FIRE ENGINEERS

FIRE SAFETY UPGRADE ASSESSMENT REPORT

To:	Gardner Design	**Date:**	19 March 2025
Attention:	Paul Pena Castra	**Project Ref:**	2565 REV A FINAL
From:	Nick Wilson		
Project:	2A Kangaroo Street, Manly		
Subject:	Preparation of fire safety schedule for Unit 2		

1.0 INTRODUCTION

J² Consulting Engineers have been commissioned to carry out a review of the fire safety provisions associated with the three storey residential building at 2A Kangaroo Street Manly

Whilst the current BCA was not legislated at the time that the existing development was approved and constructed, the compliance assessment has been undertaken against the current BCA as it represent a community accepted level of life safety. As the building is existing however, there are limitations associated with what upgrades are possible to be undertaken.

This assessment has been prepared to document an inspection of the above building in order to identify potential fire safety upgrade measures in accordance with Clause 64 of Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021. The assessment will be confined to the development works within the subject Sole Occupancy Units (2 and 3) which are proposed to be combined to form a single unit.

The subject building is determined to be a Class 2 residential development with a rise in storeys of three requiring Type A construction under BCA 2022. The existing building contains eight Sole Occupancy Units with one located on the lower ground, four on the ground floor and three on the first floor.

SOU's 1, 2, 5 and 6 all open directly to open space and units 3, 4, 7 and 8 are accessed by a common lobby and non-fire isolated stair on the northern elevation.

The proposed development works comprise internal alterations to the existing ground floor SOU's 2 and 3 combining them to form a single unit.

The existing development is situated within the local government area of Northern Beaches Council and the site location is shown below:

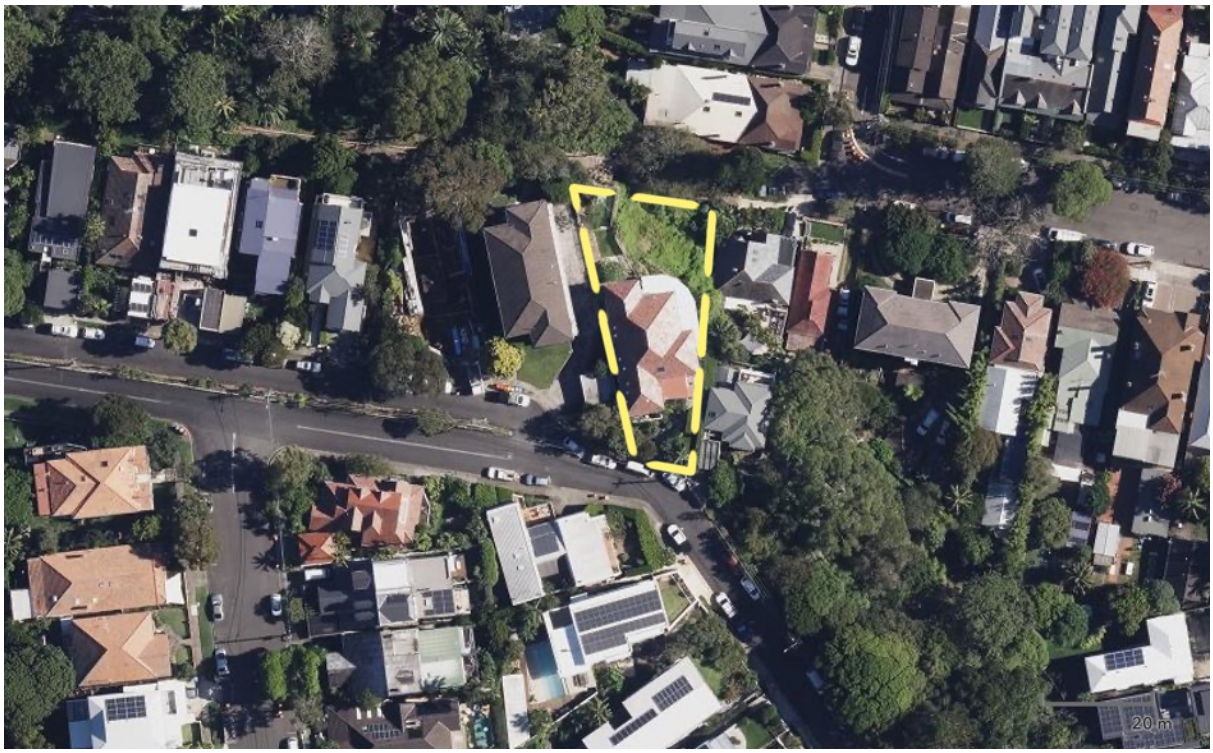


Figure 1 – Courtesy NSW e-Planning Spatial Viewer

The building is located and accessed via Kangaroo Street and council walkway linking to Pine Street as shown in the figures below:

Figure 2 – Courtesy NSW e-Planning Spatial Viewer, title arrangement

The following site locality photos are provided for reference:

Figure 3 – Kangaroo Street façade

Figure 4 – Pine Street façade (north)

Figure 5 – Western façade (entry to SOU 6 and path leading to common entry of SOU 3, 4, 5, 7 and 8)

Figure 6 –Eastern façade (entry to SOU 1 on lower ground floor and SOU 2 on ground floor)

1.1 BASIS OF THE REPORT

This report is based upon the following:

- Site inspection undertaken on 20th February 2025.

1.2 PURPOSE OF THE REPORT

This report has been prepared to identify BCA non-compliance fire and life safety issues within the subject Sole occupancy units (2 and 3) with respect to internal works and to determine the optimum method of addressing each of these compliance issues through either a retrospective upgrade, Performance Solution, or a combination of both.

This assessment has been prepared to in accordance with Clause 64 of Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021 within the subject Sole Occupancy Units (2 and 3) which are proposed to be combined to form a single unit. The report does not assess areas outside of the subject apartments. In stating that a Fire safety Schedule for the building has been provided based on the areas inspected.

1.3 LIMITATIONS OF THE REPORT

This report excludes any works not outlined above, however specifically excludes the following:

- Consideration of any structural elements or geotechnical matters relating to the building, including any structural or other assessment of the existing fire resistance levels of the building.
- This report does not provide concessions for any Performance Solution or exemptions from the requirements of the BCA, other than that identified in the Executive Summary of this report.
- Determining compliance with the Disability Discrimination Act 1992 or Part D4 of the BCA.
- Reporting on hazardous materials, OH&S matters or site contamination.
- Any energy efficiency assessment; however if necessary proposals can be obtained from suitably qualified and accredited assessors.
- Protection of Property (other than directly adjoining property).
- Fires caused by arson (other than as a potential source of fire initiation) or terrorist attacks.
- Assessment of the external wall system/building envelope and the associated provisions of BCA Section F. The project Facade Engineer/Structural Engineer shall confirm compliance with this section and the associated prescriptive and Performance Requirements.
- Reference to, or discussion of, any existing Fire Engineered or BCA Performance Solution does not imply concurrence, acceptance or agreeance with the subject Performance Solution and is not considered a peer review.
- Multiple ignition sources for fire initiation; and
- Operational checks of the fire safety equipment unless specified in this report.

3.0 BCA COMPLIANCE REVIEW

This section of the report assesses the existing building in its current state, against the current legislative requirements. For the purpose of this assessment, the building has been assessed in accordance with the Building Code of Australia 2022 prescriptive, Deemed-to-Satisfy provisions.

The building is considered to contain the following building characteristics:

Rise in storeys	3
Storeys Contained	3
Type of Construction	Type A
Effective height	6m (approx.)

This Section of the report provides a review of the proposed development works against the requirements of the

current building against the requirements of the BCA and lists non-compliances and the method in which they are proposed to be addressing BCA non-compliance are:

- **Deemed-to-Satisfy** – Adopt a solution that is considered to satisfy the BCAs relevant Performance Requirements through the adoption of prescriptive measures.
- **Performance Solution** – Development of a solution that is considered to satisfy the relevant Performance Requirements of the BCA through alternative measures.

The Deemed-to-Satisfy upgrades require a retrospective upgrade to the building's fire and life safety systems and will be contained in the following sections of the report. Similarly, the Performance Solutions to address non-compliance will address the following sections of this report.

3.1 RETROSPECTIVE UPGRADE

There are only three instances whereby the building can be required to be either partially or fully upgraded to the current Building Code of Australia and relevant Australian Standards as referenced within the Building Code of Australia, these instances are:

- A Fire Safety Order can be issued at any time if the Council considers the fire safety provisions within the building are not considered to be adequate.
- If a Development Application is lodged with Council, they have the power to request a total or partial upgrade of the building.
- If a change of Building Classification is proposed, the certifying authority (Council or Private Certifier) issuing a Construction Certificate/Complying Development Certificate must ensure that the fire safety and structural capacity of the building will be appropriate to its new use.

As a development application is to be lodged this report is to inform the consent authority of potential BCA non compliances to assist with their determination for an upgrade of affected works.

3.2 THE BUILDING CODE OF AUSTRALIA

The Building Code of Australia assessment included and referenced within this report has been assessed against the relevant fire and life safety items as prescribed by the Building Code of Australia 2022.

This analysis has been undertaken to the current legislated BCA 2022, which was not the legislated Building Code of Australia at the time of the design and construction of the building. However, the current legislation provides a benchmark that a building should be assessed against for any due diligence review for the building occupants.

3.3 PROPOSED ALTERATIONS AND ADDITIONS

As noted above the proposed development works includes internal alterations to the existing ground floor SOU's 2 and 3 combining them to form a single unit.

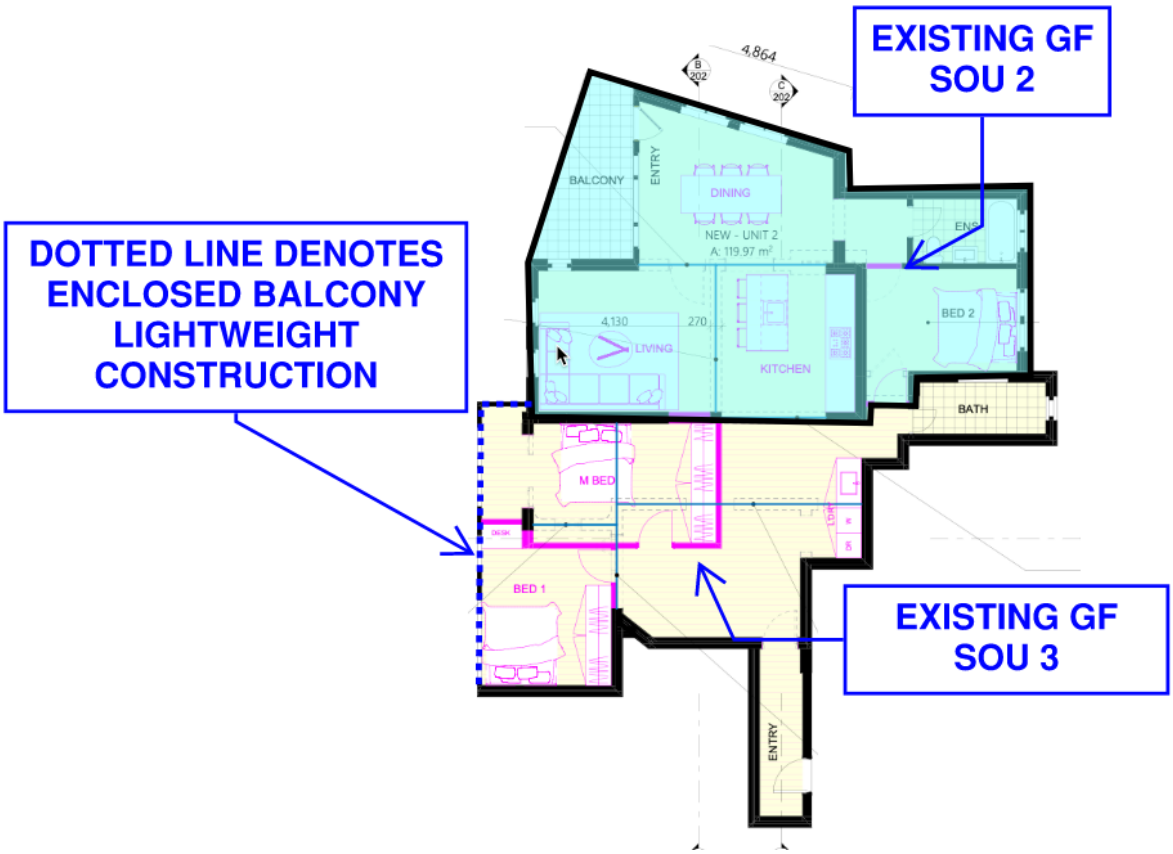


Figure 7 –Existing arrangement the SOUs

It appears previously that the units were combined due to an existing sealed off door to SOU 2 bedroom 2. It is also apparent some existing external decks have been enclosed in apartment 3 to form Bed 2 and the existing kitchen area

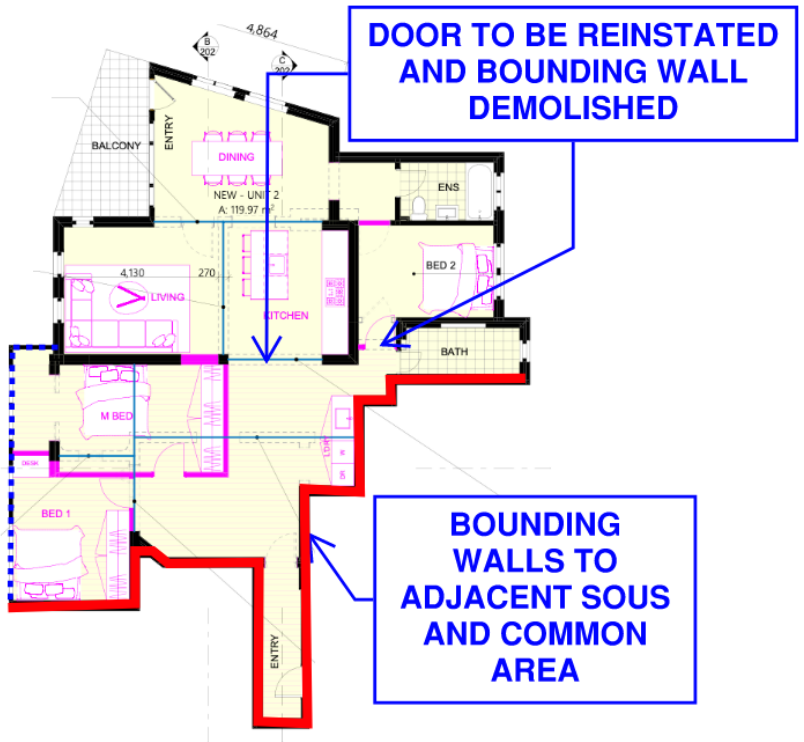


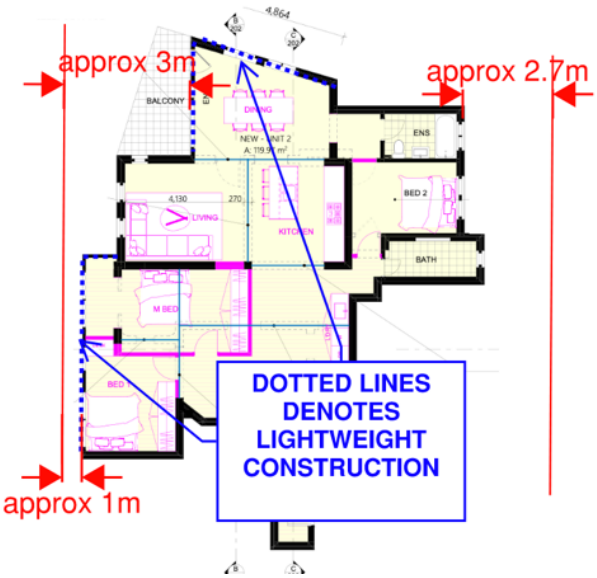
Figure 8 –Proposed arrangement

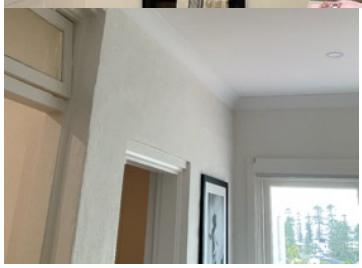
3.4 SUMMARY OF NON-COMPLIANCES

The following assessment against the BCA 2022 provisions has been undertaken with any non-compliances listed and the proposed strategy for the method of upgrade noted below.

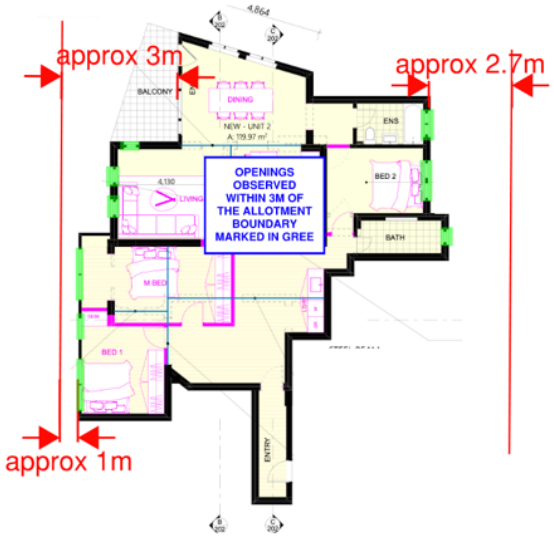
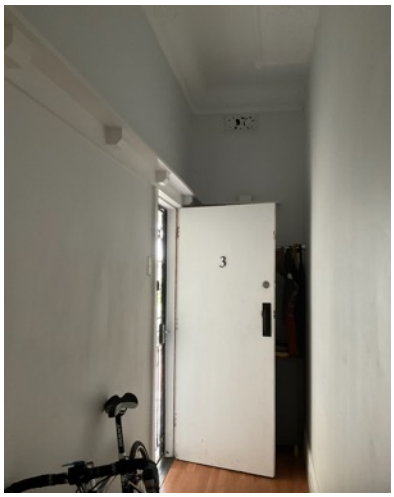
The following items are noted in addition to the methodology of addressing the non-compliance.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
1.	C2D2, Spec C5	Type of Construction / Fire Resisting Construction The SOU is required to be constructed in accordance with Table S5C24a, S5C24b, S5C24c, S5C24d and S5C24e as required and where exposed to a fire source feature. The proposed apartment is located approximately 2.7m from the western allotment boundary and appears to be of masonry construction. The eastern elevation has external walls ranging from 2.9m to approximately 1m from the boundary with some appearing to be masonry and others timber framed clad with fibre cement weatherboards. It could not be determined onsite if the external walls achieved the required FRLs as per Specification 5 tables S5C11a and b. Walls bounding adjacent apartments or common areas appeared to be of masonry construction throughout. It could not be determined onsite if the external walls achieved the required FRLs as per Specification 5 table S5C11e achieving and FRL of 90/90/90. The floor and ceilings separating the SOU from apartments above and below, are believed to be timber framed lined with plasterboard. It could not be determined onsite if the ceiling of the subject unit achieved the required FRLs as per Specification 5 tables S5C11a and b. The proposed new structural elements to support the floor ceiling system above are required to be protected and achieve an FRL of 90/-/- in accordance with S5C3	No development works are proposed to the existing external walls of the building outside the subject apartment. <u>Lightweight external walls</u> Works are proposed to the lightweight external walls to the east elevation. The work must therefore include fire rated plasterboard to the inside face of the wall to achieve an FRL of 90/90/90. Prior to the installation of the fire rated plasterboard, Rockwool or similar mineral wool batts are to be installed to the timber framed external wall cavity. <u>Floor/ceiling separation</u> The ceilings are also proposed to be modified and hence need to be upgrade with fire rated plasterboard to achieve an FRL of 90/90/90. Where possible it is also proposed to support the ceilings on furring channel and resilient mounts in accordance with CSR system 6222 to achieve the required sound insulation level. Proposed steel beams, and their supporting columns/ walls, are to be fire rated to achieve FRL of 90/-/-.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
2.	C2D10	Non Combustible Building Elements As the building is required to be of Type A construction the external walls including the facade covering, framing and insulation must be non-combustible The subject apartment appeared to be generally of full masonry construction with the below external walls noted as timber framed which does not comply with this clause. BCA Clause S5C20 concession permits the use of timber framing in external walls for buildings with a rise in storeys of no more than three therefore the timber is permitted. The cladding and insulation is required to be non-combustible.  Figure 9 –Location of lightweight walls in SOU 2 and 3.	Timber framing permitted. The cladding and insulation is required to be non-combustible. Where externals walls are modified the insulation is required to be non-combustible. See item 1 above.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
3.	C2D11	Fire hazard properties The fire hazard properties of linings and materials is unable to be confirmed without the manufacturer's product testing details. During the site inspection it was noted a combination of linings and materials were installed throughout the apartment including, timber and tiled flooring. Walls and ceilings appeared to be primarily of masonry or plasterboard.   **Figure 9 and 10 – Floor linings**   **Figure 10 and 11 –wall and ceiling linings**	No development works are proposed to the existing external walls of the subject apartment Compliance of exiting linings were unable to be determined during the inspection. Where new linings are installed they are to comply with BCA Specification 7. This will include carpets where installed. The existing timber floors comply.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
4.	C2C14	Ancillary elements An ancillary element must not be fixed, installed, attached to or supported by the concealed internal parts or external face of an external wall that is required to be non-combustible. There was a blind shade structure attached to the external wall on the eastern elevation that appeared to be of combustible materials therefore compliance with this clause is not achieved.  **Figure 12 –combustible attachment to SOU 2 eastern elevation**	No development works are proposed to the existing external walls of the subject apartment. The subject awning can be removed and or replaced with non-combustible structure to achieve compliance if determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (iii).
5.	C3D7	Vertical separation of openings in external walls As the building is required to be of Type A construction, any part of a window or other opening in an external wall is above another opening in the storey next below and its vertical projection falls no further than 450 mm outside the lower opening (measured horizontally) must be separated by a spandrel which is not less than 900 mm in height and extends not less than 600 mm above the upper surface of the intervening floor. BCA Clause S5C20 concession permits the use of timber framing in external walls for buildings with a rise in storeys of no more than three therefore the timber is permitted. The classing and insulation is required to be non-combustible with the wall system of the spandrel achieving an FRL of not less than 60/60/60. Spandrel separation of openings appeared capable of complying although FRL of subject spandrels could not be determined during the site inspection.	No development works are proposed to the external façade of the existing external walls or openings within them of the subject apartment. If it is determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (i) BCA DTS compliance is recommended.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
6.	C4D3 C4D5	Protection of openings in external walls Where openings are located within 3m of the side or rear boundaries, the openings are required to be protected in accordance with BCA Clause D4D5. Openings in the subject SOU were observed as being located at distances between approximately 2.7m through to 1m of the allotment boundary as per below and not protected in accordance with C4D5 therefore compliance with this clause is not achieved  **Figure 13 –Location of unprotected openings within 3m of allotment boundary in SOU 2 and 3**	No development works are proposed to the existing openings and no new openings proposed within the subject apartment. If it is determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (iii) a fire safety upgrade strategy is recommended to be obtained to permit or protect the openings.
7.	C4D12	Bounding Construction The entry door way to SOU 3 from the common corridor must be provided with a self-closing -/60/30 fire door. The existing door did not appear to be a fire door and was not provided with. self-closing device.  **Figure 14 –SOU entry door to SOU 3 to common stair required to be a fire door**	This door and door jamb is to be upgraded to a -/60/30 self-closing fire door under EP&A Clause 64 (b) (i) and (ii)

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
8.	C4D13 C4D15	Openings in Floors and Ceilings for services / Openings for service installations. Openings for services in the subject SOU were unable to be observed during the site inspection. Any new proposed new openings for services are to be protected in accordance with C4D15	Any openings for services within the subject apartment are to be protected in accordance with the requirements of C4D15 under EP&A Clause 64 (b) (i)
9.	D3D25	Swinging Doors A swing door in a required exit must swing in the direction of travel. The egress door from the common stairs does not swing in the direction of travel.  **Figure 15 –Required exit to building does not swing in direction of egress**	No development works are proposed external to the subject apartment and exit not a required exit from the subject apartment.
10.	E1D2	Fire hydrants Fire hydrant protection must be provided as the building has a total floor area greater than 500 m2. The fire hydrant system must be installed in accordance with AS 2419.1-2021.	A hydraulic engineer is to be engaged to determine the buildings hydrant coverage and location, pressures and flows or street hydrant facilities.
11.	E1D14	Portable fire extinguishers Portable fire extinguishers were not observed in the common area accessing SOUs 3,4 7 and 8. The locations type and mounting heights shall be reviewed and maintained throughout the building to ensure compliance with AS2444-2001.	No development works are proposed external to the subject apartment. If it is determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (i) and (ii) compliance is required via the Deemed-to-Satisfy provisions of the BCA.

NO.	DTS CLAUSE	DESCRIPTION OF NON-COMPLIANCE	PROPOSED METHOD OF UPGRADE
12.	E2D8	Class 2 building not more the 25m in effective height The Class 2 building is required to be provided with an automatic smoke detection and alarm system complying with BCA Specification 20. Smoke alarms were observed in the subject SOUs but not located in accordance with AS3740-2018. It is assumed that the alarms within SOUs are note interconnected in accordance with this clause. No smoke alarms or detectors were observed in the common stair area servicing SOUS 3, 4, 7 and 8 as required and to be connected to the buildings occupant warning system.	Interconnected smoke alarms are required to be installed in accordance with AS3740-2018 throughout the subject apartment (SOUS 2/3). If it is determined that the exclusion of smoke alarms within the common stair requires upgrade under the provisions of EP&A Clause 64 (b) (i) compliance is required via the Deemed-to-Satisfy provisions of the BCA.
13.	E4D2	Emergency Lighting Emergency lighting is required in the common non fire silaoted stairway servicing SOUs 3, 4, 7 and 8. No emergency lighting was observed during the site inspection	No development works are proposed external to the subject apartment. If it is determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (ii) compliance is required via the Deemed-to-Satisfy provisions of the BCA.
14.	E4D5	Exit Signs An exit sign must be clearly visible to persons approaching and exit and must be installed adjacent or above door serving as, or forming part of, a required exit in a storey required to be provided with emergency lighting in accordance with E4D2. No exit sign was observed above the exit on the northern façade serving the common stair.	No development works are proposed external to the subject apartment. If it is determined that this non-compliance requires upgrade under the provisions of EP&A Clause 64 (b) (ii) compliance is required via the Deemed-to-Satisfy provisions of the BCA.

3.5 SUMMARY OF UPGRADE STRATEGY REQUIREMENTS

1) Lightweight external walls - Works are proposed to the lightweight external walls to the east elevation. The work must therefore include the installation of 2 layer of 16m fire rated plasterboard to the internal side of the subject lightweight wall to achieve an FRL of 90/90/90. Prior to the installation of the fire rated plasterboard, Rockwool or similar mineral wool batts are to be installed to the timber framed external wall cavity packed tightly between studs, noggings, top plate and bottom plate
2) Floor/ceiling separation - The ceilings are also proposed to be modified and hence need to be upgrade with fire rated plasterboard to achieve an FRL of 90/90/90. Where possible it is also proposed to support the ceilings on furring channel and resilient mounts in accordance with CSR system 6222 to achieve the required sound insulation level.
3) Structural elements – Proposed steel beams and theirs supporting columns or walls required to supporting the floor / ceiling system above are to be protected to achieve minimum FRL of 90/-/-.
4) Internal Linings - Where any new internal wall, ceiling or floor linings are installed they are to comply with BCA Specification 7. This will include carpets where installed. The existing timber floors comply.
5) Bounding construction - The existing entry door and jamb from SOU 3 to the common corridor is to be upgraded to a -/60/30 self-closing fire door under EP&A Clause 64 (b) (i) and (ii)
6) Smoke alarms – Hardwires interconnected smoke alarms are required to be installed in accordance with AS3740-2018 throughout the subject apartment (SOUS 2/3).

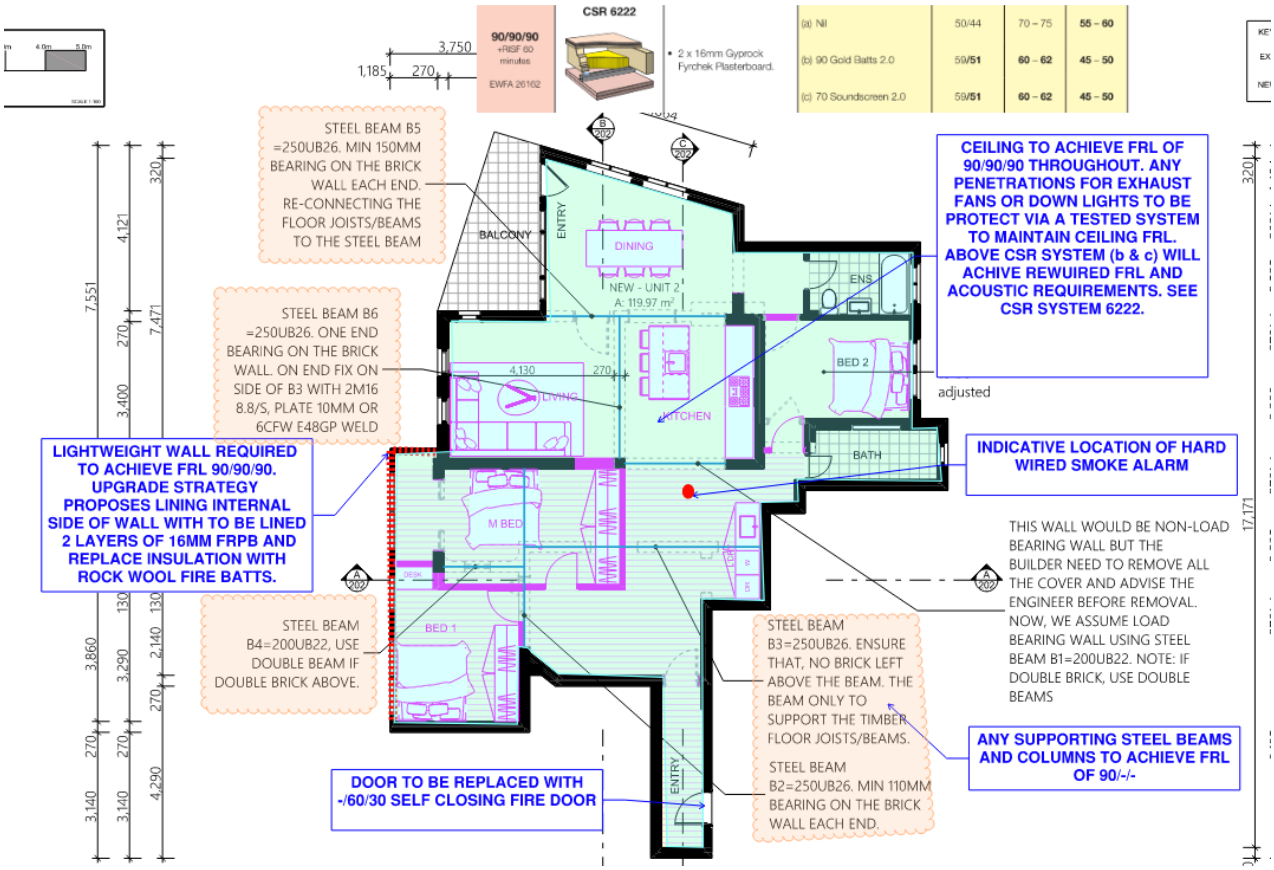


Figure 16 –Proposed upgrade strategy measures

The attached fire safety schedule details the fire safety measures required within the development existing or proposed, which are to be listed on the Fire Safety Statement for the building for annual submission to the relevant authorities.

James Alexander
Director
B. App.Sci (Bldg), Grad Dip (Disp Res), ME(Fire safety), Grad Dip (Bldg Surv)
AIBS Nationally Accredited Level 1 Building Surveyor
BPB Grade A1 Accredited Certifier and PCA
Fire Safety Engineer

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Building Inspector
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Grad Dip(Bldg Surv)
BDC3386 – A4 Building Inspector

FIRE SAFETY SCHEDULE

Issued under clause 79 of Environmental Planning and Assessment (Development Certification and Fire Safety) Regulation 2021

PROPERTY:	2A KANGAROO STREET MANLY NSW
BCA CLASSIFICATION:	CLASS 2
USE:	RESIDENTIAL APARTMENTS

FIRE SAFETY MEASURES	Minimum standard of performance	Existing	Proposed
AUTOMATIC FIRE DETECTION & ALARM SYSTEM	BCA E2D8 & AS3786-2014	X	X
EMERGENCY LIGHTING	BCA E4D2 & AS2293.1-2018		X
EXIT SIGNS	BCA E4D5 & AS2293.1-2018		X
FIRE DOORS	BCA C4D12 & AS1905.1- 2015		X
FIRE HYDRANT SYSTEMS	BCA E1D2 & AS 2419.1-2021		X
LIGHTWEIGHT CONSTRUCTION	BCA C2D9 & SPECIFICATION 6		X
PORTABLE FIRE EXTINGUISHERS	BCA E1D14 & AS2444-2001		X

NOTES:	An annual fire safety statement shall be caused to be lodged with the Northern Beaches Council annually. A copy of the statement is also to be given to the commissioner of the NSW Fire Brigades, and a further copy is to be prominently displayed in the building.