



**Building Code of Australia Assessment
Report (Sections C, D & E)**



53A Ross Street, Glebe

For

Jake Dowse Architects

Report No: 2023
Dated: 29th April 2020

Prepared by Accurate Fire & Building Consulting©

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Executive Summary

Accurate Fire & Building Consulting has been engaged by Jake Dowse Architects to carry out an assessment of the existing levels of fire safety within the subject building and recommend a fire safety upgrading strategy, which will achieve an improved level of fire safety within the building.

In order to determine an appropriate upgrading strategy, the existing building has been compared against current BCA "deemed to satisfy" (DTS) provisions of the Building Code of Australia (BCA) 2019 (Sections C – E) to identify any areas of deficiency.

This report will identify deficiencies with the relevant provisions of the BCA 2019 (except where noted) and recommend upgrading in line with current BCA "deemed to satisfy" (DTS) requirements where possible. The upgrading must be considered reasonable in context of the existing building.

This is an existing building and due to the existing construction of the building, strict compliance with the deemed-to-satisfy provisions of the BCA may not be readily achievable and for this reason, some recommendations made in this report may suggest seeking an alternative solution to demonstrate that the performance requirements of the BCA can be satisfied.

In many respects, where alternative solutions are proposed, they are based on addressing life safety issues ahead of property protection issues. This approach is typically accepted by Councils in respect to developing suitable fire upgrading strategies for existing buildings.

It should be recognised by all parties that there will always be inherent deficiencies in existing buildings when comparing them against current Building Codes.

1. Introduction

1.1 General

Jake Dowse Architects engaged Accurate Fire & Building Consulting to prepare a report detailing fire safety upgrade works that will provide a satisfactory level of fire safety within the building.

It is recommended that any fire safety upgrading work be undertaken as per the schedule of works as outlined in Section 3 of this report.

1.2 Purpose of the Report

To inspect the building and report on deficiencies relating to fire safety appropriate to its use and the relevant provisions of Sections C, D and E of the BCA.

Where appropriate, the report will recommend proposed works to satisfy the objectives of the BCA.

The report will detail the works required to bring the subject premises to a standard that will improve the safety of persons accommodated in the building in the event of a fire, particularly in relation to egress, the prevention of spread of fire, the detection of fire and the suppression of fire, appropriate to the building.

This is an existing building and due to the existing construction of the building, strict compliance with the deemed-to-satisfy provisions of the BCA may not be readily achievable and for this reason, some recommendations made in this report may suggest seeking an alternative solution to demonstrate that the performance requirements of the BCA can be satisfied.

1.3 Limitation and Exclusions

The information contained in this report was obtained from visual inspection of the building during a site inspection on the 28th April 2020. The inspection was limited to visible structures, fixtures and fittings in the building without the removal of linings or coverings except where noted and without testing of existing equipment or systems.

Furthermore, this report should not be construed to infer that an assessment for compliance with the following has been undertaken:

- (i) structural adequacy of the building and other matters relating to the original construction;

- (ii) inaccessible spaces such as ceiling voids, riser shafts, service penetrations, etc;
- (iii) the Fire Resistance Level (FRL) or Fire Hazard Indices of existing building elements (except where specifically noted in this report);
- (iv) the individual requirements of other service providers i.e. Sydney Water, Energy Australia, Gas, etc;
- (v) operating capability of services including electrical, mechanical, gas and hydraulic;
- (vi) health and amenity issues covered in Section F of the BCA;
- (vii) disabled access and equity issues under the Disability Discrimination Act;
- (viii) glazing assemblies within the building;
- (ix) slip resistance of floor materials;
- (x) Balustrades to individual unit balconies (not considered a fire safety issue); and
- (xi) Protection of Openable Windows (not considered a fire safety issue).

1.4 **Report Basis**

The content of this report reflects:

- (i) the Deemed to Satisfy (DTS) provisions of the Building Code of Australia 2019 (except where noted), including the NSW Appendix; and
- (ii) an inspection of the buildings carried out by Mr Scott Robshaw on the 28th April 2020.

1.5 **Standards Adopted by Reference**

Reference to standards of construction will be to the Building Code of Australia (BCA) 2019 (except where noted) and the relevant Australian Standards adopted under Schedule 4 of the BCA (as relevant).

Fire Resistance Level (FRL) relates to Structural Adequacy / Integrity / Insulation to building elements in minutes e.g. -/60/30 FRL.

Words contained in this report that are in *italics* have the same meaning / definition as those contained in Schedule 3 (Definitions) of the BCA.

2. Building Code of Australia Checklist

2.1 *General*

The subject building is located at 53A Ross Street, Glebe.

The building is situated on the site having frontage to:

- the South West (front) to Ross Street;
- the North East (rear) to York Street and vent stack;
- the North West to a residential property; and
- the South East to a residential property.

Currently erected upon the allotment is a commercial building which is currently Owner occupied and undergoing some general maintenance.

The building is served by a single non-fire-isolated exit to the front of the building which discharges to the driveway leading to Ross Street.

2.2 *BCA Checklist*

Part C1 – Fire Resistance & Stability

Clause	Description	Assessment
C1.0	Deemed-to-Satisfy Provisions	Noted.
C1.1	Type of construction required	Type C construction.
C1.2	Calculation of rise in storeys	Rise in storeys of 1.
C1.3	Buildings of multiple classification	Not applicable. Whole building is Class 5 or 6 depending on designated use of the building.
C1.4	Mixed types of construction	Not applicable.
C1.5	Two storey Class 2, 3 OR 9c buildings	Not applicable.
C1.6	Class 4 parts of buildings	Not applicable.
C1.7	Open spectator stands and indoor sports stadiums	Not applicable.
C1.8	Lightweight construction	Not applicable. All bounding walls are masonry.
C1.9	Non-combustible building elements	Not applicable to Type C Construction.
C1.10	Fire hazard properties	Compliance Achievable. The building currently has a bare concrete floor which would

Clause	Description	Assessment
		comply with the requirements of this clause. As the interior of the building is currently being refurbished, any future floor / wall coverings must comply with the requirements of this Clause. Refer to Recommendation 3.1
C1.11	Performance of external walls in fire	Not applicable. Masonry Construction.
C1.12	This clause has been deliberately left blank.	Noted.
Spec C1.1	Fire resisting construction	Existing Building. It is considered that the existing masonry walls of the building would meet the requirements of this Clause.

Part C2 – Compartmentation & Separation

Clause	Description	Assessment
C2.0	Deemed-to-Satisfy Provisions	Noted.
C2.1	Application of part	Noted – does not apply. No Sprinklered car park, open deck car park, spectator stand or electricity substation.
C2.2	General floor area and volume limitations	Complies. Building is only approx. 338m ² .
C2.3	Large isolated buildings	Not applicable.
C2.4	Requirements for open spaces and vehicular access	Not applicable.
NSW C2.5	Class 9a and 9c buildings	Not applicable.
C2.6	Vertical separation of openings in external walls	Not applicable to Type C Construction.
C2.7	Separation by fire walls	Not applicable.
C2.8	Separation of classifications in the same storey	Not applicable.
C2.9	Separation of classifications in different storeys	Not applicable.
C2.10	Separation of lifts shafts	Not applicable. There is no lift in this building.
C2.11	Stairways and lifts in one shaft	Not applicable.

Clause	Description	Assessment
C2.12	Separation of equipment	Not applicable.
C2.13	Electricity supply system	Not applicable.
C2.14	Public corridors in Class 2 and 3 buildings	Not applicable.

Part C3 – Protection of Openings

Clause	Description	Assessment
C3.0	Deemed-to-Satisfy Provisions	Noted.
C3.1	Application of part	Noted.
C3.2	Protection of openings in external walls	<p>Non-compliance noted.</p> <p>There are openings located less than the required 3m from the boundaries.</p> <p>A Performance based assessment (Fire Engineered Solution) has been carried out / developed by Design Confidence (Report Reference P220_152-2 (FER) CL dated 29th April 2020).</p> <p>Requirements of Fire Engineered Solution must be included in the Fire Safety Schedule for the building.</p> <p>Refer to Recommendation 3.2</p>
C3.3	Separation of external walls and associated openings in different fire compartments	Not applicable.
C3.4	Acceptable method of protection	Noted. Refer to Clause 3.2 above and Recommendation 3.2 of this report.
C3.5	Doorways in fire walls	Not applicable.
C3.6	Sliding fire doors	Not applicable.
C3.7	Protection of doorways in horizontal exits	Not applicable.
C3.8	Openings in fire isolated exits	Not applicable. A fire isolated stair is not required in this building.
C3.9	Service penetrations in fire isolated exits	Not applicable.
C3.10	Openings in fire isolated lift shafts	Not applicable.

Clause	Description	Assessment
C3.11	Bounding construction: Class 2, 3 and 4 buildings	Not applicable.
C3.12	Openings in floors and ceilings for services	Not applicable. Single storey building with no penetrations that would be subject to the requirements of this Clause.
C3.13	Openings in shafts	Not applicable.
C3.15	Openings for service installation	Not applicable.
C3.16	Construction joints	Not applicable.
C3.17	Columns protected with lightweight construction to achieve an FRL	Not applicable.

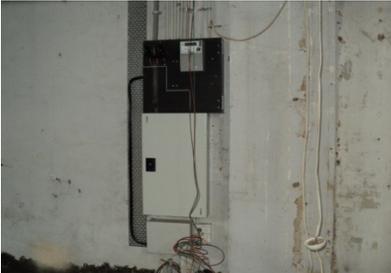
Part D1 – Provision for Escape

Clause	Description	Assessment
D1.0	Deemed-to-Satisfy Provisions	Noted.
D1.1	Application of part	Noted.
D1.2	Number of exits required	Complies. One [1] <i>exit required</i> (building less than 25m effective height).
D1.3	When fire isolated exits are required	Not applicable. A fire isolated stair is not required in this building.
D1.4	Exit travel distances	Complies. Single storey Class 5 & 6 buildings that exit to road or open space are permitted to have an exit travel distance of not more than 30m. Measurements taken on site confirm a maximum exit travel distance of only 23m (currently open plan). Final fit out to ensure exit travel distance of less than 30m is maintained.
D1.5	Distance between alternative exits	Not applicable.
D1.6	Dimensions of exits and path of travel to exits	Complies. Open plan building. If final exit door is to be altered in the future, a minimum

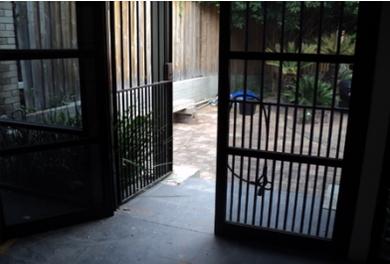
Clause	Description	Assessment
		unobstructed width of 750mm must be maintained.
D1.7	Travel via fire isolated exit	Not applicable.
D1.8	External stairways in lieu of fire isolated exits	Not applicable.
D1.9	Travel by non-fire isolated stairways or ramps	Complies.
D1.10	Discharge from exits	Complies.
D1.11	Horizontal exits	Not applicable.
D1.12	Non required stairways, ramp and escalators	Not applicable.
D1.13	Number of persons accommodated	Noted. Subject to designated use of building. Compliance achievable.
D1.14	Measurement of distances	Noted.
D1.15	Method of measurement	Noted.
D1.16	Plant rooms and lift motor rooms; Concession	Not applicable.
D1.17	Access to Lift Pits	Not applicable.

Part D2 – Construction of Exits

Clause	Description	Assessment
D2.0	Deemed-to-Satisfy Provisions	Noted.
D2.1	Application of part	Noted.
D2.2	Fire isolated stairways or ramps	Not applicable.
D2.3	Non fire isolated stairways or ramps	Not applicable. Building has a rise in storeys of only one.
D2.4	Separation of rising and descending stair flights	Not applicable.
D2.5	Open access ramps and balconies	Not applicable.
D2.6	Smoke lobbies	Not applicable.
D2.7	Installations in exits and paths of travel	Upgrading required. The electricity meters and distribution board for the building are located internally on the South Eastern wall of the building. There is also a telecommunications box located

Clause	Description	Assessment
		<p>on the wall near the entry of the building.</p>  <p>Photo 1 – Electricity Meter Enclosures.</p> <p>The electricity meters must be enclosed in non-combustible construction with the doors suitably sealed against smoke spreading from the enclosure.</p>  <p>Photo 2 – Telecommunication box near main entry.</p> <p>It is also recommended that the telecommunication box located near the main entry be relocated externally to the building or enclosed in non-combustible construction with the doors suitably sealed against smoke spreading from the enclosure.</p> <p>Refer to Recommendation 3.3</p>
D2.8	Enclosure of space under stairs and ramps	Not applicable.
D2.9	Width of stairways	Not applicable. There are no stairs exceeding 2m in width.
D2.10	Pedestrian ramps	Not applicable.
D2.11	Fire isolated passageways	Not applicable.
D2.12	Roof as open space	Not applicable.
D2.13	Goings and risers	Complies.

Clause	Description	Assessment
		Main entry stairs to the building have compliant going, rider and Quantity dimensions.
D2.14	Landings	Not applicable.
D2.15	Thresholds	Complies.
D2.16	Balustrades or other barriers	Not applicable.
D2.17	Handrails	<p>Upgrading required. Handrails have not been provided to the external stairs at the main entry to the building.</p>  <p>Photo 3 – External Stairs at main entry have not been provided with a handrail.</p> <p>It is recommended that the above stairs be provided with a handrail located a minimum height of 865mm above the nosings of the stairs in accordance with Clause D2.17.</p> <p>Refer to Recommendation 3.4</p>
D2.18	Fixed platforms walkways, stairways and ladders	Not applicable.
D2.19	Doorways and doors	Complies. Existing exit doors are swing type.
D2.20	Swinging doors	<p>Does not comply. Main entry door to the building swings inwards.</p> <p>Refer to Recommendation 3.5</p>
D2.21	Operation of latch	<p>Does not comply. The main entry door to the building has been provided with a lever handle located at a height of approx. 1050mm from the floor which complies however it has a nib lock on the inside which does not comply with the requirements of this Clause.</p>

Clause	Description	Assessment
		<p>There is also a heavy security grill at the main entry of the building which does not meet the requirements of this Clause.</p>  <p>Photo 4 – Main entry door provided with nib lock on the lever handle.</p>  <p>Photo 5 – Security Grill at main entry to building.</p> <p>Refer to Recommendation 3.6</p>
D2.22	Re-entry fire isolated exits	Not applicable.
D2.23	Signs on doors	Not applicable.
D2.24	Protection of openable windows	Not applicable.

Part E1 – Fire Fighting Equipment

Clause	Description	Assessment
E1.0	Deemed-to-Satisfy Provisions	Noted.
E1.1	This clause has been deliberately left blank.	Noted.
E1.2	This clause has been deliberately left blank.	Noted.
E1.3	Fire hydrants	<p>Compiles.</p> <p>There is an existing street hydrant located in the footpath in Ross Street across the road from the number 51 Ross Street. Coverage to the building is from this street hydrant provided in 47m with 10m of spray in</p>

Clause	Description	Assessment
		accordance with AS 2419.1 requirements.
E1.4	Fire hose reels	Not applicable. Building has a floor area of less than 500m ² .
E1.5	Sprinklers	Not applicable.
E1.6	Portable fire extinguishers	Upgrading Required. There are currently no portable fire extinguishers located in the building. It is recommended that a 2.5kg ABE extinguisher be provided within each unit and the laundry. Refer to Recommendation 3.7
E1.8	Fire control centres	Not applicable.
E1.9	Fire precautions during construction	Not applicable.
E1.10	Provision for special hazards	Not applicable.

Part E2 – Smoke Hazard Management

Clause	Description	Assessment
E2.0	Deemed-to-Satisfy Provisions	Noted.
E2.1	Application of part	Noted.
E2.2 & Spec E2.2a	General requirements / Smoke Detection and Alarm Systems	Not applicable. Note: Existing air handling system serves only the one fire compartment so is not subject to the requirements of this clause.
E2.3	Provisions for special hazards	Not applicable.

Part E3 – Lift Installations

The requirements of this part are not applicable to this building as there is no lift installed.

Part E4 – Emergency Lighting, Exit Signs & Warning Systems

Clause	Description	Assessment
E4.0	Deemed-to-Satisfy Provisions	Noted.
E4.1	This clause has been deliberately left blank.	Noted.
E4.2	Emergency lighting	<p>Upgrading required.</p> <p>Emergency lighting has not been provided throughout the building. As the building has a floor area greater than 300m², a system of emergency lighting must be provided.</p> <p>Refer to Recommendation 3.8</p>
E4.3	Measurement of distance	Noted.
E4.4	Design and operation of emergency light	Noted.
E4.5	Exit signs	<p>Upgrading required.</p> <p>Exit signs have not been provided in the building. As the building has a floor area greater than 300m² and a system of emergency lighting is required, exit signs complying with Clauses E4.5 and E4.8 and AS/NZS 2293.1 - 2018 must be provided.</p> <p>Refer to Recommendation 3.9</p>
E4.6	Directional signs	<p>Depending on final floor plan, directional exit signs may be required if the exit sign above the main entry door is not visible from all points on the floor.</p> <p>Refer to Recommendation 3.9</p>
E4.7	Class 2 & 3 buildings and Class 4 parts: Exemptions	Not applicable.
E4.8	Design and operation of exit signs	Noted.
E4.9	Emergency warning and intercommunication system	Not applicable.

3. Summary of Recommendations

3.1 Fire Hazard Properties

The building currently has a bare concrete floor which would comply with the requirements of this clause. As the interior of the building is currently being refurbished, any future floor / wall coverings must comply with the requirements of Clause / Specification C1.10.

Specification C1.10 of the BCA requires floor linings to have a critical radiant flux of not less than 2.2kW/m² and a maximum smoke development rate of 750 percent-minutes.

Wall and ceiling linings must comply with the values listed in Table 3 of Specification C1.10 as applicable.

3.2 Protection of Openings

There are openings located less than the required 3m from the boundaries.

A Performance based assessment (Fire Engineered Solution) has been carried out / developed by Design Confidence (Report Reference P220_152-2 (FER) CL dated 29th April 2020).

Requirements of Fire Engineered Solution must be included in the Fire Safety Schedule for the building.

3.3 Installations in Exits and Paths of Travel

It is recommended that the electricity meter enclosure and telecommunications box be enclosed in non-combustible construction with the doors suitably sealed against the spread of smoke from the enclosure in accordance with Clause D2.7 of the BCA.

The telecommunications box may be relocated outside of the building if it is not possible / desirable to enclose it in non-combustible construction.

3.4 Handrail

It is recommended that the main entry stairs be provided with a handrail located a minimum height of 865mm above the nosings of the stairs in accordance with Clause D2.17.

3.5 ***Hold Open Device***

As the existing main entry / exit door swings against the direction of egress, it is recommended that a hold open device be fitted to facilitate the egress of occupants in the event of an emergency.

If it is proposed to alter the main entry / exit to the building, the new egress door must swing in the direction of egress in accordance with Clause D2.20 of the BCA.

3.6 ***Operation of Latch***

The main entry door to the building has been provided with a lever handle located at a height of approx. 1050mm from the floor which complies however it has a nib lock on the inside which does not comply with the requirements of this Clause D2.21.

There is also a heavy security grill at the main entry of the building which does not meet the requirements of this Clause D2.21.

It is recommended that the nib lock to the main entry / exit door be removed and a lever type handle which is openable by a single-handed downward action be provided in accordance with Clause D2.21.

The security grill at the main entry door to the building must also be removed to comply with the requirements of Clause D2.21.

3.7 ***Portable Fire Extinguishers***

It is recommended that portable fire extinguishers be provided throughout the building in accordance with the requirements of BCA 2019 Clause / Table E1.6 and AS 2444 – 2001.

3.8 ***Emergency Lighting***

Emergency lighting has not been provided throughout the building.

As the building has a floor area greater than 300m², it is recommended that a system of emergency lighting be provided throughout the building in accordance with the requirements of Clauses E4.2 and E4.4 of the BCA and Australian Standard AS/NZS 2293.1 - 2018.

3.9 **Exit Signs**

Exit signs have not been provided in the building.

As the building has a floor area greater than 300m² and a system of emergency lighting is required, exit signs complying with Clauses E4.5 and E4.8 and AS/NZS 2293.1 - 2018 must be provided.

Depending on final floor plan, directional exit signs may be required to comply with the requirements of Clause E4.6 if the exit sign above the main entry door is not visible from all points on the floor.

4. **Schedule of Essential Fire Safety Measures**

The following is a list of each essential fire safety measures that would be included in the Final Fire Safety Certificate to be submitted to Council and Fire & Rescue NSW once fire safety upgrading works are fully completed (based on current standards).

Essential Fire Safety Measure	Existing	Proposed	Standard of Performance
Emergency Lighting		X	BCA 2019, Clause E4.2, E4.4 and AS/NZS 2293.1 - 2018
Exit Signs		X	BCA 2019, Clauses E4.5, E4.6, E4.8 and AS/NZS 2293.1 - 2018
Portable Fire Extinguishers		X	BCA 2019 Table / Clause E1.6 and AS 2444-2001
Protection of Openings (Fire Engineered Solution)		X	Fire Engineering Report Reference P220_152-2 (FER) CL dated 29 th April 2020, prepared by Design Confidence.

5. Conclusion

The recommendations made in this report have been made in line with the relevant deemed-to-satisfy requirements of the BCA 2019.

Once the recommendations made in this report have been implemented within the existing building, the building will have similar fire safety measures to those that would be required in a building built in accordance with current standards having regard to the detection of fire, containment of fire and suppression of fire to allow the safe egress of the building occupants.

Should you require any further information please do not hesitate to contact the undersigned on 0499 775 266 or via email: scott@accuratefire.com.au

Report prepared by:



Scott Robshaw

Assoc. Dip. Health & Building Surveyor, MAIBS