ancillary Provisions**

**G1**      *Minor structures and components*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
G1.2    Refrigerated chambers, strong rooms and vaults.	Coolrooms require minimum 600mm access doors, an alarm system, and to be operable from within without the use of a key.	Required as part of redevelopment (as applicable)

**5.8**      **BCA Part J – Energy Efficiency**

**J1**      *Building Fabric*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
J1.2    Thermal construction general	Where required, insulation must comply with AS/NZS 4859.1.	Required as part of redevelopment (as applicable)
J1.3    Roof and ceiling construction	A roof or ceiling that is part of an envelope must achieve a specified Total R-Value for the direction of heat flow.	The roof / ceiling is to be treated to achieve an R value of R3.7 or R value determined via JV3 analysis.



J1.4	Roof lights	Roof lights must comply with the area and thermal performance properties.	Roof lights are not permitted to exceed 5% of the area of the room / space served and comply with the U and SHGC values provided by BCA Table J1.4.
J1.5	Walls	Each part of an external wall that is part of the envelope must achieve a specified Total R-Value.	External walls to achieve an R value of R2.8 or R value determined via JV3 analysis
J1.6	Floors	Within climate zone 7 (i.e. Ballarat), slab on ground is required to achieve a specified Total R-Value	An R value of at least 1.0 is required or the R value determined via JV3 analysis

### *J2 External Glazing*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
J2.2	Applicable glazing provisions	Glazing of a building must be designed and installed, as appropriate, in accordance with the specified Class of building
J2.4	Glazing	The glazing in each storey of a building and facing each orientation must be assessed separately.
J2.5	Shading	Where shading is required it must be provided by an external permanent projection.

### *J3 Building Sealing*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
J3.2	Chimneys and flues	The chimney or flue of an open solid-fuel burning appliance must be provided with a damper or flap that can be closed to seal the chimney or flue.
J3.3	Roof lights	A roof light must be sealed, or capable of being sealed.
J3.4	External windows and doors	A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window or the like.
J3.5	Exhaust fans	A miscellaneous exhaust fan must be fitted with a sealing device such as a self-closing damper or the like.



J3.6	Construction of roofs, walls and floors	Roofs, external walls, external floors and any opening such as a window, door or the like must be constructed to minimise air leakage.	To be made compliant as part of the redevelopment.
J3.7	Evaporative coolers	An evaporative cooler must be fitted with a self-closing damper or the like.	To be made compliant as part of the redevelopment.

*J5 Air-Conditioning and Ventilation Systems*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
Part J5	Mechanical air handling and conditioning equipment to comply with energy efficiency requirements of Part J5	To be made compliant as part of the redevelopment.

*J6 Artificial Lighting and Power*

<b>Clause</b>	<b>Comment</b>	<b>Compliance</b>
Part J6	Artificial lighting and power to comply with the energy efficiency requirements of Part J6	To be made compliant as part of the redevelopment.





## 6. BUILDING REGULATION CODE UPGRADE LEGISLATION

Under the Building Act 1993 and Building Regulations 2006 there is no trigger to retrospectively upgrade the existing building unless building work or a change of use to the building is proposed. The following are the key triggers under the Building Regulations 2006 that would require a retrospective upgrade to achieve compliance with current BCA requirements

- a) **Regulation 608** of the Building Regulations 2006 applies to alterations to existing buildings. In general terms the regulations indicate that if the proposed alterations, together with any other alterations completed or permitted within the previous 3 years, represent more than half the original volume of the building the entire building must be brought into conformity with these Regulations, however the Relevant Building Surveyor may consent to partial compliance.
- b) **Regulation 1011** of the Building Regulations 2006 requires that where a building changes use, the building must be brought into compliance with the Regulations applicable to the new use. The Relevant Building Surveyor may however consent to partial compliance.
- c) **Regulation 116** of the Building Regulations 2006 (introduced on 1 May 2011) requires the *affected part* of a building to be upgraded with respect to access for people with a disability. The *affected part* of a building is considered to be the access through the principal pedestrian entrance of the building and any part of the building that is necessary to provide a continuous accessible path of travel to the area of subject works.

### Special Allowances for Heritage Buildings

Section 28 of the Building Act gives power to ease building regulation requirements to preserve heritage buildings, provided health safety and fire spread issues are accounted for.

## 7. DISABILITY DISCRIMINATION LEGISLATION

This audit has covered and identified the major non-conformances pertaining to access for people with disabilities to and throughout the site. This report has been prepared with the aim of identifying any non-conformances in relation to access for people with disabilities. This report has been prepared with the aim of identifying these non-conformances which may be addressed with building works and / or development of a Disability Action Plan or similar.

The accessibility assessment process covers all aspects of the infrastructure (premises), to the extent required to meet the deemed-to-satisfy provision of the Building Code of Australia (BCA 2015), and the Disability (Access to Premises-Buildings) Standards 2010 and the objectives of the Disability Discrimination Act 1992 (Cth), including, however not limited to, Section 23 which relates to access to premises and facilities which the public may enter or use.

The Disability Discrimination Act (DDA) is Commonwealth legislation which came into force in March 1993. The Disability Discrimination Act prohibits unlawful discrimination in the provision of access to public buildings. Since the enactment of the DDA, complaints to the Australian Human Rights Commission highlighted inconsistencies between the requirements of anti-discrimination law and building law (i.e. the Building Code of Australia or BCA) in Australia.

The current Building Code of Australia is the BCA 2013. A new version of the BCA is issued on an annual basis. Various parts of the Building Code may remain unaltered or be revised to reflect societal change, such as, improved building technologies, construction methods or knowledge, and, changing social values, norms or expectations. Building works requiring BCA certification must meet current BCA requirements. However, there is no statutory requirement, of itself, that existing buildings must be upgraded retrospectively to meet the current BCA, unless building works requiring certification (such alterations or extensions) are undertaken to the building. In this case, the new works must meet the current BCA. The existing areas of a building,



outside of the areas of new works, may or may not require upgrading to meet the current BCA. The requirement to upgrade the remainder of the building to meet the current BCA is project dependent and is assessed by the Relevant Building Surveyor on an individual project basis.

While prohibiting unlawful discrimination in the provision of access to public buildings, the DDA provides no design specifications to assist building owners, tenants, developers or designers in meeting this requirement. In addition, DDA legislation operates as a complaints based mechanism. This means that an action under the DDA in regards to the provision of access to buildings and facilities for people with disabilities relies on a successful complaint of discrimination against a building owner or organisation. In 2000, the Commonwealth Government amended the DDA to allow for the development of Disability Standards for access to buildings and premises (Premises Standards). The Premises Standards were tabled in Federal Parliament on the 15<sup>th</sup> March 2010 and made effective from the 1<sup>st</sup> May 2011. The 2011 version of the BCA was revised to align with the Premises Standards.

From 2011 onwards, building works constructed in accordance with the BCA may not be subject to a successful complaint under the DDA, for the areas within the scope of the BCA. However, there remain aspects of the built environment which are outside the scope of the BCA (e.g. furnishings and fit-out elements) and which may be subject to a successful discrimination complaint. In addition, buildings and premises constructed in accordance with BCA 2010 or prior may also be subject to a successful complaint under the DDA for elements certified by the version of the BCA applicable to the project.

This assessment report endeavours to identify the major accessibility issue with respect to the proposed use of the buildings with reference to relevant legislation, codes and standards, including:

- The Disability Discrimination Act 1992 (Commonwealth)
- The Disability (Access to Premises – Buildings) Standards No.1
- The Building Code of Australia 2013;
- Australian Standard AS 1428.1 (2009) Design for Access and Mobility Part 1: General requirements for access – New building work (which is referenced by BCA 2013)
- Additional Accessibility Standards in draft and current and current Australian Standards to meet the objectives of the DDA.

## **7.1 Affected Part**

Where new work that requires building approval is undertaken on an existing building, such as an extension or refurbishment, there is a requirement to ensure the new or modified part of the building complies with the Premises Standards.

In addition, where the application for building approval is made by the building owner or the single lessee of a building, there is a requirement to provide an accessible path of travel from the principal public entrance, to the new or modified part of an existing building. This is referred to as the 'affected part' of a building (Subsection 2.1(5) of the Premises Standards).

Therefore, where the building owner (or single lessee) undertakes new building work within an existing building, and building approval is required for the new work proposed, the requirements for upgrading access are limited to the area of new work and the 'affected part'.

Access requirements are not imposed outside the area of new work and these areas will continue to be subject to the general complaints framework of the DDA.

## **8. REPORT LIMITATIONS**

All due care and consideration has been applied in the preparation of this report however no warranty or guarantee whether expressed or implied is made with respect to the contents of this report. Philip Chun and Associates accepts no responsibility or liability with respect to reliance upon this report by any third party.