BCA / FIRE SAFETY ASSESSMENT

BCA COMPLIANCE CAPABILITY REPORT IN RESPECT OF

MERCANTILE HOTEL

25–27 GEORGE STREET THE ROCKS

PREPARED

BY

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September 2017

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PART 1.0 CONTEXT

1.0 PURPOSE

The purpose of this report is to:

Articulate the capacity of the proposed refurbishment of the Mercantile Hotel situated at 25 – 27 George Street the Rocks to meet the requirements of the Deemed-To-Satisfy (DTS) provisions of the National Construction Code -Building Code of Australia – Volume 1 (BCA-2016).

1.1 METHODOLOGY

The methodology adopted in compiling the report has given due consideration to the structure of the BCA . In this regard it is noted that compliance with the Performance requirements prescribed within the BCA can only be achieved by:-

1. Satisfying the Deemed-To-Satisfy (DTS) provisions of the Building code Of Australia; or
2. Formulating alternative solutions which comply with the performance requirements prescribed by the BCA or is shown to be at least equivalent with the DTS provisions
3. Or a combination of 1 & 2 above.

Having regard to the above, the methodology adopted for the purposes of this report has primarily been based upon a determination of the capacity of the proposed design to satisfy the Deemed-T0-Satisfy (DTS) provisions of the BCA. Where such DTS provisions are not able to be satisfied, the capacity of the design to enable the performance requirements to be met by way of a formulated alternative solution has also been considered.

1.2 LIMITATIONS:

- The BCA assessment undertaken has been limited to the drawings identified above and is only intended as a general assessment of the capacity of the proposed design to meet the requirements of the BCA. The extent to which compliance with the requirements of the BCA is achieved is limited to the level of detail provided at this early stage of the design development.

- The assessment of the capacity of the design to satisfy the performance requirements of the BCA is not intended as an alternative solution assessment or verification that the performance requirements have been met. Rather such comments are intended to reflect and indicate whether or not alterative solutions may be formulated and substantiated as means by which the proposed design or component, which is at variance with the DTS requirements, is able to be constructed and still satisfy the requirements of the BCA.

- No assessment has been made with respect to Section J provisions of the BCA.

1.3 REFERENCES

The National Construction Code -Building Code of Australia (DTS) – Volume 1 (BCA-2016)

Architectural drawings prepared by Welsh Major Architects.

Environmental Planning & Assessment Act 1979

Environmental Planning & Assessment Regulation 2000

Draft Masterplan Sketch Drawings numbers undated by Whelsh & Major Architects

1.4 Abbreviations Referred to in the Report

S.O.U..... Sole occupancy unit.

F.I.S..... Fire isolated stairway

N.F.I.S. ..... Non Fire Isolated Stairway

BCA..... Building Code of Australia (BCA-2014)

EP&A Act 1979..... Environmental Planning & Assessment Act, 1979

EP&A Regs 2000..... Environmental Planning & Assessment Regulation 2000

FRL..... Fire Rating Level

PFE ..... Portable Fire Extinguisher

FH..... Fire Hydrant

FHR..... Fire Hose Reel

N/A……..... Not Applicable

1.5 Clause 94 of the4 Environmental Planning & Assessment Regulation 2000

"94 Consent authority may require buildings to be upgraded

(1) This clause applies to a development application for development involving the rebuilding, alteration, enlargement or extension of an existing building where:

(a) the proposed building work, together with any other building work completed or authorised within the previous 3 years, represents more than half the total volume of the building, as it was before any such work was commenced, measured over its roof and external walls, or

(b) the measures contained in the building are inadequate:

(i) to protect persons using the building, and to facilitate their egress from the building, in the event of fire, or

(ii) to restrict the spread of fire from the building to other buildings nearby.

(c) (Repealed)

(2) In determining a development application to which this clause applies, a consent authority is to take into consideration whether it would be appropriate to require the existing building to be brought into total or partial conformity with the Building Code of Australia.

(2A), (2B) (Repealed)

(3) The matters prescribed by this clause are prescribed for the purposes of section 79C (1) (a) (iv) of the Act."

PART 2.0 EXECUTIVE SUMMARY:

The assessment undertaken in respect of the proposed refurbishment of 23 – 27 George Street and the adjacent property known as 29 George Street the Rocks has identified various issues associated with the capacity of the proposed design to meet the relevant requirements of the Deemed-To-Satisfy (DTS) provisions of the National Construction Code - Building Code of Australia – Volume 1 Deemed-To- Satisfy provisions (BCA-2016).

A summary of the particular BCA Deemed-To- Satisfy provisions that have been identified in this regard is summarized as follows.

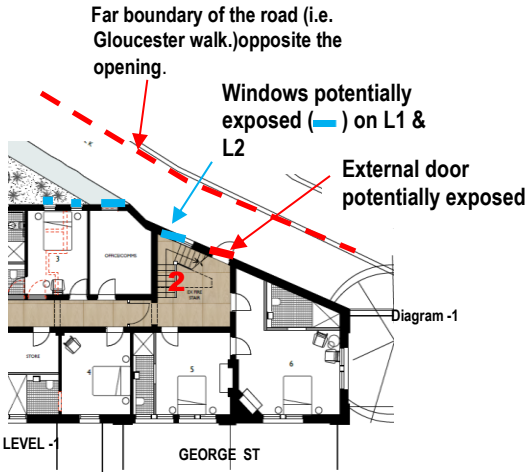
- C1.10 Fire hazard properties.
- C2.9 Separation of classifications in different storey's.
- C3.2 Protection of openings.
- C3.8 Openings in fire-isolated exits.
- NSW C3.11 Bounding construction: Class 2, 3, 4 and 9b buildings.
- C3.12 Openings in floors and ceilings for services.
- C3.15 Openings for service installations.
- Fire resistance of building elements – Type A:
- D1.3 When fire-isolated exits are required.
- D1.6 Dimensions of exits:
- D1.7 Travel via fire-isolated exits.
- D2.2 Fire-isolated stairways and ramps.
- D2.11 Fire-isolated passageways.
- D2.13 Treads and risers.
- D2.16 Balustrades.
- D2.17 Handrails.
- D3.2 General building access requirements.
- D3.3 Parts of buildings to be accessible.

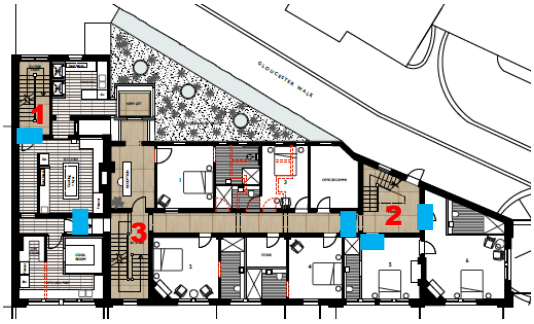
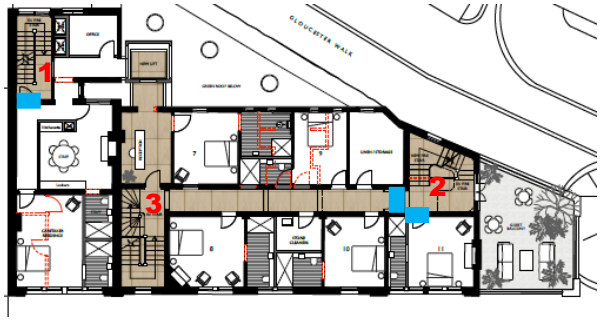
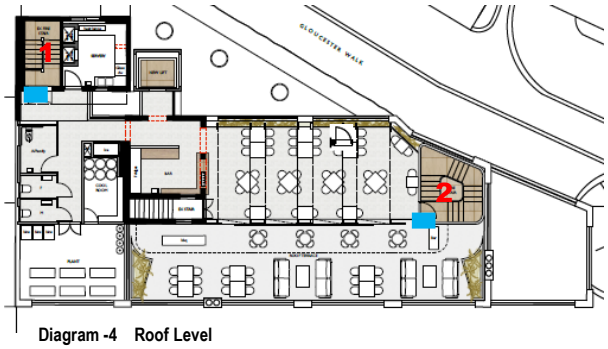
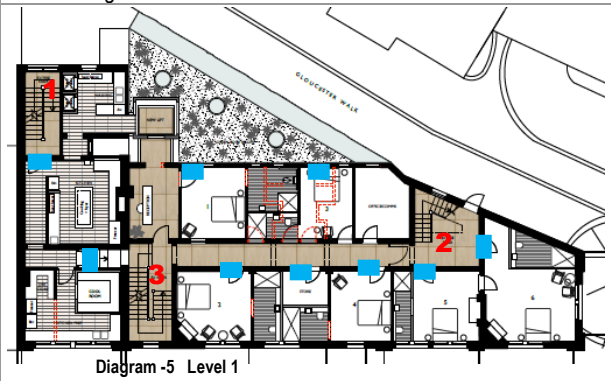
It is further advised that as the proposal will involve alterations and addition to an existing building the provisions of Clause 94 of the Environmental Planning & Assessment Regulation 2000 are likely to be applied by the local Consent Authority determining the development application. In this regard the extent to which the Consent Authority will require the existing building to be upgraded to comply with the BCA will largely be influenced by the content and extent to which the performance based fire engineered solutions required to be formulated to address Dts – BCA compliance issues identified within this report are adequately addressed.

On the basis that such performance based fire engineered solutions are formulated it is considered that the proposed alterations and additions will enable the relevant provisions of National Construction Code- Volume 1 - BCA 2016 to be satisfied.

PART 3 – BCA ASSESSMENT (Section C, D, E, F, - BCA 2015)

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
Section A3 – Classification		
A3.2 Building classification	**For notation**	**25- 27 George Street** Ground floor – Class 6 1st floor – Class 3 2nd floor – Class 3 3rd floor – Class 6
SECTION C FIRE RESISTANCE		
PART C1 FIRE RESISTANCE AND STABILITY		
C1.0 Deemed-to-Satisfy Provisions	N/A	
C1.1 Type of construction required	Refer to comments	On the basis of the building having rise in storey of 4 – Type A construction is required.
C1.2 Calculation of rise in storeys	For notation	The existing building has a rising in storey of 3. The proposed development will result in the building having a rise in storey of 4.
C1.3 Buildings of multiple classification	Yes	**25- 27 George Street** Ground floor – Class 6 1st floor – Class 3 2nd floor – Class 3 3rd floor – Class 6
C1.4 Mixed types of construction	N/A	
C1.5 Two storey Class 2, 3 or 9c buildings	N/A	
C1.6 Class 4 parts of buildings	N/A	
C1.7 Open spectator stands and indoor sports stadiums	N/A	
C1.8 Lightweight construction	Further details required	
C1.10 Fire hazard properties	Further details required	Refer comments – Specification C1.10
C1.11 Performance of external walls in fire	N/A	
C1.12 Non-combustible materials	For notation	
PART C2 COMPARTMENTATION AND SEPARATION		
C2.0 Deemed-to-Satisfy Provisions	For notation	
C2.1 Application of Part	For notation	
C2.2 General floor area and volume limitations	Yes	
NSW C2.3 Large isolated buildings	N/A	
C2.4 Requirements- open spaces and vehicular access	N/A	
NSW C2.5 Class 9a and 9c buildings	N/A	
C2.6 Vertical separation of openings in external walls	Yes	Generally capable of enabling compliance with C2.6.
C2.7 Separation by fire walls	N/A	
C2.8 Separation of classifications in the same storey	N/A	
C2.9 Separation of classifications in different storeys	No	The existing floor construction throughout the building is timber and does not incorporate any fire resistance lining to the underside. The proposal to activate the roof results in the overall rise in storey's to increase from 3 to 4 storey's. There is presently no passive fire resistance construction separating classifications in different storey's throughout the building. The heritage significance of the building restricts the capacity to provide fire rated ceilings capable of achieving a resistance to the incipient spread of fire to the story above of not less than 90 minutes. As such it is likely that an automatic fire suppression system will be required to offset any non-compliant passive fire rated construction requirements on the basis of a fire engineered performance based solution.

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
C2.10 Separation of lift shafts	Yes	Further details to be provided- Note: due to number of storey's connect lift shaft is required to achieve FRL of -/120/120 noting non load bearing other than its own weight etc.
C2.11 Stairways and lifts in one shaft	Yes	Due to the rise in storey the lift shaft is required to be contained within a fire resistant shaft having an FRL of 120/120/120. Further details to be provided at CC stage.
C2.12 Separation of equipment	Further details required	Further details are to be provided outlining the mechanical operation / plant and equipment associated with the lift. If separate motor room is required it is to be detailed and fire separated to achieve an FRL of at least 120/120/120.
C2.13 Electricity supply system	For notation	If switchboard located within the building sustains emergency equipment e.g. electric pump associated with sprinkler system, it is required to be fire isolated by construction achieving an FRL of at least 120/120/120. If no fire services sustained – nil provisions apply.
C2.14 Public corridors in Class 2 and 3 buildings	Yes	
PART C3 PROTECTION OF OPENINGS		
C3.0 Deemed-to-Satisfy Provisions	For notation	
C3.1 Application of Part	For notation	
C3.2 Protection of openings	No Refer to note	Further review of the distance between openings within the western elevation of the building adjacent to Gloucester walk will require closer review to determine its proximity to the fire source feature defined by the far boundary of the road (i.e. Gloucester walk.) (Refer to diagram 2 below.)  Diagram -1
C3.3 Separation of Openings in different fire compartments	N/A	.
C3.4 Acceptable methods of protection	For notation	
C3.5 Doorways in fire walls	N/A	
C3.6 Sliding fire doors	N/A	
C3.7 Protection of doorways in horizontal exits	N/A	
C3.8 Openings in fire-isolated exits	No	Within the context of the proposed fire exit stairway configuration - stair 1, 2 & 3 are required to be fire isolated stairs (FIS)- refer to comments D1.3 of the report. Whilst non of the fire stairs are considered to strictly satisfy the construction requirements applicable to a FIS, Stair 1 & 2 will function as the primary exit stairways from an egress point of view and would be capable of substantially meeting FIS requirements from a performance point of view.

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
C3.8 Openings in fire-isolated exits -continued  Diagram -2 Level 1	No	Although Stair 3 can provide egress from level 1 & 2, no egress is able to be achieved from level 3 due to the stair geometry incorporating winders and otherwise noncompliance with D2.13 of the BCA. Having regard to the requirements of C3.8 the doors bounding the fire stairs are to achieve the following FRL,- -/60/30 self closing fire rated door  Diagram -3 Level 2  Diagram -4 Roof Level
C3.9 Service penetrations in fire-isolated exits	Yes	No services are to be located within fire stairs
C3.10 Openings in fire-isolated lift shafts	Yes	Lift landing doors are to achieve an FRL of -/60/-
NSW C3.11 Bounding construction: Class 2, 3, 4 and 9b buildings	No Refer to Note	 Diagram -5 Level 1

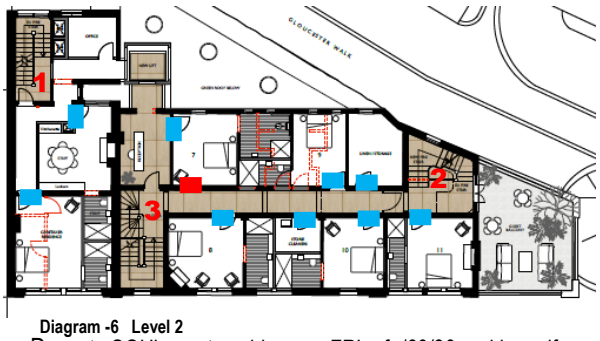
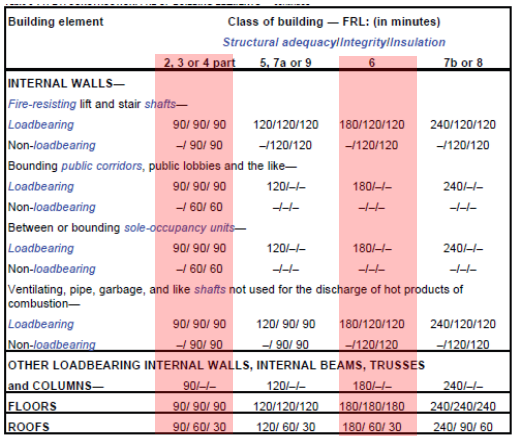
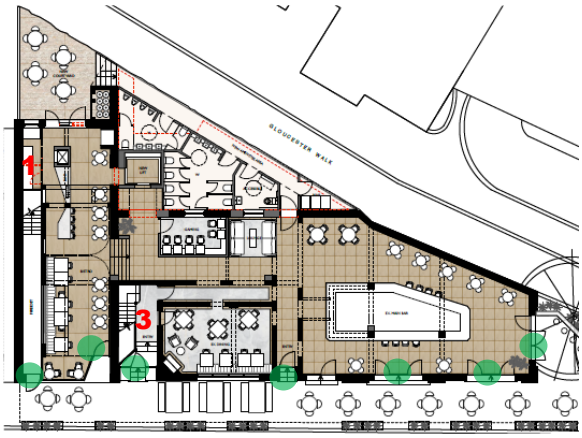
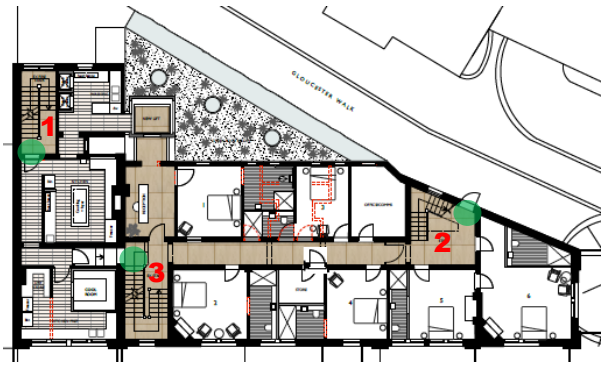
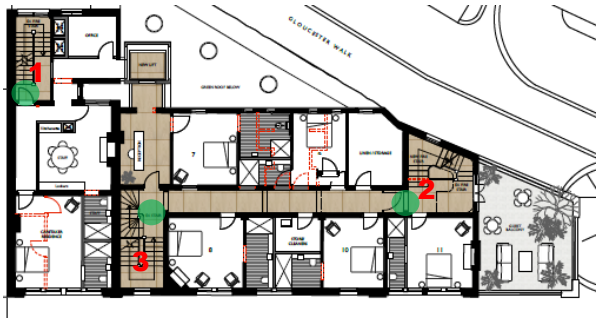
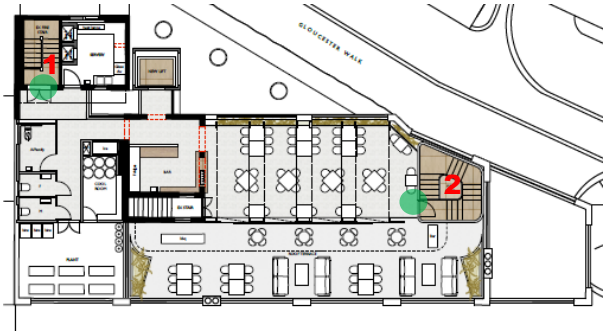
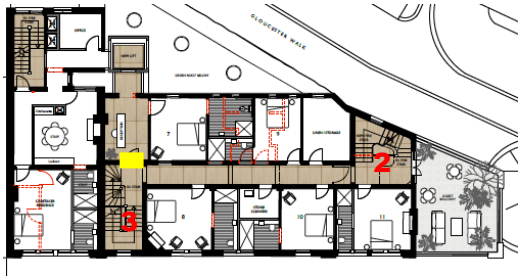
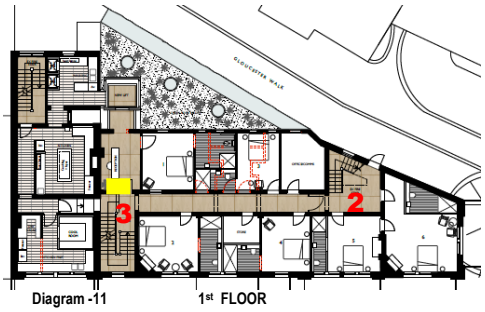
<table>
<tr><th>BCA CLAUSE REFERENCE</th><th>Capable of satisfying BCA – DTS requirements YES / NO</th><th>COMMENT</th></tr>
<tr><td></td><td></td><td> 

Diagram -6 Level 2
Doors to SOU's are to achieve an FRL of -/60/30 and be self-closing.
Where the required FRL in respect of SOU entry doors are not able to be achieved, it is likely that 35mm solid core timber doors fitted with perimeter smoke seals could be provided in lieu of fire rated doors on the basis of a fire engineered performance based solution. It is also noted that the window in the bounding wall of the SOU adjacent to Stair 3 identofied in red (■) in diagram 6 above, is required to achieve an FRL of at least 60/60/60 (non load bearing).</td></tr>
<tr><td><u>C3.12 Openings in floors and ceilings for services</u></td><td>No</td><td>Within the context of the works intended with respect to the provision of sanitary facilities within the SOUs and requirement for ceilings to achieve an FRL - all services penetrations thru the floor will be required to satisfy the requirements of C3.12. However given the floors throughout the building comprise timber and having regard to the heritage classification of the building it may not be possible for fire rated ceilings to be installed. As such any new floor / ceiling penetrations that are not able to satisfy the requirements of C3.12 will to be demonstrate compliance with the relevant performance criteria within the context of a fire engineered performance based solution report. It is likely that such report will require the provision of an automatic fire suppression system throughout the building.</td></tr>
<tr><td><u>C3.13 Openings in shafts</u></td><td>For notation</td><td>The proposed new services risers will need to achieve an FRL of at least -/90/90. All openings to such shaft are to achieve an FRL of -/60/30.</td></tr>
<tr><td><u>C3.14 *</u></td><td>-</td><td></td></tr>
<tr><td><u>C3.15 Openings for service installations</u></td><td>No</td><td>Similar to C3.12</td></tr>
<tr><td><u>C3.16 Construction joints</u></td><td>N/A</td><td></td></tr>
<tr><td><u>C3.17 Columns /lightweight construction -FRL</u></td><td>N/A</td><td></td></tr>
<tr><td>SPECIFICATION C1.1 FIRE-RESISTING CONSTRUCTION</td><td></td><td></td></tr>
<tr><td><u>3.1 Fire resistance of building elements – Type A</u>
Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS
<table>
<tr><th>Building element</th><th colspan="4">Class of building — FRL: (in minutes)
Structural adequacy/Integrity/Insulation</th></tr>
<tr><th></th><th>2, 3 or 4 part</th><th>5, 7a or 9</th><th>6</th><th>7b or 8</th></tr>
<tr><td>EXTERNAL WALL (including any column and other building element incorporated therein) or other external building element, where the distance from any fire-source feature to which it is exposed is—</td><td></td><td></td><td></td><td></td></tr>
<tr><td>For loadbearing parts—</td><td></td><td></td><td></td><td></td></tr>
<tr><td>less than 1.5 m</td><td>90/ 90/ 90</td><td>120/120/120</td><td>180/180/180</td><td>240/240/240</td></tr>
<tr><td>1.5 to less than 3 m</td><td>90/ 60/ 60</td><td>120/ 90/ 90</td><td>180/180/120</td><td>240/240/180</td></tr>
<tr><td>3 m or more</td><td>90/ 60/ 30</td><td>120/ 60/ 30</td><td>180/120/ 90</td><td>240/180/ 90</td></tr>
<tr><td>For non-loadbearing parts—</td><td></td><td></td><td></td><td></td></tr>
<tr><td>less than 1.5 m</td><td>–/ 90/ 90</td><td>–/120/120</td><td>–/180/180</td><td>–/240/240</td></tr>
<tr><td>1.5 to less than 3 m</td><td>–/ 60/ 60</td><td>–/ 90/ 90</td><td>–/180/120</td><td>–/240/180</td></tr>
<tr><td>3 m or more</td><td>–/–/–</td><td>–/–/–</td><td>–/–/–</td><td>–/–/–</td></tr>
<tr><td>EXTERNAL COLUMN not incorporated in an external wall—</td><td></td><td></td><td></td><td></td></tr>
<tr><td>For loadbearing columns—</td><td>90/–/–</td><td>120/–/–</td><td>180/–/–</td><td>240/–/–</td></tr>
<tr><td>For non-loadbearing columns—</td><td>–/–/–</td><td>–/–/–</td><td>–/–/–</td><td>–/–/–</td></tr>
<tr><td>COMMON WALLS and FIRE WALLS—</td><td>90/ 90/ 90</td><td>120/120/120</td><td>180/180/180</td><td>240/240/240</td></tr>
</table></td><td>No</td><td>The existing floor construction throughout the building does not achieve any FRL as required by Table 3. Given the overall scale of works proposed, combined with the fact that the premises will comprise sleeping accommodation, any noncompliance associated with Table 3 Type A construction will need to be verified within the context of a fire engineered performance based solution. As a result of such approach it is likely that the provision of an automatic fire suppression system and fire detection system will form part of the overall fire engineering recipe required to demonstrate compliance with the relevant performance provisions.</td></tr>
</table>

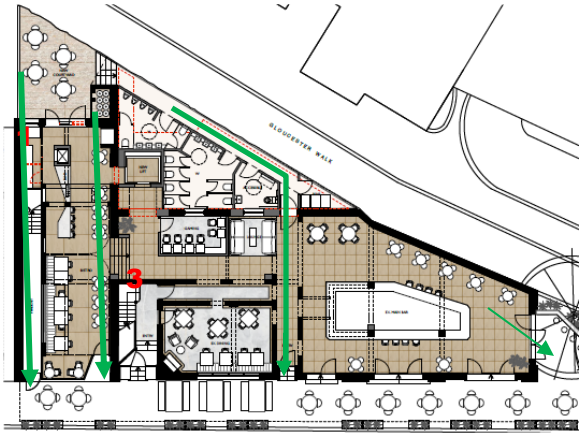
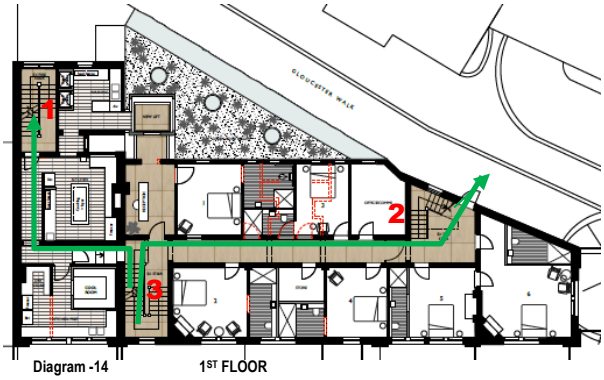
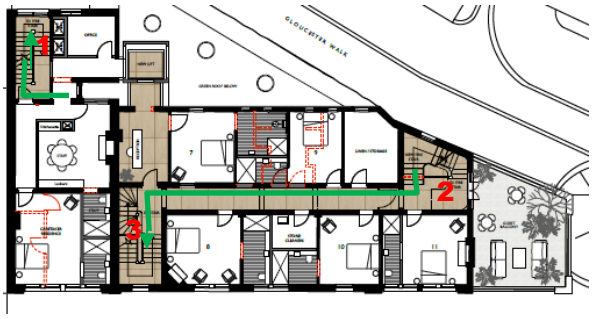
BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
		
3.2 Concession for floors	N/A	
3.3 Floor loading of Class 5 & 9p portions	for notation	
3.4 Roof superimposed on concrete slab	N/A	
3.5 Roof concession	N/A	Concession identified by clause 3.5 only applies on the basis that the existing building is less than 3 storey's noting that no sprinkler system exists. However with the 4th storey resulting from the proposed roof top scope of works such concession would **only apply** if the building were to be fully sprinkler protected.
3.6 Roof lights	N/A	
3.7 Internal columns and walls concessions	For notation	Reduction in FRL associated with internal columns is permissible in top most storey to 60/60/60
3.8 Open spectator stands and indoor sports stadium	N/A	
3.9 carpark	N/A	
3.10 class 2 concessions	N/A	
SPECIFICATION C1.10 FIRE HAZARD PROPERTIES - GENERAL		
1. Scope	For notation	
2. Application	For notation	
3. Floor linings and floor coverings	For notation	In a non-sprinkler protected building (class 3 portion) new floor lining would need to achieve a critical radiant flux of not less than 4.5 and 2.2 in a sprinkled building. For class 6 portion a critical radiant flux of not less than 2.2 is required and is to achieve a maximum smoke development rate of 750 percent. If building is sprinkler protected a critical radiant flux of not less than 1.2 is required to be achieved.
4. Wall and ceilings	For notation	A material used as a finish, surface, lining or attachment to a wall or ceiling must be a Group 1, Group 2 or Group 3 material used in accordance with **Table 3 of clause 4 Specification C1.10** and for buildings not fitted with a sprinkler system complying with **Specification E1.5**, have— (i) a *smoke growth rate index* not more than 100; or (ii) an *average specific extinction area* less than 250 m^2/kg. Evidence of compliance with such requirement will need to be demonstrated.
5 Air- handling ductwork	Further details to be provided	It is not known to what extent air handling systems are intend to be provided. If they are then rrigid and flexible ductwork in a Class 2 to 9

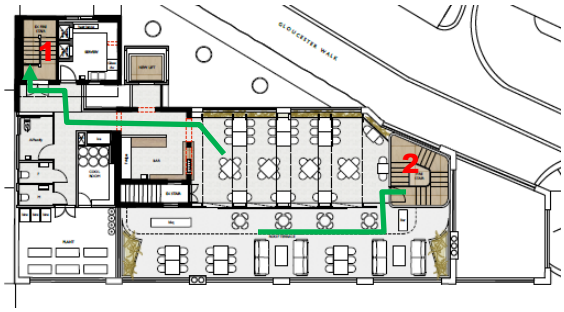
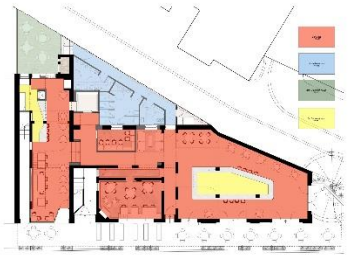
Building element	Class of building — FRL: (in minutes) *Structural adequacy/Integrity/Insulation*			
	2, 3 or 4 part	5, 7a or 9	6	7b or 8
INTERNAL WALLS—				
Fire-resisting lift and stair *shafts*—				
Loadbearing	90/ 90/ 90	120/120/120	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/120/120	–/120/120	–/120/120
Bounding *public corridors*, public lobbies and the like—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Between or bounding *sole-occupancy units*—				
Loadbearing	90/ 90/ 90	120/–/–	180/–/–	240/–/–
Non-*loadbearing*	–/ 60/ 60	–/–/–	–/–/–	–/–/–
Ventilating, pipe, garbage, and like *shafts* not used for the discharge of hot products of combustion—				
Loadbearing	90/ 90/ 90	120/ 90/ 90	180/120/120	240/120/120
Non-*loadbearing*	–/ 90/ 90	–/ 90/ 90	–/120/120	–/120/120
OTHER LOADBEARING INTERNAL WALLS, INTERNAL BEAMS, TRUSSES and COLUMNS—	90/–/–	120/–/–	180/–/–	240/–/–
FLOORS	90/ 90/ 90	120/120/120	180/180/180	240/240/240
ROOFS	90/ 60/ 30	120/ 60/ 30	180/ 60/ 30	240/ 90/ 60

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
		building must comply with the *fire hazard properties* set out in AS 4254 Parts 1 and 2.
6. Lift cars	Further details to be provided	Materials used as— (a) floor linings and floor coverings must have a *critical radiant flux* not less than 2.2; and (b) wall and ceiling linings must be a Group 1 material or a Group 2 material in accordance with **Clause 4(b) -Specification C1.10**.
7. Other material	N/A	
SECTION D ACCESS AND EGRESS		
D1.1 Application of Part	For notation	
D1.2 Number of exits	Yes	At least 2 exits will be available from each level of the building.  Diagram -7 GROUND FLOOR  Diagram -8 1ST FLOOR  Diagram -9 2nd FLOOR

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
		 Diagram -10 ROOF LEVEL
D1.3 When fire-isolated exits are required  Diagram -12 2nd FLOOR		Clause D1.3 requires a stair that connects more than 2 storeys in a class 6 building (and 3 storeys in a class 3 building), to be constructed as a fire isolated stair. An additional storey may be connected if the building is fully sprinkler protected without the need for the stair to be fire isolated. The following table summaries the fire isolation requirements associated with Stairs 1-3 inclusive. **Note:** Stair 1 is considered capable of being configured to address a FIS stair arrangement. Stair 3 however is an existing heritage stair and not able to satisfy FIS configuration requirements. Although not able to serve as an exit from the roof level due to the stair geometry between level 2 and roof level, it is able to serve as an exit in terms of level 1 & 2 within the context of a fire engineered performance based solution which is likely to involve sprinkler protection throughout the building. It is also likely that in addition to the provision of fire doors as identified within diagrams 2, 3 & 4 of this report, that any fire engineered performance based approach intended to address the construction requirements associated with Stair 1,2 & 3 will include a requirement for the provision of self-closing 35mm solid core doors in the locations highlighted in yellow in diagram 11 & 12.  Diagram -11 1st FLOOR

Stair	Class	No. storeys	FIS- required
1	3 & 6	4	yes
2	6	3	yes
3	3 & 6	4	yes

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
D1.4 Exit travel distances		Exit travel distances appear to be capable of satisfying the requirements of D1.4 of the BCA  Diagram -13 GROUND FLOOR  Diagram -14 1ST FLOOR  Diagram -15 2nd FLOOR

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
		 Diagram -16 ROOF LEVEL
D1.5 Distance between alternative exits	Yes	
D1.6 Dimensions of exits	No	Stair 1, 2 & 3 appear to be less than 1m clear width. Additionally the width of the corridor located at the southern end of Level 1 & 2 is nominally less than 1m (approximately 960mm). The short fall in compliant egress width will require verification within the context of a performance based fire engineered solution. On the basis of a deemed population of 150 on the roof top the proposed aggregate exit width achieved via Stair 1 & 2 would be able to satisfy the requirements of clause D1.6 (d) of the BCA. The aggregate exit width required in respect of the ground floor based upon a deemed population of 234 within the building and a further 216 likely to occupy the public domain component. Within the context of a deemed population of 234 associated with the ground floor of the building, the requirements of D1.6 (c) of the BCA are able to be satisfied by the multiple exits located at ground floor level.
D1.7 Travel via fire-isolated exits	No	Stair 1 appears to enable discharge directly to George Street via a passageway. In this regard the passage way is required to be fire isolated and achieve the required FRL as prescribed by Table 3 Type A construction. Stair 2 also enables discharge to open space via Gloucester walk. The access to the SOU's directly from within Stair 2 on level 1 & 2 is contrary to the requirements of D1.7 (a) of the BCA. However the proposed configuration in respect of the SOU's and Stair 2 could be reviewed and substantiated within the context of a fire engineered performance based solution report. In addition to reliance upon an automatic fire suppression and fire detection system additional strategies such as the provision of fire rated doors and solid core doors as illustrated within Diagrams 5, 6, 11 & 12 could also form part of the likely strategies incorporated within a performance based fire engineering report.
D1.8 External stairways in lieu of fire-isolated exits	N/A	
D1.9 Travel by non-fire-isolated stairways or ramps	Yes	
D1.10 Discharge from exits	Yes	
D1.11 Horizontal exits	N/A	
D1.12 Non-required stairways, ramps or escalators	N/A	
D1.13 Number of persons accommodated  Diagram -16a Ground Floor		Deemed population : Ground floor common area = 190m2 @ 1person/m2 = 190 Bar area = 20m2 @ 1 person / 0.5m2 = 40 Rear court yard = 24m2 @ 1person/m2 = 24 Total = 134m2 total deemed population based upon Table D1.13 = 234. However on the basis of potential population spill over on to George Street, the owners have identified an overall population of 450 for the ground floor. The Roof Top deemed population is 150

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
D1.14 Measurement of distances	For notation	
D1.15 Method of measurement	For notation	
D1.16 Plant rooms and lift machine rooms: Concession	N/A	
D1.17 Access to lift pits	N/A	
PART D2 CONSTRUCTION OF EXITS		
D2.0 Deemed-to-Satisfy Provisions	For notation	
D2.1 Application of Part	For notation	
D1.14 Measurement of distances	For notation	
D1.15 Method of measurement	For notation	
D1.16 Plant rooms and lift machine rooms: Concession	N/A	
D1.17 Access to lift pits	N/A	
PART D2 CONSTRUCTION OF EXITS		
D2.0 Deemed-to-Satisfy Provisions	For notation	
D2.1 Application of Part	For notation	
D2.2 Fire-isolated stairways and ramps	No	Refer to comments D1.3- Generally the construction of stair 1,2 & 3 is required to be fire isolated but are constructed of timber and are contrary to the requirements D2.2. The stairs will therefore require a performance based fire engineered solution to enable retention of current stair construction.
D2.4 Separation of rising and descending stair flights	N/A	
D2.5 Open access ramps and balconies	N/A	
D2.6 Smoke lobbies	N/A	
D2.7 Installations in exits and paths of travel	Further details required	Were electrical meter distribution board is located in the path of travel it is to be enclosed in noncombustible material and the doors fitted with smoke seals.
D2.8 Enclosure of space under stairs and ramps	Further details required	Where the underside of the stairs is intended to be enclosed it is the enclosure is to be lined so as to achieve an FRL of 60/60/60 and the door to such enclosure comprising a self-closing -/60/30 fire rated door.
D2.9 Width of stairways	Yes	The minimum height associated with exit installation sis considered capable of being satisfied.
D2.10 Pedestrian ramps	N/A	
D2.11 Fire-isolated passageways	No	Fire stair 1, 2 & 3 are required to be enclosed within a shaft capable of achieving and FRL of at least 90/90/90. Whilst the bounding masonry walls are considered capable of satisfying the FRL requirements identified by Table 3- type a construction, the open configuration of the fire stairs compromises the capacity to satisfy the requirements of clause D2.11. Within the context of the proposed works intended to be carried out it will be necessary for a fire engineered performance based solution to be formulated for the purposes of verifying adequacy of Stair1, 2 & 3 in terms of meeting the requirements of Clause D2.11.
D2.12 Roof as open space	N/A	
D2.13 Treads and risers	No	Existing stair 1, 3 & 4 do not incorporate nonskid strips along the nosing of the tread. Additionally Stair 3 incorporates quarter winders between level 2 and roof level.
D2.14 Landings	Further details required	
D2.15 Thresholds	Further details required	
D2.16 Balustrades	No	Existing balustrade heights associated with stair 1, 2 & 3 do not satisfy the requirements of D2.16. However as the stairs are existing and subject to heritage constraints and considerations, the existing balustrade configuration could be substantiated from a fire engineered performance based approach.
D2.17 Handrails	No	Existing handrails are not continuous and subject to same consideration and limitations identified with respect to balustrades. In this regard compliance with Clause D2.17 is required.
D2.18 Fixed platforms, walkways, stairways and ladders	N/A	
D2.19 Doorways and doors	Yes	

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
D2.20 Swinging doors	No	All swinging doors in a required exit or forming part of a required exit are to swing in the direction of egress.
D2.21 Operation of latch	For notation	All exit doors must be readily openable without a key from the side that faces a person seeking egress.
D2.22 Re-entry from fire-isolated exits	N/A	Further details are to be provided at construction certificate stage.
D2.23 Signs on doors	N/A	Further details are to be provided at construction certificate stage.
D2.24 protection of openable windows	Further details required	
PART D3 ACCESS FOR PEOPLE WITH DISABILITIES		
D3.0 Deemed-to-Satisfy Provisions	For notation	
D3.1 Application of Part	Generally capable of compliance However further details required	Generally disabled access appears to be capable of being achieved to all common areas. Attention will however need to be given to the available clear width of the doors within the continuous accessible path of travel and at the principal pedestrian entry to the building at ground level. In this regard the door is required to achieve a minimum clear width of 850-mm. A pedestrian entrance *required* to be *accessible access must be provided to* at least 1 floor containing *sole-occupancy units* and to the entrance doorway of each *sole-occupancy unit* located on that level. To and within not less than 1 of each type of room or space for use in common by the residents, including a cooking facility, sauna, gymnasium, *swimming pool*, common laundry, games room, TV room, individual shop, dining room, public viewing area, ticket purchasing service, lunch room, lounge room, or the like. Where a ramp complying with AS 1428.1 or a passenger lift is installed— (a) to the entrance doorway of each *sole-occupancy unit*; and (b) to and within rooms or spaces for use in common by the residents, located on the levels served by the lift or ramp. Whilst the lift affords general access to all levels of the building the existing width of corridors is not considered to be wide enough to enable a person in a wheel chair to turn and approach the entry door to an SOU or turn at right angles within the corridor. The minimum width of corridor required is 1240mm. However such constraints could be considered within the context of a detailed access audit which could review such issues from a performance point of view. The proposed rear court yard area located at the south western end of the ground floor will need to be capable of providing disabled access from the principal pedestrian entry to all points within the designated out door court yard area and to the available accessible facilities. It is also pointed out that 2 accessible SOU are required in accordance with Table D3.1 of the BCA.
D3.2 General building access requirements	No	The principal pedestrian entry to the building which affords access to the lift at ground floor level is less than 850mm clear width. Other matters to consider include carpet thickness and underlay within the continuous accessible path of travel. In this regard carpet thickness shall not exceed 11mm and the carpet backing shall not exceed 4mm. Two accessible SOU's are required to be provided and are identified within Level 2. The general configuration of such rooms in terms of door width circulation space and fit out will need to comply with the requirements of AS1428.1-2009 and AS4299-1995.
D3.3 Parts of buildings to be accessible	No	Within the context to comments contained in D3.1 above the particular issues associated with general access, turning areas etc. can be considered within the context of a detailed access audit for further review and potentially consideration within the context of a performance based alternative approach.
D3.4 Concessions	N/A	
D3.5 Carparking	N/A	
D3.6 Identification of accessible facilities, and features	Further details required	Braille and tactile signage is required to be provided
D3.7 Hearing augmentation	N/A	

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
D3.8 Tactile indicators	Further details required	Tactile ground surface indicators are to be provided to warn people who are blind or have a vision impairment.
D3.9 wheelchair seating spaces in Class 9b assembly building	N/A	
D3.10 Swimming pools	N/A	
D3.11 ramps	N/A	
D3.12glazing and access ways	Further details required	On an *access way*, where there is no chair rail, handrail or transom, all frameless or fully glazed doors, sidelights and any glazing capable of being mistaken for a doorway or opening, must be clearly marked in accordance with AS 1428.1.
SECTION E SERVICES AND EQUIPMENT		
PART E1 FIRE FIGHTING EQUIPMENT		
E1.0 Deemed-to-Satisfy Provisions	For notation	
E1.3 Fire Hydrants	Further details required	The building is required to be serviced by a fire hydrant system. In this regard further details will need to be provided to assess the coverage and extent to which compliance with AS2419.1-2005 is able to be achieved.
E1.4 Fire hose reels	Further details required	Hose reels are required to serve the class 6 portions of the building only.
E1.5 Sprinklers	N/A	not required within the context of the rise in storey of the building however may be required as part of a fire engineered solution formulated to address short fall in passive fire resistance construction between storey's and fire isolation of fire exit stair ways.
E1.6 Portable fire extinguishers	Yes	
E1.7 *	N/A	
E1.8 Fire control centres	N/A	
E1.9 Fire precautions during construction	For notation	
E1.10 Provision for special hazards	For notation	
PART E2 SMOKE HAZARD MANAGEMENT		
E2.0 Deemed-to-Satisfy Provisions	For notation	
E2.1 Application of Part	For notation	
E2.2 General requirements	For notation	
E2.3 Provision for special hazards	Further details required	Based upon the proposed uses and rise in storey the relevant smoke hazard management provisions that would apply include: • Smoke detection and alarm system compliant with Clause 4 Specification E2.2a – BCA & AS1670.1-2015.
PART E4 EMERGENCY LIGHTING, EXIT SIGNS AND WARNING SYSTEMS		
E4.2 Emergency lighting	Yes	
E4.3 Measurement of distance	For notation	
E4.4 Design emergency lighting	For notation	
E4.5 Exit signs	Yes	
E4.6 Direction signs	Yes	
E4.7 Class 2 and 3 buildings and Class 4 parts: Exemptions	For notation	
E4.8 Design and operation of exit signs	For notation	
E4.9 Sound & intercom systems for emergency purposes	N/A	
PART F2 SANITARY AND OTHER FACILITIES		
F2.1 Facilities in residential buildings	Yes	Further details are to be provided at construction certificate stage.
F2.3 Facilities in Class 3 to 9 buildings	Yes	Based upon a population of 450 person ground floor and 150 on the roof level the following sanitary provisions are required. Class 6-Bar Pan urinal Basin Male 2 5 2 Female 6 - 3

BCA CLAUSE REFERENCE	Capable of satisfying BCA – DTS requirements YES / NO	COMMENT
		1 male and 1 female ambulant toilet within the above facilities is to be ambulant compliant. WC facilities for staff associated with Class 3 to be identified. Unable to determine where such facilities are provided. Class 3 where total employees male and female are less than 10 a single unisex sanitary facility is required. It may be possible to argue that the accessible facilities within the ground and roof top would be available to staff as the building is under the same management and control. The facilities identified within the plans is summarized as follows: Male: Pan 2, Urinal 5, Basin 3, Ground floor Pan 1, Urinal -, Basin 1, Roof level Female: Pan 6, Urinal -, Basin 3, Ground floor Pan 1, Urinal -, Basin 1, Roof level Proposed sanitary facilities will satisfy the requirements of F2.3 for a deemed population of 450 on the ground floor & 150 at roof level.
F2.4 Facilities for people with disabilities	Yes	1x unisex accessible WC is required within the ground floor bank of facilities and at roof level. The configuration of the accessible facility is to be in accordance with AS1428.1-2009.
F2.5 Construction of sanitary compartments	Yes	Further details are to be provided.
F2.6 Interpretation: Urinals and washbasins	For notation	
F2.7 Microbial (legionella) control	N/A	
F2.8 Waste management	N/A	
PART F3 ROOM SIZES		
F3.0 Deemed-to-Satisfy Provisions	For notation	
F3.1 Height of rooms and other spaces	Yes	Further details are to be provided at construction certificate stage.
PART F4 LIGHT AND VENTILATION		
F4.0 Deemed-to-Satisfy Provisions		
F4.1 Provision of natural light	Yes	
F4.2 Methods and extent of natural lighting	For notation	
F4.3 Natural light borrowed from adjoining room	N/A	
F4.4 Artificial lighting	Yes	Further details are to be provided.
F4.5 Ventilation of rooms	Yes	Further details are to be provided.
F4.6 Natural ventilation	Yes	Further details are to be provided.
F4.7 Ventilation borrowed from adjoining room	N/A	
F4.8 Restriction on position of water closets and urinals	Yes	Further details are to be provided.
F4.9 Airlocks	Yes	
F4.10 *		
F4.11 Carparks	N/A	
F4.12 Kitchen local exhaust ventilation	Further details required	Further details regarding the proposed kitchen exhaust arrangements is to be provided.

PART 4.0 CONCLUSION

The assessment undertaken in respect of the subject premises has identified various BCA compliance issues associated with the capacity of the proposed design to meet the relevant requirements of the Deemed-To-Satisfy (Dts) provisions of the National Construction Code – Volume 1, Building Code of Australia (BCA-2016).

A summary of compliance issues is identified in this regard is contained within Part 2 of this report.

In order to retain the proposed building configuration within the context of the intended use, it will be necessary for fire engineered performance based solutions to be formulated for the purposes of demonstrating compliance with the national Construction Code- Volume 1 - BCA 2016.

Peter Rossello

A1 Accredited Building Certifier
Accredited Building Certifier – Grade 1