

APPENDIX J
BCA REPORT



FINAL

BUILDING CODE OF AUSTRALIA

Assessment Report

For

Proposed Mixed Use Development

At

85 Ocean Parade, Coffs Harbour

Client: Kann Finch Group
Report: CS05002-RP02(Final)
Date: 15 August 2005

REPORT REGISTER

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1.0 INTRODUCTION

1.1 Background

Advance Building Approvals Pty Ltd was requested by Kann Finch Group to prepare a Building Code of Australia (BCA) compliance assessment report in relation to the proposed residential development at 85 Ocean Parade, Coffs Harbour.

1.2 Purpose of the Report

This report is to identify any departure from the Deemed-To-Satisfy (DTS) requirements of the current building regulations, namely, BCA 2004. The report also provides an audit review of the architectural drawings against the relevant BCA clauses.

1.3 Referenced Documents

Architectural drawings 5262-DA01(6), DA02(5), DA03(5) DA04(4) DA05(4) DA06(4) DA07(4), DA08(4), DA11(4) DA12(4) DA13(5) DA14(4) and DA15(5) all dated 25 January 2005, together with supplementary details dated 05 August.

1.4 Limitations and Exclusions

This report does not address the requirements under the Disability Discrimination Act. The advice from a suitably qualified Access Consultant should be obtained.

The document was assessed against the BCA requirements and did not take into account of any local council policies (such as those requiring accessible units for people with disabilities) which may conflict with the DTS requirements of BCA. If this situation arises, the more stringent requirements prevail.

The BCA clause requirements listed under the 'Comments' column of the assessment table in Section 4.0 only relate to the relevant parts of the clause that are applicable to this project. They are in abbreviated form for readability and therefore do not present the clause in its entirety. For the full extent of the clause requirements, reference should be made to the BCA.

1.5 Assessment Methodology

A BCA assessment was carried out in tabulated form in Section 4.0. The document was checked against the BCA requirements and the findings were detailed under the 'Comments' column. The status of compliance was subsequently specified under the 'Status' column.

The non-compliances and any other matters warranting specific attention were shown shaded in the table under Section 4.0.

2.0 EXECUTIVE SUMMARY

2.1 Major Non-complying Issues

The non-compliances and matters that required special attention are shown shaded in the table under Section 4.0. The report identifies no BCA compliance issues which would threaten the overall layout and arrangement of the proposed design.

The report highlights some minor compliance issues and matters that require special attention. These are also shown shaded in the BCA assessment table in Section 4.0. Detailed drawings or specifications addressing these aspects of the project should be prepared prior to the construction of the work.

2.2 Essential Fire Safety Measures

The following essential fire safety measures are required to be installed in the building:

Item	Measure	Relevant Australian Standard or Other Standard
1.	Automatic Fire Detection and Alarm System	AS 1670.1, AS 3786, BCA Spec E2.2a
2.	Access Panels, Doors & Hoppers	BCA Clause C3.13, AS 1530.4-1997
3.	Automatic Fire Sprinkler Systems	AS 2118.1 - 1999, AS 2118.4 - 1995 & AS 2118.6 – 1995, BCA Clause E1.5 & Spec E1.5
4.	Emergency Lighting	AS/NZS 2293.1, BCA E4.2, E4.4
5.	Exit Signs	AS/NZS 2293.1, BCA E4.5, E4.6
6.	Fire Dampers	AS/NZS 1668.1, AS 1682.1 & 2, BCA C3.15
7.	Fire Doors	AS/NZS AS 1905.1, AS 1735.11, BCA C3.8, C3.10
8.	Fire Hose Reels	AS 2441, BCA E1.4
9.	Fire Hydrant Systems	AS 2419.1, BCA E1.3
10.	Fire Seals & Fire Stopping	AS 1530.4 & AS 4072.1, BCA C3.15
11.	Path of Travel	BCA Part D, NSW Part D
12.	Lightweight Construction	AS/NZS 1530.3 - 1999, AS 1530.4 –1997, ASTM E72-80, ASTM E695-79 & AS 2185, BCA Clause C1.8, Spec A2.4 & Spec C1.8
13.	Mechanical Air Handling Systems	AS/NZS 1668.1 & AS 1668.2, BCA F4.5
14.	Portable Fire Extinguishers	AS 2444, BCA E1.6
15.	Smoke Hazard Management Systems	AS/NZS 1668.1 – 1998, BCA Clause E2.2 NSW E2.2 & AS1668.1, Spec E2.2a
16.	Smoke Doors	BCA Spec C3.4
17.	Smoke and/or Heat Detectors	AS 1670.1- 1995 & AS 3786 – 1993, BCA Spec E2.2a
18.	Wall-Wetting Sprinklers	AS 2118.2, BCA C3.4
19.	Warning & Operational signs	BCA Clauses C3.6, D2.23, E3.3, & Part E1

Note: The 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.

3.0 BCA BUILDING DESCRIPTION

3.1 General

3.1.1 Description of building

The proposed building comprises 2 basement carpark levels; Motel Reception, Motel accommodation, various retails and residential lobbies on the Ground Floor; Motel accommodation and residential apartments on Level 1; Residential apartments from Level 2 through to Level 5. Two fire isolated stairs are provided to serve the basement carpark. Levels 1 to 5 are served by two fire isolated stairs. Carpark entry and exit are located in the public laneway in the west.

3.1.2 Classification

The existing and proposed uses of the building attract mixed classifications listed below:

Part of building	Use	Classification
Basement 1 and 2	Carpark/Store area ¹	7a
Ground level	Retail/Swimming Pool & Gym ² /Motel Reception/Residential lobbies	6/9b/3/2
Level 1	Motel/Residential apartments	3/2
Levels 2 to 5	Residential apartments	2

3.1.3 Rise in Storeys

The rise in storeys calculated in accordance with clause C1.2 is six, therefore it requires a Type A construction.

3.1.4 Effective Height

The effective height of the building calculated from the Ground level to Level 5 is 15.95m which is less than 25m.

3.1.5 Type of Construction

In accordance with the provisions of C1.1 the building is required to be of Type A Construction.

3.1.6 General Floor Area Limitations

The size of any fire compartment must not exceed the relevant floor area and volume limitations as set out in Table C2.2 for Type A Construction.

Class 6	5,000m ² and 30,000m ³
Class 7a	No limit ³
Class 2, 3	No limit
Class 9b	8,000m ² and 48,000m ³

The floor area limitations of the proposed uses are within the limit specified in C2.2 of BCA.

¹ The proposed store areas in each basement appears to be <10% of the floor area and hence attract a classification of Class 7a.

² The proposed swimming pool/gym area is considered as 9b in this report. It can be Class 3 if the floor area is <10% of the floor area of the ground floor which is measured over the enclosing walls.

³ A sprinkler protected carpark is not subject to the floor area limitations by virtue of BCA Clause C2.1

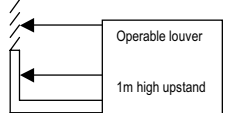
4.0 BCA ASSESSMENT

4.1 Structure – Section B

Clause Description	Comments	Status
B1.4 Materials and forms of construction	If primary building elements are subject to attack by subterranean termites, the materials and constructions must comply with AS 3660.1. A durable notice must be permanently fixed to the building in a prominent location, such as a meter box or the like, indicating – - The method of termite risk management; and - The date of installation of the system; and - Where a chemical barrier is used, its life expectancy as listed on the National Registration Authority label; and - The installer's or manufacturer's recommendations for the scope and frequency of future inspections for termite activity. This requirement applies to primary building elements (e.g. roof, floor, ceiling, stairway, wall framing, entry porches).	To note.

4.2 Fire Resistance – Section C

Clause Description	Comments	Status
C1.1 Type of construction required	The building is required to be Type A construction. The Fire Resistance Ratings (FRLs) of the building elements must comply with Clause 3 and Table 3 of Specification C1.1 – Refer to Appendix A of this report.	To comply.
C1.2 Calculation of rise in storeys	The rise in storeys is six. A storey is not counted if it is situated partly below the finished ground and the underside of the ceiling is not more than 1 m above the average finished level of the ground at the external wall, or if the external wall is more than 12 m long, the average for the 12 m part where the ground is lowest.	Noted. RIS may be seven dependent on height of carpark soffit (not shown) in relation to the lowest level of the finished ground. No additional compliance issues will arise.
C1.8 Lightweight construction	Any lightweight material used in the lift shaft, services shaft and walls that require FRL must comply with the physical properties defined in Specification C1.8 of BCA.	To comply.
C1.10 Fire hazard properties	Building materials to have various fire hazard properties listed in Spec C1.10. For floor materials and floor coverings and walls and ceiling lining materials, comply with either Specification C1.10 or Specification C1.10a. Refer to Specifications C1.10 or Spec C1.10a for details. Note that there are strict requirements to the wall/ceiling finishes of the Class 2 and 3 part of the building.	To comply.
C2.2 General floor area and volume limitations	Refer to Section 3.1.6 above.	Complies.

Clause Description	Comments	Status
C2.6 Vertical separation of openings in external walls	Vertical separation of external openings in non-sprinklered Type A buildings is required. Construction must be: - A 60/60/60 vertical spandrel >900mm high which extends at least 600mm above the upper floor level; or - A 60/60/60 horizontal construction that projects 1100mm outwards from the external face of the wall and extends 450mm beyond the openings concerned. In the case of a balcony protected with operable louver privacy screen, the horizontal separation must be measured from the external face of the louver below. In this development, the upstand of the balcony should be at least 900mm to satisfy the requirement of the vertical spandrel. However, it may require increasing the height to 1m to satisfy the balustrade requirements under D2.16 of BCA. Refer to D2.16 below. Dimension of vertical separation is unclear.	Dimensioned details demonstrate compliance. 
C2.8 Separation of classifications in the same storey	Building elements in the storey of mixed classifications must have the higher FRL of the classifications concerned. OR the classifications must be separated by fire wall having the higher FRL of the classifications concerned. Either the slab above the Ground floor constructed in 180/180/180 FRL (Retail attracts highest FRL) or fire walls be introduced to separate swimming pool & gym (120/120/120), retails (180/180/180) from the residential parts. The later requires slab to be of the same FRL as the fire wall and moreover, the structural engineer should ensure that the design complies with clause 2.2 of Specification C1.1 of BCA (fire protection for a support of another part). Also refer to C3.11 below for requirement of bounding construction in a Class 2 and 3 building.	To comply.
C2.9 Separation of classifications in different storeys	Type A construction – the floor of a storey must have an FRL relating to the classification immediately below that storey. Refer to Clause D2.12 and Appendix A for the relevant FRLs for different classifications. Also see Specification E1.5 Clause 3	To comply.
C2.10 Separation of lift shafts	Loadbearing lift shaft must have the relevant FRL when passing through building of different classifications. Refer to Appendix A for details. The roof to the lift shaft needs not have FRL if the shaft extends beyond the roof covering.	To comply.
C2.12 Separation of equipment	Switch room, Boiler room, Lift motor room, pump room must be separated from other parts of the building in 120/120/120 fire resistant construction. Doorway must be protected with -/120/30 self closing fire door. This requirement does not apply to lift motor room which is located beyond the roof covering and independent of other part of the building, or a monospace lift.	To note.
C2.14 Public corridors in Class 2 & 3 buildings	Public corridor >40m must be divided at intervals of <40m with smoke-proof walls complying with C2.5(d). The length of the proposed public corridor, interconnecting ground floor and level 1 through the open stairs and voids, is taken as the aggregate of the two floors.	Walls bounding the voids of motel corridor to comply with Specification C2.5 Clause 12 Doorways in 'smoke walls' comply (smoke doors provided). Refer also Spec C3.4

Clause Description	Comments	Status
C3.2 Protection of openings in external walls	Openings in the external wall which are less than 3m from the site boundary or 6m from the far boundary of the road must be protected with external wall-wetting sprinklers and the openings must be fixed close at all times. Furthermore, the size of the openings which require protection must not occupy more than 1/3 of the area of the external wall of that storey. The roller door to the garbage room appears to be 6m from the opposite side of the Laneway (the laneway is a public road as confirmed by Kann Finch). The fire source feature of a road is measured to the street alignment.	Complies. The carpark entry being less than 3m from the northern site boundary is screened from the fire source feature by construction having a nominal FRL.
C3.4 Acceptable method of protection (ext sprinkler)	In reference to C3.2 above, the acceptable methods of protection are: For doorways – external wall-wetting sprinkler together with self-closing door or -/60/30 self-closing fire door. For windows – external wall-wetting sprinkler together with automatic closing windows or fixed windows; or -/60/- automatic closing or fixed fire windows; or -/60/- automatic fire shutters.	To note.
C3.8 Openings in fire-isolated exits	Doorway opening into the fire isolated stairs must be protected with self-closing -/60/30 fire door or automatic closing initiated by the activation of a smoke detector or heat detector. A window in an external wall of a fire isolated stair must be protected in accordance with C3.4 if it is within 6m of and exposed to a window or other opening in a wall of the same building.	To comply.
C3.9 Service penetrations in fire-isolated exits	Permitted service penetrations inside the fire isolated exit are wirings associated with emergency lightings; security/surveillance system serving the exit and water supply pipes for fire services such as fire hydrants.	To comply.
C3.10 Openings in fire-isolated lift shafts	Lift landing door must have FRL of -/60/- and must comply with AS 1735.11. Lift call panel, indicator panel must be backed by construction having an FRL of -/60/60 if it exceeds 35,000mm ² in area.	To comply.
C3.11 Bounding construction: Class 2 & 3 and 4 buildings	The entry doorway of the unit and motel opening into the corridor must be protected with self-closing -/60/30 fire door. The walls bounding the unit and the public corridor or hallway must have an FRL of 90/90/90 (if loadbearing) or -/60/60 (if non-loadbearing). This is to ensure that a fire within a unit will not spread into the corridor, which is a means of egress to the fire stairs. Rooms in the class 2 and 3 part, not being within the sole-occupancy units, must likewise be protected by bounding construction. On the Ground floor, the bounding construction is defined by the bounding walls to the public corridor, the swimming pool, the motel and residential lobbies. However, the FRL must comply with C2.8 above, whichever is the greater.	To comply.
NSW C3.11 Bounding construction: Class 2 & 3 and 4 buildings	See above.	
C3.12 Openings in floors for services	Where a service passes through fire rated floor, it must be enclosed in a fire resistant shaft or protected as per requirements of C3.15.	To comply.

Clause Description	Comments	Status
C3.13 Openings in shafts	Access opening to service shaft must be protected with access panel having an FRL of -/60/30. Access to Garbage shaft needs only be protected with non-combustible door or hopper.	To comply.
C3.15 Openings for service installations	Penetrations by electrical wires, plumbing pipes through fire rated floor or wall must be fire stopped with approved tested system. To comply with the insulation criteria, no combustible material must be placed within 100mm of the penetration.	To comply.
Spec. C1.1 Fire Resisting Construction		
Spec C1.1, Clause 2.2 Fire protection for a support of another part	Any building element that supports another part which required an FRL must have the same FRL. The FRL of the supporting element must be not less than the required FRL of the element within the fire compartment in which it is located. Exemption is given to: 1. Element that provides lateral support to tilt up wall or external wall of Type C construction. 2. Element that provides support within a sprinklered carpark. 3. Non-combustible roof that provides lateral support in a building. For Type A construction, it is only applicable to roof concession granted under clause 3.5(a), (b) or (d). 4. Column that complies with 2.5(a) and (b). Element that provides lateral support to a fire wall if failure of the element will not affect the fire performance of the fire wall.	To comply. Note: Item (3) is applicable to this development should read in conjunction with clause 2.2 of Specification C1.1.
Spec C1.1, Clause 2.4 Attachments not to impair fire resistance (eg signs, awnings etc)	Combustible material may be used if it complies with Clause 2 of Spec C1.10 or Clauses 2 & 3 of Spec C1.10a or is exempted under Clause C1.10 and it is not located directly above a required exit and it does not contribute to undue risk of fire spread via the façade of the building.	To comply. The proposed awnings attached to the external walls must be non-combustible so that they do not contribute to undue risk of fire spread via the façade of the building. This requirement will not apply to Level 5 if it is the only storey having combustible attachments, as there is no undue risk of fire spread thereby.
Spec C1.1, Clause 3.1 Fire-resisting construction: Type A	FRLs of building elements must comply with Table 3 of Specification C1.1 of BCA. Refer to Appendix A of this report.	To comply.
Spec C1.1, Clause 3.5 Roof: concession	Non-combustible roof is acceptable in lieu of fire resistant roof. However, clause 2.2 of Specification C1.1 requires the roof to have an FRL of 60/60/60 if it provides lateral restraint to the wall or columns of the units. The exemption in clause 2.2 of Specification C1.1 above does not apply to this development unless the ceiling immediately below the roof has a resistance to the incipient spread of fire to the roof space of not less than 60minutes.	To comply.
Spec C1.1, Clause 3.6 Rooflights	Any rooflight or skylight must be at least 3m from the boundary. The structure within 6m vertically above the rooflight and 3m horizontally from the rooflight must be have FRL required for fire wall and any openings within must be protected as per C3.4.	No roof light proposed

Clause Description	Comments	Status
Spec C1.1, Clause 3.7 Internal columns and walls: concession	Internal columns and loadbearing walls in the storey immediately below the roof may have an FRL of 60/60/60 in lieu of 90/90/90.	To note.
Spec C3.4 Fire and smoke doors	A smoke door must be constructed as follows: The leaves are to be side-hung to swing in the direction of egress; or in both directions. The leaves are to be capable of resisting smoke at 200°C for 30 minutes. Solid-core leaves at least 35 mm thick satisfy. The leaves are to be fitted with smoke seals.	Complies as drawn Requirement for smoke proof barriers extends to bounding construction of voids

4.3 Access and Egress – Section D

Clause Description	Comments	Status
D1.2 Number of exits required	Two exits are required in the basement. Egress must not pass through another sole occupancy unit. Refer to D1.4 for number of exits required to comply with the travel distance. Two exits are required in order to comply with the travel distance requirements. The residential lobby 1 and 2 must be accessible to the motel occupants during egress. Refer to D1.4 and D1.5 below.	Can comply.
D1.3 When fire-isolated exits are required	Exit must be fire isolated: For Class 2 building, if it connects, passes through or passes by more than 3 consecutive storeys (2 consecutive storeys in the case of Class 3 building) plus 1 extra storey if it contains carpark or ancillary use. For Class 5 to 9 buildings (other than Class 9a or open spectator stand), if it connects, passes through or passes by more than 2 consecutive storeys. One extra storey may be included if the building is sprinklered or the extra storey is separated from the stair by 90/90/90 loadbearing construction or -/60/60 construction. Furthermore, the stair must not provide access to or egress for the extra storey connected.	Complies. Refer to D1.4 below.
D1.4 Exit travel distances	Class 2 & 3 - Entrance doorway must be less than 6m from an exit or point of choice to 2 exits. 20m to exit at level that provides direct egress to a road or open space. Class 5 to 9 20m to an exit or point of choice to 2 exits in which case the nearest exit <40m. - Concession for Class 5 & 6 building located at ground level where distance <30m.	Can comply. Travel distance complies in the basement carpark when measured in accordance with D1.15. On the ground floor, multiple exits are required to comply with this clause and also D1.5. In this case, the residential lobby 1 and 2 are required paths of egress for the motel occupants in addition to the entry door to the motel reception and the entry door from Ocean Parade.
D1.5 Distance between alternative exits	Distance between exits must not be less than 9m apart and more than 45m apart in the residential units. In the case of other uses, the maximum distance between exits must not exceed 60m..	Complies. Refer also to D1.4 above
D1.6 Dimensions of exits and paths of travel to exits	Unobstructed width and height must not be less than 1m and 2m respectively except for doorway.	To comply.

Clause Description	Comments	Status
D1.7 Travel via fire-isolated exits	A fire isolated exit must discharge directly to open space or to a covered area which adjoins an open space. The covered area must have a clear height of 3m with 1/3 of its perimeter open and the doorway is not more than 6m from the open space. Furthermore, the path of travel from the exit to the open space must not be less than 6m (measured at right angle to the external wall) from the external openings of the building unless the openings are protected with internal wall-wetting sprinklers.	The discharge from fire stairs into the open terrace area complies. Protection to part of the external façade is required if the wall of tenancy 3 has no fire rating where within 6m of the path of travel from the basement stair.
D1.10 Discharge from exits	The discharge from and access to the exit must not be blocked. Travel from a point of discharge of an exit to a road or open space shall meet the requirements of the clause.	Complies.
D1.16 Plant rooms and lift motor rooms; Concession	If plantroom <100m ² , a ladder may be used in lieu of a stairway. If plantroom >100m ² & <200m ² , where two exits required, one of them can be a ladder. If fire isolated exits are required, the ladder must be enclosed in a fire isolated shaft. A ladder can also be used as a path of travel. A ladder must comply with AS 1657 for a plantroom and AS 1735.2 for a lift motor room. Insufficient details shown for lift motor room access.	To note.
D2.2 Fire-isolated stairs or ramps	Fire isolated stairway must be enclosed in fire resistant shaft and must be of non-combustible construction and a local failure must not cause structural damage to the stair shaft.	To comply.
D2.7 Installations in exits and paths of travel	Electricity meters, distribution boards, central telecommunications distribution boards or equipment installed in the corridor, hallway, lobby must be enclosed by non-combustible construction or lined with fire protective covering with the doorways suitably sealed to prevent smoke spreading from the enclosure.	To comply.
D2.8 Enclosure of space under stairs and ramps	No enclosed space is allowed within the shaft of a fire isolated stair. Space below a non fire isolated stair or ramp must not be enclosed unless the enclosure has an FRL of 60/60/60 and opening protected with -/60/30 self closing fire door. None proposed.	To note.
D2.9 Width of stairways	The unobstructed width and height of the stair must not be less than 1m and 2m respectively.	Complies where shown.
D2.13 Treads and risers	Treads and risers dimensions must comply with Table D2.13. Risers must not have openings larger than 125mm and the treads must be non-slip finish.	To comply.
D2.14 Landings	Landing must be non-slip finish and 750mm long. Where there is a change in direction, the length is measured 500mm from the inside edge of the landing.	Complies.
D2.15 Thresholds	The threshold of a doorway must not incorporate a step or ramp at any point closer to the doorway than the width of the door leaf unless the doorway opens to a road or open space in which case the threshold must not exceed 190mm.	To note.

Clause Description	Comments	Status
D2.16 Balustrades or barriers	Continuous balustrade must be provided along the side of roof if accessible to public. Also required along stair or ramp if not bounded by a wall. Any terrace or floor which is >1m above surface beneath and >4m in the case of an openable window (where sill height <865mm) must be protected with balustrade. Balustrade in fire isolated stair must: • Be 865mm above nosings and ramp surface; • 1m above landing; • The space between balusters <300mm or space between rails <460mm with bottom rail <150mm above nosings of stair. <i>(Note: the height is measured above finished floor level).</i> In other cases, the height same as above but the space between balusters or rails <125mm. If floor >4m above the surface, no climbing device is permitted between 150mm and 760mm above floor. Balustrade >865mm high must be provided above floor of openable window if window is >4m above surface. No climbing device is permitted between 150mm and 760mm above floor.	To comply. Section 01 indicates foothold in the balcony. The foothold must not exceed 150mm in height. The proposed operable privacy louvre is not considered as climbing device, if located outside an imperforate glass or solid masonry solid balustrade for its entire length. In the absence of a safe work procedure, a complying balustrade must also be provided to the edge of the planter if the height from the top of the soil is >1m from the ground surface below to prevent people from falling while tending the planter.
D2.17 Handrails	Handrail must be provided to either side of a stair or ramp if the width is more than 2m and the height must be 865mm above the nosings. If the stair or ramp is less than 2m wide, handrail needs only be provided to one side of the stair. Refer to D3.3 for requirements for people with disabilities.	Refer to D3.3.
D2.19 Doorways and doors	If sliding door is fitted, it must fail safe open if door is electronically controlled or openable manually under a force of not more than 110N.	To comply.
D2.20 Swinging doors	A swinging door in a required exit or forming part of the required exit must not encroach at any part of its swing by more than 500mm on the required width of the stairway. When fully open, it must not encroach more than 100mm of the required width. The exit door must swing in the direction of egress unless it serves an area less than 200m ² in which case the door may swing against the direction of egress and the door is fitted a hold open device.	Complies. See also Spec C3.4
D2.21 Operation of latch	The door serving as exit or path of travel to an exit must be openable with single handed downward action latch on the side facing people seeking egress. The latching device must be located between 900mm and 1200mm (or 1100mm if door is accessible to disabled person) above finished floor level. This requirement does not apply to the entrance door of the residential unit or sole occupancy unit of retail or office where the floor area is less than 200m². However, the location of the latch must not exceed 1100mm from the floor so that it is accessible to people with disabilities.	To comply.
D2.23 Signs on doors	Signage must be provided to the fire doors as follows: On tenanted side, for self-closing fire door: FIRE (SMOKE) DOOR DO NOT OBSTRUCT DO NOT KEEP OPEN. If door is automatic: FIRE (SMOKE) DOOR DO NOT OBSTRUCT. Exit door to street from fire stair - on each side of door: FIRE SAFETY DOOR-DO NOT OBSTRUCT.	To comply.

Clause Description	Comments	Status
D3.1 Application of Part	This part does not apply to Class 2 residential building. However, the Development Consent will require at least one unit to be provided to the residential apartments under 'Adaptable Housing' provisions applicable. Access for people with disabilities must be provided to the building other than Class 2 part (subject to DA consent). In this case, one unit in the motel must be available to people with disabilities.	Motel unit to comply. Adaptable units are nominated. Further details of 'adaptable' configuration of Class 2 flats required for full assessment.
D3.2 General building access requirements	Access for people with disabilities must be provided to the entrance floor and other floors served by the lift. Access must be provided from any accessible carparking space and through principal public entrance. Access must be provided to the retail tenancies for both the employees and the public. BCA also provides exemptions for areas where disabled access is not required. These are plantrooms, mezzanine floors and areas which are considered as inappropriate because of the particular purpose. External access is to be provided. From the allotment boundary at the point of entry. From the accessible carparking space on the allotment. Through the building principle public entrance. Access for people with disabilities is provided via the access ramps.	One unit in the motel must be accessible to people with disabilities. (taken to be Unit 10)
D3.3 Parts of buildings to be accessible	Access must be provided to disabled sanitary compartment and areas used by occupants excluding plantroom, commercial kitchen, cleaner's store, rigging loft. If access to other floors cannot be gained via a lift, a ramp or stair must be provided with handrails installed as per Clause 5 or 9 of AS 1428.1 respectively. The stair must have contrasting nosing strips and risers must be opaque. If passenger lift is provided it must comply with certain requirements of AS 1735.12. The access paths and circulation space must comply with AS 1428.1. <u>Motel</u> It is assumed that patrons of the motel are unable to access Residential lobby 1 and 2 for functional purposes. Hence, one of the open stairs must be provided with handrails installed as per Clause 5 or 9 of AS 1428.1 respectively. The stair must have contrasting nosing strips and risers must be opaque. <u>Residential apartments</u> The lift must comply with AS 1735.12. as required by the consent <u>Retails/Gymnasium</u> Access to be provided (complying circulation space/door sizes/thresholds required)	To comply.
D3.5 Car parking	Carparking space need to be provided for people with disabilities in the motel. The car spaces allocated for use by the motel patrons should be specified and the "disabled" car space can be determined based on the ratio in Table D3.2 of BCA. Same for the retail uses.	Car parking allocations to be confirmed by architect.

Clause Description	Comments	Status
D3.6 Identification of access facilities, services features	Clear legible Braille and tactile signage incorporating the international symbol of access for people with disabilities must be provided to identify the sanitary facility, accessible entrance and lift in accordance with Specification D3.6 of BCA.	To comply.
D3.8 Tactile indicators	Tactile ground surface indicators (TGSi) must be installed at the top and bottom of an open stair or ramp (<i>if it is accessible to public</i>) to warn people with vision impairment that they are approaching a stair or ramp. It is also required in locations where the overhead obstruction is less than 2m above the floor. TGSi must be installed to top and bottom of entrance stairs and wheelchair ramps from Park Beach Road and Ocean Parade. Note that the bottom of the stairs adjoins the site boundary, the TGSi will encroach the boundary. This should be discussed with council. TGSi also required at the top and bottom of the open stairs in the motel.	To comply.

4.4 Services and Equipment - Section E

Clause Description	Comments	Status
E1.3 Fire hydrants (FH)	Fire hydrant complying with AS 2419.1 must be provided in the building. The fire hydrant must be installed within the fire isolated stairway and must provide adequate coverage..	Coverage of FH (particularly ground level) to be developed in consultation with Hydraulic engineer.
E1.4 Fire hose reels (FHR)	Fire hose reels complying with AS 2441 must be provided in the building. The hose reel coverage must reach every part of the floor of the storey. It must be located within 4m of an exit. Hose reel must not pass through a fire door or smoke door except for entry door to a sole occupancy unit.	To comply. Locations to be shown on ground level prior to construction
E1.5 Sprinklers	Automatic sprinkler protection is required for carpark which houses more than 40 vehicles. The basement carpark, air supply & exhaust plantrooms and storage area must be protected with automatic sprinklers and connected to and activate a building occupant warning system complying with clause 6 of Specification E2.2a. The Internal wall-wetting sprinklers will be required as explained in clause D1.7 above.	To comply.
E1.6 Portable fire extinguishers	Portable fire extinguishers complying with AS 2444 must be provided to cover the fire risks associated with emergency services switchboards listed in Table E1.6.	To comply.
E1.9 Fire precautions during construction	Building under construction must be protected by at least 1 fire extinguisher of class A, B and C fires on each storey adjacent to an exit. When building reached an effective height of 12m, the required FH and FHR must be operational at every storey except the two uppermost storeys and any required booster connections must be installed.	To comply.

Clause Description	Comments	Status
E2.2 General requirements Smoke hazard management	The Class 2 and 3 part of the building must be provided with an automatic smoke detection and alarm system complying with Specification E2.2a of BCA. The Class 6 and 9b part of the building must also be provided with an automatic smoke detection and alarm system complying with Specification E2.2a of BCA. Smoke alarms complying with AS 3786 must be located within the sole occupancy units of Class 2 part (residential units) in accordance with Spec E2.2(a) Clause 3, the residential lift lobbies/corridors and the like. For the lift lobbies and corridor, the detectors should be located in accordance with the requirements for smoke detectors in AS 1670.1 and connected to activate a building occupant warning system. Smoke alarms located in accordance with AS1670 must be installed within the sole occupancy units of Class 3 part (motel), motel reception and also the public corridor and connected to activate a building occupant warning system. Smoke detection system complying with AS 1670.1 must be installed in the retail tenancies, garbage room and the swimming/gym area (if this area is enclosed or semi-enclosed and used for storage of goods). The system must also activate a building occupant warning system. Mechanical ventilation system complying with AS 1668.2 and clause 5.5 of AS/NZS 1668.1 must be installed in the basement carpark. Fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated.	To comply.
E3.2 Stretcher facility in lifts	A stretcher facility must be provided in the passenger lift and the unobstructed internal dimension must be not less than 600mm wide x 2000mm long x 1400mm high to accommodate a stretcher facility. Both lifts must comply. The scaled lift car dimensions appear to comply with this requirement and also AS 1735.12.	Complies as drawn.
E3.3 Warning against use of lifts in fire	Warning against the use of lifts in fire signage must be displayed near every lift call button.	To comply.
E3.6 Facilities for people with disabilities in lifts	Passenger lift must contain certain minimum facilities for people with disabilities such as handrail, internal floor dimensions, clear door opening and the opening sensor, car control buttons.	To comply.
E3.7 Fire service controls	The passenger lift must be provided with fire service controls in accordance with AS 1735.2.	To comply.
E4.2 Emergency light requirements	Emergency lighting system must be provided throughout the building including the toilets.	To comply.
E4.4 Design & operation of emergency lights	Emergency lights must comply with AS/NZS 2293.1.	To comply.
E4.5 Exit signs	Illuminated exit signs together with directional exit signs must be provided throughout the building.	To comply.
NSW E4.6 Direction signs	See above.	

Clause Description	Comments	Status
E4.7 Class 2,3 & 4 buildings, exemptions	In lieu of illuminated Exit sign, clear legible Exit sign in capital letters 25mm high in a colour contrasting with the background may be used on the apartment and motel floors.	To note.
E4.8 Design and operation of exit signs	Exit signs must comply with AS/NZS 2293.1.	To comply.

4.5 Health and Amenity - Section F

Clause Description	Comments	Status
Part F1 Damp and Weatherproofing		
F1.1 Stormwater drainage	Must comply with AS/NZS 3500.3.2.	To comply in conjunction with any requirements of the consent Authority.
F1.5 Roof coverings	Metal roofing must comply with AS 1562.1. Plastic roofing must comply with AS/NZS 4256.1, 2, 3, 5 and AS/NZS 1562.3.	Not applicable.
F1.6 Sarking	Sarking materials for roof and walls must comply with AS/NZS 4200.1 and 2.	Not applicable.
F1.7 Water proofing of wet areas in buildings	The shower enclosure and compartment must be adequately waterproofed. Likewise for floor surface of a sanitary compartment in Class 2, 3 and 4 buildings where a floor waste is provided. Water proofing must comply with AS 3740.	To comply.
F1.10 Damp-proofing of floors on the ground	Vapour barrier complying with AS 2870 required to protect the slab on ground. Damp proofing not required at base of stair, lift or similar shaft which is adequately drained.	Not applicable.
F1.11 Provision of floor wastes	Floor wastes must be provided in those rooms specified under F1.7 of Class 2, 3 or 4 buildings.	To comply.
F1.13 Glazed assemblies	Windows, glazed sliding doors with a frame, glazed shopfronts, glazed window walls with one piece framing and adjustable louvres must comply with AS 2047 for resistance to water penetration. exemptions granted for all glazed assemblies not in an external wall, hinged doors, revolving doors, fixed louvres, skylights, roof lights, horizontal windows, sliding doors without a frame, shopfront doors.	To comply.
F2.1 Facilities for residential buildings	Laundry and tub and kitchen must be provided in Class 2 buildings. A wc and washbasin must be provided for use by employees at or near ground floor if there are >10 sou in a Class 2 building. Refer to Table F2.1 for specific requirements. Accessible WC taken to be accessible to employees without entering an SOU	Complies
F2.3 Facilities in Class 3 to 9 buildings	Sanitary facilities for the employees of the motel and the retail tenancies must be provided in accordance with Table F2.3. None has been proposed. It is assumed that the swimming pool and the gym are exclusively used by the motel occupants and hence sanitary facilities need not be provided. A unisex disabled facility is shown and may be used to calculate for the facility required by the employees.	Further information is required for the staff number of the motel

Clause Description	Comments	Status
F2.4 Facilities for people with disabilities	At least one sanitary facility for use by people with disabilities must be provided for maintenance employees of the residential apartment (Class 2) and the employees of the motel (Class 3).	complies.
F2.5 Construction of sanitary compartments	Fully enclosed compartment must have door open outwards, slide or readily removable from outside. If door swings inwards, the clear space between the closet pan and the doorway must >1.2m.	To comply.
F3.1 Height of rooms and other spaces	Minimum ceiling heights are: Class 2, 3 & 4 – 2.4m for habitable room and 2.1m for kitchen, laundry and corridor. Class 5, 6, 7 & 8 – 2.4m except 2.1m for corridor, passageway. Theatre, public hall or assembly building (e.g. enclosed swimming pool) where it accommodates >100 persons – 2.7m. In any building – 2.1m for bathroom, shower, WC, airlock, tea room, store room, garage, car park (car park for disabled requires 2.5m) and 2.4m for commercial kitchen.	To comply.
F4.1 Provision natural light	Natural light must be provided in all habitable rooms of Class 2 and 4 parts.	To comply.
F4.2 Methods and extent of natural lighting	Natural light to be derived from clear transmitting area (glazed windows) of >10% of the floor area of the room and it is open to the sky or courtyard or open verandah or carport. The required window must set back >1m from the boundary or external wall of another building on the allotment. Furthermore, the set back must > 50% of the square root of the exterior height of the wall in which the window is located, measured in metres from its sill. The set back complies. However, the area of the required windows needs to be checked to ensure that it is >10% of the floor area of the room that is receiving the natural light.	Complies.
F4.3 Natural light borrowed from adjoining room	Window area of the room providing the borrowed light must >10% of the total floor area of the rooms (both the provider and receiver). The receiver must have a window area of >10% of the floor area of the receiver.	To note.
F4.4 Artificial lighting	Artificial lighting complying with AS 1680.0 must be provided in required stairways, passageways, ramps and egress paths. Also required in the sanitary compartments, bathrooms, shower rooms laundries and common areas in Class 2 and 4 buildings. In other buildings, lighting must be provided in areas accessible to the occupants.	To comply.
F4.5 Ventilation of rooms	Habitable room, sanitary compartment, bathroom, laundry and any other room occupied by a person for any purpose must have natural ventilation or mechanical ventilation or air condition.	To note.
NSW F4.5 Ventilation of rooms	Mechanical ventilation and air conditioning to comply with AS 1668.2.	To note.
F4.6 Natural ventilation	Natural ventilation through openable windows and doors must have an opening area >5% of the room required to be ventilated. This must open to the sky, open verandah or carport. This may not be achievable where some windows are to be fixed closed as required by C3.2 above. Other than those windows listed under F4.5, the area of the required windows needs to be checked to ensure that it is >5% of the floor area of the room that is receiving the natural ventilation. Architect to verify the window areas.	To note.

Clause Description	Comments	Status
F4.7 Ventilation borrowed from adjoining room	Borrowed ventilation must not come via a sanitary compartment. In Class 2, 3 & 4 building, the ventilation opening must >5% of the floor area. For borrowed ventilation, the ventilation opening of the provider must >5% of the total floor area of the rooms (both provider and receiver).	To note.
F4.8 Restriction position of water closets, urinals	Toilet must not open directly into a kitchen or public dining area. The toilet opening directly into the kitchen or public dining must be mechanically ventilated. The mechanical exhaust must either on permanently or automatically switches on whenever the door is open.	Not applicable.
F4.11 Car parks	Enclosed carpark must be mechanically ventilated as per AS 1668.2. Under the provision of the smoke hazard management, the carpark must also comply with Clause 5.5 of AS/NZS 1668.1. The fans with metal blades suitable for operation at normal temperature may be used and the electrical power and control cabling need not be fire rated.	To comply.
Part F5 Sound Transmission and Insulation		
F5.1 Application of Part	The DTS applies to Class 2, 3 and 9c buildings. The design should be checked by an Acoustic consultant to ensure compliance.	To comply.
F5.2 Determination of airborne sound insulation ratings	The weighted sound reduction index (R_w) or weighted sound reduction index with spectrum adaptation term ($R_w + C_{tr}$) must be determined as per AS/NZS 1276.1 or ISO 717.1 using results from laboratory measurements. Alternatively, the sound insulation rating must comply with Specification F5.2 of BCA.	To comply.
F5.3 Determination of impact sound insulation ratings	For floor, ($L_{n,w} + C_i$) must be determined in accordance with AS/ISO 717.2 using results from laboratory measurements, or must comply with Specification F5.2. A wall required to have impact sound insulation rating must be of <i>discontinuous construction</i> for Class 2 or 3 building and for Class 9c aged care building, the wall must: - Other than masonry, be 2 or more separate leaves without rigid mechanical connection except at the periphery; or - Equivalent to or better than the wall listed in Table 2 of Specification F5.2 when tested in accordance with Specification F5.5 Discontinuous construction means a wall having a minimum 20mm cavity between 2 separate leaves and: - For masonry, where wall ties are required, they must be of resilient type; and - Other than masonry, there is no mechanical linkage between leaves except at the periphery.	To comply.
F5.4 Sound insulation rating of floors	<u>Class 2 or 3 building</u> $R_w + C_{tr}$ (airborne) of >50 and $L_{n,w} + C_i$ (impact) >62 between units and also between unit and plantroom, lift shaft, stairway, public corridor, public lobby or parts of a different classification.	To comply.

Clause Description	Comments	Status
F5.5 Sound insulation rating of walls	<u>Class 2 or 3 building</u> $R_w + C_{tr}$ (airborne) >50 between sou and R_w (airborne) >50 if it separates sou from a plant room, lift shaft, stairway, public corridor, public lobby or parts of a different classification. A wall separating a bathroom, sanitary compartment, laundry or kitchen in one sou from a habitable room (other than a kitchen) in an adjoining sou or separating an sou from a plantroom or lift shaft must have impact sound insulation construction detailed in F5.3(b). A door assembly which incorporated in a wall that separates a sou from a stairway, public corridor or public lobby must have $R_w >30$ The wall that provides sound insulation must be extended to the underside of the floor above or the underside of the roof above or the ceiling that provides the sound insulation for the wall.	To comply.
F5.6 Sound insulation rating of services	If a duct, soil, waste or water supply pipe (including those that are located in a wall or floor cavity) passing through more than one sou the pipes must be separated from habitable room (other than kitchen) in construction having $R_w + C_{tr}$ (airborne) of >40 or >25 if the adjacent room is a kitchen or non-habitable room. The above also applies to a storm water pipe which passes through a sou.	To comply.
F5.7 Sound isolation of pumps	Flexible coupling connection must be provided between the service pipes in a building and any circulating or other pump.	To comply.
Spec F5.2 Sound insulation for building elements	The specification provides various criteria for some common materials and construction. Refer to specification.	To note.
Spec F5.5 Impact Sound – Test of Equivalence	The specification describes a method of test to determine the comparative resistance of walls to the transmission of impact sound. Refer to specification.	To note.

4.6 Ancillary Provisions - Section G

Clause Description	Comments	Status
NSW G1.101 Provision for cleaning windows	Building >3 storey above ground level must be provided with window cleaning method complying with Construction Safety Act 1912.	To comply.
G1.1 Swimming pools	The provision of safety fencing to restrict the access to swimming pools is regulated under the Swimming Pools Act 1992. In a Class 2, 3 or 4 building, where the depth of water >300mm, safety fencing complying with AS 1926.1 and 2 must be provided. In this case, the entry door to the swimming pool can be considered as the gate of the safety fencing. Therefore, the latching device on the approach side of the door must be located at 1500mm above the finished floor level. As this door is also a door in the path of travel, the latching device from the swimming pool side must be located between 900mm and 1100mm above the finished floor level to comply with D2.21 of BCA.	This clause does not apply in NSW. Swimming pool to comply with legislative requirements.
NSW G1.1 Swimming pools	Water recirculation and filtration system of the swimming pool must comply with AS 1926.3.	To comply.

4.7 Energy Efficiency – Section J

Clause Description	Clause Requirements	Status
Part J1 Building Fabric		
NSW J1.1 Application of Part	The DTS provisions only apply to thermal insulation in a Class 2 building or Class 4 part of a building where a development consent, complying development certificate, or an environmental planning instrument specifies that the insulation is to be provided as part of the development. NSW Part J is only applicable if called up by the development consent. It is only applicable to Class 2 and Class 4 part of the building. In other words, Part J is only applicable to the residential apartments (Class 2) of this development.	Only applicable to the residential apartments (Class 2) if required by the development consent.
NSW J1.2 Insulation	All insulation must comply with AS/NZS 4859.1; or AS 2464.3 (for loose fill insulation); or AS 2464.5 (where a heat flow meter is used to determine the thermal properties); or AS 2464.6 (where a guarded hot plate is used to determine the thermal properties). Insulation must be installed so that it forms a continuous thermal barrier. Bulk insulation must be installed so that it complies with clauses NSW J1.2(b), (c) and (d) of BCA.	To comply.
NSW J2 Building Sealing		
NSW J2.1 Application of Part	The DTS provisions apply to Class 2 building and a Class 4 part of a building, but exclude part of those buildings that cannot be fully enclosed and a building ventilation opening that is necessary for the safe operation of a gas appliance.	To note.
NSW J2.2 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.	To comply.
NSW J2.3 Roof lights	A roof light must be sealed to minimise air leakage when serving a conditioned space or a habitable room in climate zones 4, 6, 7 and 8 as defined in NSW A1.1 (Definitions). The seal must be constructed with: An imperforate ceiling diffuser or the like installed at the ceiling or internal lining level; or A shutter system readily operated either manually, mechanically or electronically by the building applicant; or If it is a roof window, a foam or rubber compressible strip, fibrous seal or the like.	To comply.
NSW J2.4 External windows and doors	A seal to restrict air infiltration must be fitted to each edge of an external door, openable external window and other such opening when serving a conditioned space or a habitable room in climate zones 4, 6, 7 and 8. The seal must be a foam or rubber compressible strip, fibrous seal or the like. A window complying with AS 2047 and a glazed assembly exempted from compliance with AS 2047 under clause F1.13 need not comply with the above.	To comply.
NSW J2.5 Exhaust fans	An exhaust fan must be fitted with a sealing device such as self closing damper, filter or the like serving a conditioned space or a habitable room in climate zones 4, 6, 7 and 8.	To comply.

Clause Description	Clause Requirements	Status
NSW J2.6 Construction of roofs, walls and floors	Roofs, external walls, external floors, openings in the external fabric such as window and door must be constructed to minimise air leakage when forming part of the external fabric of a conditioned space or a habitable room in climate zones 4, 6, 7 and 8. Construction must be enclosed by internal lining system that are close fitting at ceiling, wall and floor junctions or sealed by caulking, skirting, architraves, cornices or the like.	To comply.
NSW J3 Services		
NSW J3.1 Application of Part	The DTS provisions apply to a Class 2 building and a Class 4 part of a building.	To note.
NSW J3.2 Hot water supply system	A hot water supply system must be designed and installed in accordance with Section 8 of AS/NZS 3500.4.	To comply.
NSW J3.3 Air-conditioning ductwork	An air-conditioning unit or system must have any ductwork insulated and sealed in accordance with NSW Specification J3.3.	To comply.
NSW J3.4 Heating and cooling water system piping	Pipings provide heating water or cooling water for air-conditioning must be insulated in accordance with NSW Specification J3.4. Cold water supply piping (feed) and pressure relief piping need only be insulated within 500mm of the connection to the heating or cooling system. Insulation is not required to piping providing heating and cooling water if the pipes are located within the space being heated where the piping is to provide heating to that space or the piping is encased within a concrete floor slab which is part of the floor heating system.	To comply.
NSW Spec J3.3 Ductwork Insulation and Sealing	This specification contains the requirements for the sealing and the insulating of ductwork used to heat or cool a building. Refer to the specification for more details.	To comply.
NSW Spec J3.4 Heating and Cooling Piping Insulation	This specification contains the requirements for the insulating of the heating water piping and cooling water piping. Refer to this specification for more details.	To comply.

5.0 CONCLUSION

The proposal is able to comply with the requirements of the BCA. To the extent that can be determined given the scale and detail of the DA documentation, it is concluded that the design of the development will not be noticeably affected by the need to achieve BCA compliance.

This report serves as a BCA assessment checklist which identifies detailed design matters that may give rise to future non-compliance with the DTS provisions of BCA. The issues highlighted should be addressed in the detailed design documentation which is prepared prior to the construction of the project. Alternatively, Alternative Solutions in accordance with Part A0 of BCA may be utilised.

Appendix A – Table A of Specification C1.1 of BCA

Table 3 TYPE A CONSTRUCTION: FRL OF BUILDING ELEMENTS				
Building Element	Class of building – FRL: (in minutes) Structural adequacy / Integrity / Insulation			
	2, 3	7a carpark or 9	6	7b (other than a carpark)
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 -				
For loadbearing parts -				
Less than 1.5m	90/90/90	120/120/120	180/180/180	240/240/240
1.5 to less than 3m	90/60/60	120/90/90	180/180/120	240/240/180
3 or more	90/60/30	120/60/30	180/120/90	240/180/90
For non-loadbearing parts -				
Less than 1.5m	- /90/90	- /120/120	- /180/180	- /240/240
1.5 to less than 3m	- /60/60	- /90/90	- /180/120	- /240/180
3m or more	- / - / -	- / - / -	- / - / -	- / - / -
EXTERNAL COLUMN not incorporated in an external wall, where the distance from any fire-source feature to which it is exposed is -				
Less than 3m	90/ - / -	120/ - / -	180/ - / -	240/ - / -
3m or more	- / - / -	- / - / -	- / - / -	- / - / -
COMMON WALLS and FIRE WALLS	90/90/90	120/120/120	180/180/180	240/240/240
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	- 120/120
Bounding <i>public corridors</i> , public lobbies and the like –				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Between or bounding <i>sole-occupancy units</i> -				
Loadbearing	90/90/90	120/ - / -	180/ - / -	240/ - / -
Non-loadbearing	- /60/60	- / - / -	- / - / -	- / - / -
Ventilating, pipe, garbage, and like <i>shafts</i> 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

