BUILDING CODE OF AUSTRALIA ASSESSMENT

Proposed Boarding House with On-Site Car Parking

No. 72-73 The Crescent HOMEBUSH

November 2017

Prepared by:
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1. **SUMMARY**

This report has been prepared to identify the extent of compliance achieved by the assessment of the architectural documentation for the proposed development against the relevant provisions of the Building Code of Australia (BCA) and its adopted standards.

The proposed development consists of the construction of an 18 room boarding house development with on-site car parking.

This report will provide a BCA analysis to assist in the process of design development and to assist the consent authority in the determination of the Development Application relating to the works.

The application for Construction Certificate shall be assessed under the relevant provisions of the Environmental Planning & Assessment Act 1979 and the Environmental Planning & Assessment Regulation 2000.

This report was prepared with reference to drawings prepared by Manor House Design, numbered DA 201-203, DA 301-302 and DA 401 with Job No. 1709, Revision A, dated June 2017.

2. **ASSESSMENT CRITERIA**

Building Use: Boarding House with car parking

Class of Occupancy: 3 – Ground, first & roof level boarding home rooms

7a – Ground level car parking

Type of Construction: Type A

Rise in Storeys: Two storey plus attic

Effective Height: Less than 9.5 m
# 3. **ESSENTIAL FIRE SAFETY MEASURES**

The following draft fire safety measures are required to be installed in the building.

<table>
<thead>
<tr>
<th>Item</th>
<th>Proposed Essential Fire Safety Measure</th>
<th>Minimum Standard of Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Automatic fire detection and alarm system</td>
<td>BCA2014 Clause E2.2a, Clause 3, 4, 5, 6 of Specification E2.2a and AS1670.1-2004</td>
</tr>
<tr>
<td>2.</td>
<td>Emergency lighting</td>
<td>BCA2014 Clauses E4.2 &amp; E4.4, AS2293.1-2005</td>
</tr>
<tr>
<td>3.</td>
<td>Exit signs</td>
<td>BCA2014 Clauses E4.5, E4.6 &amp; E4.8, AS2293.1-2005</td>
</tr>
<tr>
<td>4.</td>
<td>Fire hose reel system, (Subject to further information)</td>
<td>BCA2014 Clause E1.4, AS2441-2005</td>
</tr>
<tr>
<td>5.</td>
<td>Fire hydrant system (Subject to further information)</td>
<td>BCA2014 Clause E1.3, AS2419.1-2005</td>
</tr>
<tr>
<td>6.</td>
<td>Fire seals protecting openings in fire resisting components of the building</td>
<td>BCA2014 Clause C3.15, AS1530.4-2005</td>
</tr>
<tr>
<td>7.</td>
<td>Lightweight Fire Rated Construction</td>
<td>BCA2014 Clause / Specification C1.8</td>
</tr>
<tr>
<td>8.</td>
<td>Mechanical air handling systems</td>
<td>BCA2014 Clause F4.5, F4.11, AS/NZS1668.2-2012</td>
</tr>
<tr>
<td>9.</td>
<td>Paths of travel, stairways, passageways or ramps</td>
<td>BCA2014 Section D</td>
</tr>
<tr>
<td>11.</td>
<td>Smoke detectors and heat detectors</td>
<td>BCA2014 Clause 3 of Specification E2.2a, AS3786-1993</td>
</tr>
<tr>
<td>12.</td>
<td>Solid core doors</td>
<td>BCA2014 Clause C3.11</td>
</tr>
</tbody>
</table>
4. **FIRE RESISTANCE LEVELS**

The following fire resistance levels (FRL's) are required for the various structural elements of the building, with a fire source feature being the far boundary of a road adjoining the allotment, a side or rear boundary or an external wall of another building on the allotment except a Class 10 structure.

**Type-A Construction**

<table>
<thead>
<tr>
<th>Item</th>
<th>Class 3</th>
<th>Class 7a</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Loadbearing External Walls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− less than 1.5m to a fire source feature;</td>
<td>90/90/90</td>
<td>120/120/120</td>
</tr>
<tr>
<td>− 1.5 – 3m from fire source feature;</td>
<td>90/60/60</td>
<td>120/90/90</td>
</tr>
<tr>
<td>− 3m or more from fire source feature;</td>
<td>90/60/30</td>
<td>120/60/30</td>
</tr>
<tr>
<td><strong>Non-Loadbearing External Walls</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− less than 1.5m to a fire source feature;</td>
<td>-/90/90</td>
<td>-/120/120</td>
</tr>
<tr>
<td>− 1.5 – 3m from fire source feature;</td>
<td>-/60/60</td>
<td>-/90/90</td>
</tr>
<tr>
<td>− 3m or more from a fire source feature;</td>
<td>-/-</td>
<td>-/-</td>
</tr>
<tr>
<td><strong>External Columns</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− Loadbearing;</td>
<td>90/-/-</td>
<td>120/-/-</td>
</tr>
<tr>
<td>− Non-loadbearing;</td>
<td>-/-</td>
<td>-/-</td>
</tr>
<tr>
<td><strong>Common Walls and Fire Walls</strong></td>
<td>90/90/90</td>
<td>120/120/120</td>
</tr>
<tr>
<td><strong>Stair and Lift Shafts</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− Loadbearing</td>
<td>90/90/90</td>
<td>120/120/120</td>
</tr>
<tr>
<td>− Non loadbearing</td>
<td>-/90/90</td>
<td>-/120/120</td>
</tr>
<tr>
<td><strong>Internal walls bounding public corridors, hallways and the like</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− Loadbearing</td>
<td>90/90/90</td>
<td>120/-/-</td>
</tr>
<tr>
<td>− Non loadbearing</td>
<td>-/60/60</td>
<td>-/-</td>
</tr>
<tr>
<td><strong>Internal walls bounding sole occupancy units</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>− Loadbearing</td>
<td>90/90/90</td>
<td>120/-/-</td>
</tr>
</tbody>
</table>
5. **BCA COMPLIANCE SPECIFICATION**

The following BCA matters are to be addressed by specific BCA Design Certifications to be issued by the relevant architectural, services and engineering consultants at the Construction Certificate Stage. This schedule should be forwarded to all consultants to obtain verification that these items have and will be included in the design documentation / specifications:

**Architectural Design Certification:**

1. The FRL’s of the structural elements for the proposed works have been designed in accordance with table 3 for a building of Type A construction of Specification C1.1 of BCA2014.
2. Materials, floor and wall linings/coverings, surface finishes and air-handling ductwork used in the works will comply with the fire hazard properties in accordance with Clause C1.10, and Specification C1.10 of BCA2014.
3. The building will be separated into separate fire compartments by a fire wall compliant with Clause C2.7 and Specification C1.1 of BCA2014.
4. The parts of different classifications located alongside one another in the same storey will be separated in accordance with Clause C2.8 and specification C1.1 of BCA2014.
5. The parts of different classifications situated one above another in adjoining storeys, will to be separated in accordance with Clause C2.9 and Specification C1.1 of BCA2014.
6. Doorways in any fire walls separating fire compartments will be protected in accordance with Clause C3.5 of BCA2014.
7. Services penetrating elements required to possess a FRL including the floor slabs, walls, shafts, etc. will be protected in accordance with Clause C3.9, C3.12, C3.13 and C3.15 and Specification C3.15 of BCA2014.
8. The lift doors will be --/60/- fire doors complying with AS1735.11 in accordance Clause C3.10 of BCA2014.
9. Doorways and other openings in internal walls required to have an FRL will be protected in accordance with Clause C3.11 of BCA2014.
10. Columns protected by lightweight construction will achieve an FRL not less than the FRL for the element it is penetrating, in accordance with Clause 3.17 of BCA2014.

<table>
<thead>
<tr>
<th></th>
<th>Non loadbearing</th>
<th>Other loadbearing internal walls, beams trusses and columns</th>
<th>Floors</th>
<th>Roofs</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>-/60/60</td>
<td>90/-/-</td>
<td>90/90/90</td>
<td>-/-</td>
</tr>
<tr>
<td></td>
<td></td>
<td>120/-/-</td>
<td>120/120/120</td>
<td>-/-</td>
</tr>
</tbody>
</table>

N.B. There are FRL concessions applicable for car park portion under Clause 2.8 of BCA Specification C1.1, whereby reducing the carpark FRL’s down from 120mins to 90 mins.
11. A lintel must have the FRL required for the part of the building in which it is situated, unless it does not contribute to the support of a fire door, fire window or fire shutter, and it spans an opening in masonry which is not more than 150 mm thick and is not more than 3m wide if the masonry is non-loadbearing; or not more than 1.8m wide if the masonry is loadbearing and part of a solid wall or one of the leaves of a cavity wall, or it spans an opening in a non-loadbearing wall of the Class 2 or 3 building, in accordance with Clause 2.3 of BCA2014.

12. All attachments to the external facade of the building will be of a non-combustible material in accordance with Clause 2.4 of Specification C1.1 of BCA2014.

13. The top and bottom of the riser shafts will achieve an FRL not less than the FRL required for the walls of the shaft in accordance with Clause 2.7 of Specification C1.1 of BCA2014.


15. Travel distances to exits will be in accordance with Clause D1.4 of BCA2014.

16. The alternative exits will be distributed uniformly around the storey and will not be less than 9m apart, and not more than 45m apart in the residential portion or 60m in accordance with Clause D1.5 of BCA2014.

17. The dimensions of exits and paths of travel to exits will be provided in accordance with Clause D1.6 of BCA2014.

18. The external stairway or ramp serving as a required exit will be in accordance with Clause D1.8 of BCA2014.

19. The non-fire-isolated exits will be in accordance with Clause D1.9 of BCA2014.

20. The discharge points of exits will be in accordance with Clause D1.10 of BCA2014.

21. Access to the lift pit will be in accordance with Clause D1.17 of BCA2014.

22. The non-fire isolated stairs will be constructed in accordance with Clause D2.3 of BCA2014.

23. The construction of EDB’s will be in accordance with Clause D2.7 of BCA2014 with the enclosure bounded by a non-combustible or fire protective covering and smoke seals provided around the perimeter of the doors at each level.

24. The enclosing walls and ceiling under the non-fire-isolated stairway will achieve an FRL of 60/60/60, and a self-closing -/60/30 fire door, in accordance with Clause D2.8 of BCA2014.

25. New pedestrian ramps will comply with AS1428.1-2009, Clause D2.10 and Part D3 of BCA2014. The floor surface of a ramp must have a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586.

26. Stair geometry to the new stairways will be in accordance with Clause D2.13 of BCA2014. Stair treads are to have a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586 or a nosing strip with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586.

27. Landings and door thresholds throughout the development will be provided in accordance with Clause D2.14 and D2.15 of BCA2014. Landings to have either a surface with a slip-resistance classification complying with Table D2.14 when tested in accordance with AS 4586 or a strip at the edge of the landing with a slip-resistance
classification complying with Table D2.14 when tested in accordance with AS 4586

28. The handrails and balustrades to all stairs and throughout the building will be in
accordance with Clause D2.16, and D2.17 of BCA2014.

29. The fixed platform, walkway, stairway and ladder and any associated going and riser,
landing, handrail, balustrade, located within the machinery room, boiler house, lift-
machine room, plant- room, or non-habitable attic/storeroom within the sole
occupancy unit will comply with AS1657-2013 in lieu of Clause D2.12, D2.14, D2.16
and D2.17 of BCA2014.

30. The doorways and doors will be in accordance with Clause D2.19, D2.19 and D2.20 of
BCA2014.

31. The door latching mechanisms to the proposed required exit doors will be in
accordance with Clause D2.21 of BCA2014.

32. The openable portion of a window in the Class 3 parts must be protected with a
restricting device or secure screen that does not allow a 125mm sphere to pass
through the opening or screen and resist an outward horizontal action of 250N in
accordance with Clause D2.24. In addition to window protection and for openable
windows 4 meters or more above the ground below, a barrier with a height not less
than 865mm above the floor to an openable window must be installed.

33. The new works will be accessible in accordance with Clause D3.1 and table D3.1,
D3.2, D3.3 of BCA2014, and with AS1428.1-2009, with particular note to door
circulation spaces, accessway widths, turning spaces and floor coverings, in
accordance with Part D3 of BCA2014.

34. Accessible carparking will be in accordance with Clause D3.5, and Table D3.5 of
BCA2014.

35. Braille and tactile signage will be in accordance with Clause D3.6, and specification
D3.6 of BCA2014.

36. Tactile ground surface indicators will be provided in accordance with Clause D3.8 of
BCA2014 and AS 1428.4.1-2009.

37. On an accessway, where there is no chair rail, handrail or transom, all frameless or
fully glazed doors, sidelights and any glazing capable of being mistaken for a
doorway or opening, will be clearly marked in accordance with AS1428.1-2009 and
Clause D3.12 of BCA2014.

38. Non-illuminated exit signage will be installed in accordance with Clause E4.7, and of
BCA2014.

39. External above ground waterproofing membranes must comply with AS 4654 Parts 1
and 2.

40. The new roof covering will be in accordance with Clause F1.5 of BCA2014.

41. Any sarking proposed will be installed in accordance with Clause F1.6 of BCA2014.

42. Waterproofing of all wet areas to the building will be carried out in accordance with
Clause F1.7 of BCA2014 and AS3740.

43. Damp proofing of the proposed structure will be carried out in accordance with
Clause F1.9 and F1.10 of BCA2014.

44. Floor wastes will be installed to bathrooms and laundries above sole occupancy units
or public space in accordance with clause F1.11 of BCA2014.
45. Sub floor ventilation will be provided in accordance with Clause F1.12 of BCA2014.
46. All new glazing to be installed throughout the development will be in accordance with Clause F1.13 of BCA2014 and AS1288 / AS2047.
47. Sanitary facilities will be provided in the building in accordance with Clause F2.1, Table F2.1, Clause F2.3 and Table F2.3 of BCA2014.
48. Accessible sanitary facilities will be provided in the building in accordance with Clause F2.4, Table F2.4 (a) of BCA2014 and AS1428.1 -2009.
49. The construction of the sanitary facilities will be in accordance with Clause F2.5 of BCA2014.
50. Ceiling heights to the new areas will be in accordance with Clause F3.1 of BCA2014.
51. Natural light will be provided in accordance with Clause F4.1, F4.2, and F4.3 of BCA2014.
52. Natural ventilation will be provided in accordance with Clause F4.5, F4.6 and F4.7 of BCA2014.
53. Water closets and urinals will be located in accordance with Clause F4.8 of BCA2014.
54. The sanitary compartments will either be provided with mechanical exhaust ventilation or an airlock in accordance with Clause F4.9 of BCA2014.
55. The carpark will be provided with an adequate system of permanent natural ventilation in accordance with Clause F4.11 of BCA2014.
56. A means of cleaning of windows in accordance with the Construction Safety Act.
57. Essential fire or other safety measures must be maintained and certified on an ongoing basis, in accordance with the provisions of the Environmental Planning and Assessment Regulation, 2000.
58. Glazing will be in accordance with Part J2 of BCA2014.
59. Facilities for Energy Monitoring will be provided in accordance with Clause J8.3 of BCA 2014.

**Electrical Services Design Certification:**

60. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, and Specification E2.2a of BCA2014.
61. Emergency lighting will be installed throughout the development in accordance with Clause E4.2, E4.4 of BCA2014 and AS2293.1 – 2005
62. Exit signage will be installed in accordance with Clause E4.5, E4.7, and E4.8 of BCA2014 and AS2293.1.
63. Artificial lighting will be installed throughout the development in accordance Clause F4.4 of BCA2014 and AS/NZS 1680.0.
64. Lighting power and controls will be installed in accordance with Part J6 of BCA2014.

**Hydraulic Services Design Certification:**

65. Storm water drainage will be provided in accordance with Clause F1.1 of BCA2014 and AS3500.3
66. Fire hydrants will be installed in accordance with Clause E1.3 of BCA2014 and AS2419.1- 2005, as required.
67. Fire hose reels will be installed in accordance with Clause E1.4 of BCA2014 and AS2441-2005, as required.
68. Portable fire extinguishers will be installed in accordance with Clause E1.6 of BCA2014 and AS2444-2005.
69. The heated water supply systems will be designed and installed to NCC Volume 3 – Plumbing code and Clause J7.2 of BCA2014.

**Mechanical Services Design Certification:**

70. An air-handling system which does not form part of a smoke hazard management system will be installed in accordance with Clause E2.2 of BCA2014, and AS/NZS 1668.1.
71. The building will be mechanically ventilated in accordance with Clause F4.5 of BCA2014 and AS1668.2-2012.
72. Every storey of the car park will be mechanically ventilated in accordance with Clause F4.11 of BCA2014 and AS1668.2-2012 as applicable.
73. The air-conditioning and ventilations systems will be designed and installed in accordance with Part J5 of BCA 2014.

**Structural Engineers Design Certification:**

74. The material and forms of construction for the proposed works will be in accordance with Clause B1.2, B1.4 and B1.6 of BCA2014 as follows:
   - Dead and Live Loads – AS1170.1
   - Wind Loads – AS1170.2
   - Masonry – AS3700
   - Concrete Construction – AS3600
   - Steel Construction – AS4100
   - Aluminium Construction – AS/NZS1664.1 or 2
   - ABCB Standard for Construction of Buildings in Flood Hazard Areas.
75. The FRL’s of the structural elements for the proposed works have been designed in accordance with table 3 for a building of Type A construction of Specification C1.1 of BCA2014.
76. The lift shaft will have a FRL in accordance with Clause C2.10 and Specification C1.1 of BCA2014.
77. Lightweight construction used to achieve required fire resistance levels will comply with Specification C1.8 of BCA2014.
78. The construction joints to the structure will be in accordance with Clause C3.16 of BCA2014 to maintain the FRL integrity of the element concerned.
79. Upon completion of the works, a structural engineer will be able to certify that local failure will be in accordance with Clause D2.2 of BCA2014 for the fire-isolated stairs.

**Lift Services Design Certification:**

80. Warning signage in accordance with Clause E3.3 of BCA2014 will be provided to the lifts to advise not to use the lifts in a fire.
81. Access and egress to the lift well landings will comply with the Deemed-to-Satisfy Provisions of D3 of the BCA2014, and will suitable to accommodate disabled persons.

82. The type lifts will also be suitable to accommodate persons with a disability in accordance with Clause E3.6, Table E3.6a, and will have accessible features in accordance with table E3.6b of BCA2014.

83. The new lift will comply with AS1735.12 in accordance with Clause E3.6 of BCA2014.

**Acoustic Services Design Certification:**

84. The sound transmission and insulation of the residential portions of the development will comply with Part F5 of BCA2014.

**NSW Specification Design Certification:**

85. The handrails and balustrades to all stairs and throughout the building will be in accordance with Clause D2.16, NSW Clause D2.16 and D2.17 of BCA2014.

86. The doorways and doors will be in accordance with Clause D2.19, NSW Clause D2.19 and D2.20 of BCA2014.

87. The door latching mechanisms to the proposed required exit doors will be in accordance with Clause D2.21 and NSW Clause D2.21 of BCA2014.

88. A means of cleaning of windows in accordance with the Construction Safety Act and NSW Clause G1.101 of BCA2014 will be provided.

89. Access for maintenance to all services and their components will be provided in accordance with Clause NSW J8.2 of BCA2014.

90. Insulation will be in accordance with AS4859.1 and will be installed as required by NSW Part J1 of BCA2014.

91. A smoke detection and alarm system will be installed throughout the building in accordance with Table E2.2a, NSW Table E2.2a and Specification E2.2a of BCA2014.

92. Exit signage will be installed in accordance with Clause E4.5, NSW Clause E4.6, E4.7, and E4.8 of BCA2014 and AS2293.1.

93. The building will be mechanically ventilated in accordance with Clause F4.5, NSW F4.5 of BCA2014 and AS1668.2-2012.

If further information is required, please contact the undersigned.

Yours faithfully
Manor House Design

Sam Tadros, Chartered Architect 7091