FIRE ENGINEERING DA STATEMENT

FOR

**EXTENSION OF ROOFTOP DINING,
ENTERTAINMENT AND LEISURE PRECINCT
WESTFIELD HURSTVILLE**

Report 2020 / 1635 – R3.0
02 September 2020

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REPORT HISTORY

Version	Status	Date	Purpose
Revision 0.0	Draft	12/06/2020	For internal review
Revision 1.0	Draft	15/06/2020	For Client Review
Revision 2.0	Final	29/06/2020	Updated for modified Scheme
Revision 3.0	Final updated	02/09/2020	For DA Submission – based on updated Scheme

REPORT AUTHORISATION

Report by:	Reviewed by:	Authorised by:
Atul Bhargava Fire Safety Engineer	Kathryn Ma Fire Safety Engineer	Rob Taylor Fire Safety Engineer
		
Date: 02/09/2020	Date: 02/09/2020	Date: 02/09/2020

1. EXECUTIVE SUMMARY

This report documents the findings of a high level fire safety engineering review carried out for the proposed extension of an existing rooftop dining, entertainment and leisure precinct (ELP) located at Westfield Hurstville. Fire Engineering Professionals Pty Ltd (FEP) undertook this review at the request of Scentre Design & Construction, who are the Project Managers for the construction project.

Steve Watson and Partners (SWP) have undertaken a preliminary BCA assessment for the development. This BCA assessment identifies a number of non-compliances with deemed-to-satisfy (DTS) provisions of the Building Code of Australia (BCA) as tabulated in **Table 1-1**.

Table 1-1: Items of non-compliance with BCA DTS provisions (extracted from the BCA report prepared by Steve Watson & Partners)

COMPLIANCE ISSUES PROPOSED TO BE ADDRESSED BY THE FIRE SAFETY ENGINEER

BCA Clause	Description	Issue	Performance Requirements
C1.1	Type of construction required	Reduction in FRL to accommodate the existing slab.	CP1 & CP2
D1.4	Exit Travel Distance	Travel distances to an exit will exceed 40m in the following area: • Roof top – restaurants 70m	DP4 & EP2.2
D1.5	Distance between alternative exits	Travel distance between alternative exits exceeds the permissible 60m in the following areas: • Roof top – restaurants (120m)	DP4 & EP2.2
D2.12	Roof as open space	The roof top carpark is required to serve as roof as open space. The roof is not directly connected to the road and requires the occupants to descend a via fire isolated stairs.	DP5 & EP2.2
E2.2	General requirements	Automatic Smoke Exhaust compliance is proposed to be achieved on a performance basis by a fire engineered alternative solution.	EP2.2

The proposed extension project for the existing ELP at Westfield Hurstville is understood to be of a size and nature which, under NSW legislation, necessitates a number of fire safety systems serving the new areas to comply with current BCA requirements.

Fire Engineering Professionals Pty Ltd have been requested to review the proposed works with a view to providing Georges River Council with a statement on whether the likely non-compliances with BCA DTS provisions associated with the proposed works are likely to be able to be addressed by a “Performance Solution”. The report is also proposed to serve as a confirmation to the Georges River Council for the intention of Fire Engineering Professionals Pty Ltd to provide a “Performance Solution” for the identified list of non-compliances with the proposed design of the rooftop ELP extension works at Westfield Hurstville.

It must be noted that this is a general fire engineering overview of the development and not a detailed fire engineering assessment, which will be developed in consultation with relevant stakeholders including Georges River Council and Fire & Rescue NSW.

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2. INTRODUCTION

This report documents the findings of a high level fire safety engineering review carried out for the proposed extension of an existing rooftop dining, entertainment and leisure precinct (ELP) located at Westfield Hurstville. Fire Engineering Professionals Pty Ltd (FEP) undertook this review at the request of Scentre Design & Construction, who are the Project Managers for the construction project.

The proposed construction involves an extension of the existing rooftop dining, entertainment and leisure precinct and incorporates modifications to existing vertical transportation, existing services plant rooms and parking layout on Retail Level 04 and additional retail tenancy areas on Retail Level 05. The proposed works will also include construction of new specialty/food tenancies; an recreation facility with ancillary amusement (mini-major tenancy) and associated amenities.

FEP have been requested to review the proposed works with a view to providing The Georges River Council with a statement on whether the likely non-compliances with BCA DTS provisions associated with the proposed works may be able to be addressed by a “Performance Solution”. The report is also proposed to serve as a confirmation to the Georges River Council for the intention of FEP to provide a “Performance Solution” for the identified list of non-compliances with the proposed building design.

FEP has been supplied with a BCA assessment prepared by Steve Watson & Partners [Report No. 2020/1067, Revision 1.2 dated 10/06/2020] outlining the issues of non-compliance with the BCA DTS provisions which may require a detailed fire engineering assessment.

This fire engineering review is based on the proposed building architectural design provided to FEP by Scentre Design & Construction and review of the associated BCA report provided by Steve Watson and Partners.

3. PURPOSE

The purpose of this review is to provide a statement to the Georges River Council on the ability of the proposed design of the extension of the existing rooftop dining, entertainment and leisure precinct at Westfield Hurstville, with the non-compliances identified by the BCA Consultant (Steve Watson & Partners), to be addressed as a “Performance Solution”.

This report is also likely to form the basis of a Fire Engineering Brief (FEB) for further discussions with Fire & Rescue NSW.

4. FIRE SAFETY OBJECTIVES

The core fire safety objectives of this review are:

- To review the likely non-compliances of the BCA with the design of rooftop ELP extension at Westfield Hurstville that may require a “Performance Solution”; and
- To clarify the fire safety objectives of the preliminary assessment. The preliminary assessment will take into consideration the ability of the proposed design of the building extension and the fire safety measures in meeting the following fire safety objectives in the affected areas:

a. Prevention of fire spread within the building and to adjoining allotments; and

b. Facilitating safe evacuation of building occupants in the event of fire; and

c. Facilitating Fire Brigade access to the building and intervention in the event of fire.

Objectives such as protection of property; protection of furnishings; protection of reputation and ensuring business continuity; safety other than fire safety; have not been identified as design objectives of this assessment. However, by satisfying the core fire safety objectives some of the above objectives may also be satisfied.

5. ASSUMPTIONS AND LIMITATIONS OF THIS REVIEW

The following assumptions and limitations apply to this review:

- This document presents a high level review only and is not based on detailed site inspections or a review of detailed system design drawings or condition reports; and
- This preliminary assessment is limited to a review of the proposed works taking into account the BCA DTS non-compliances identified by the BCA Consultant; and
- FEP takes no responsibility in respect to costing of the works and the accuracy of any budgets developed by Scentre Group; and
- This high level review is based on information provided to FEP without any specific smoke and evacuation modelling or detailed assessment being carried out.

6. PRINCIPAL BUILDING CHARACTERISTICS

Westfield Hurstville is located on the corner of Cross Street and Park Road in Hurstville and is the largest shopping centre in the St George area, covering the major portion of two (2) city blocks. The shopping centre was originally opened in mid 1970's and a major redevelopment that substantially increased the size of the shopping centre and refurbished the existing building was carried out in mid 1980's.

The building has recently gone through a relatively major fire safety upgrade as part of a Hurstville Council Order No. 6 dated 15 September 2014. Zone A of building has also been subject of a major reconfiguration and refurbishment in 2016 which incorporated a restaurant precinct on rooftop carpark and cinema level.

Westfield Hurstville currently contains several levels of underground car parking, three (3) retail levels and several levels of above ground car parking, including the roof car parking above both previous stages of the development. The building also contains a seven (7) theatre cinema complex that is designed to be fire separated from the rest of the shopping centre in the fire mode. Westfield Hurstville shopping centre has a rise in storeys of nine (9) with the Bio boxes of the cinema complex and the adjacent car park being higher than 25m in effective height.

The existing Westfield Hurstville building is understood to have the characteristics identified in **Table 6-1**. These characteristics are based on BCA Assessments carried out by Steve Watson & Partners for previous work at Westfield Hurstville.

Table 6-1: BCA Descriptive Building Characteristics

Characteristic	Description	
Classification	Class 6	Retail
	Class 7a	Carpark
	Class 9b	Cinema
Number of storeys contained	9	
Rise in storeys	9	
Type of construction required	Type A	
Effective height	Greater than 25m*	

7. BRIEF DESCRIPTION OF THE PROPOSED WORKS

The proposed works involve the extension of an existing restaurant precinct on Retail Level 4. This precinct is directly accessed from the carpark and from the existing Retail Level 4 which currently incorporates cinema complex. The proposed extension of the existing rooftop dining, entertainment and leisure precinct and incorporates modifications to existing vertical transportation, existing services plant rooms and parking layout on Level 3. The proposed works will also include construction of new specialty/food tenancies; an recreation facility with ancillary amusement (mini-major tenancy) and associated amenities. An architectural plan showing the proposed location and extent of new works associated with the ELP extension at Westfield Hurstville is shown in **Figure 7-1** through to **Figure 7-4**.

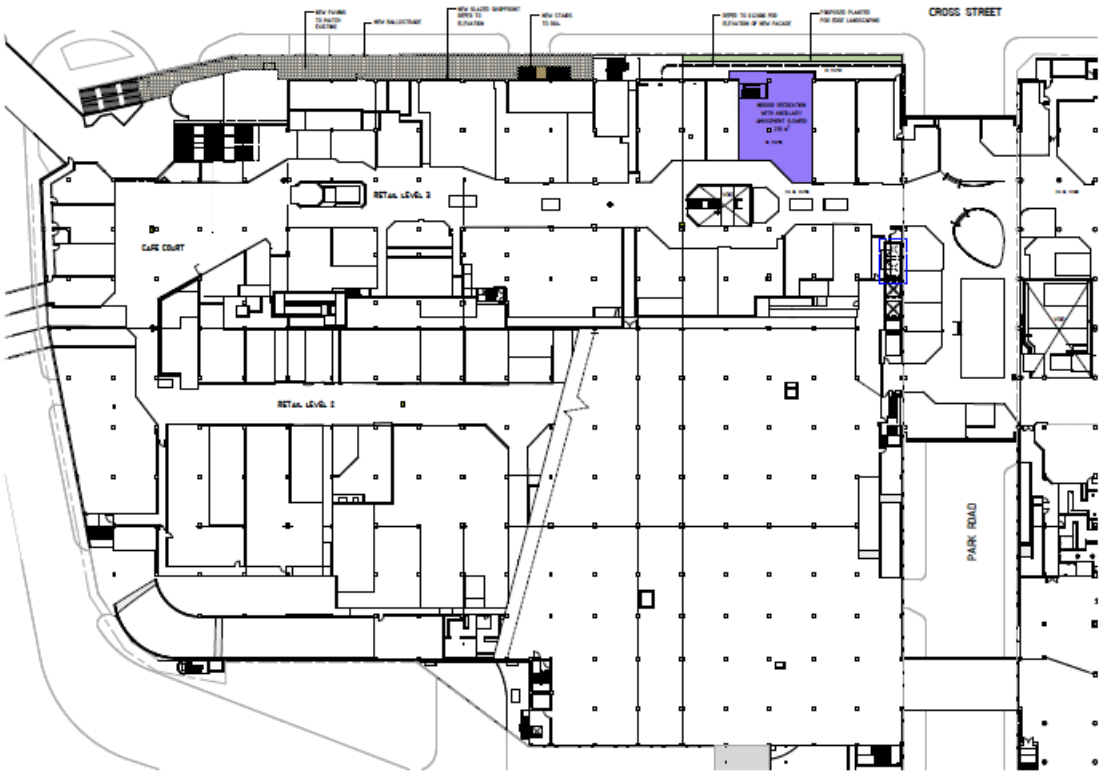

Figure 7-1: Floor Plan – Retail Level 3 – Proposed works associated with ELP extension

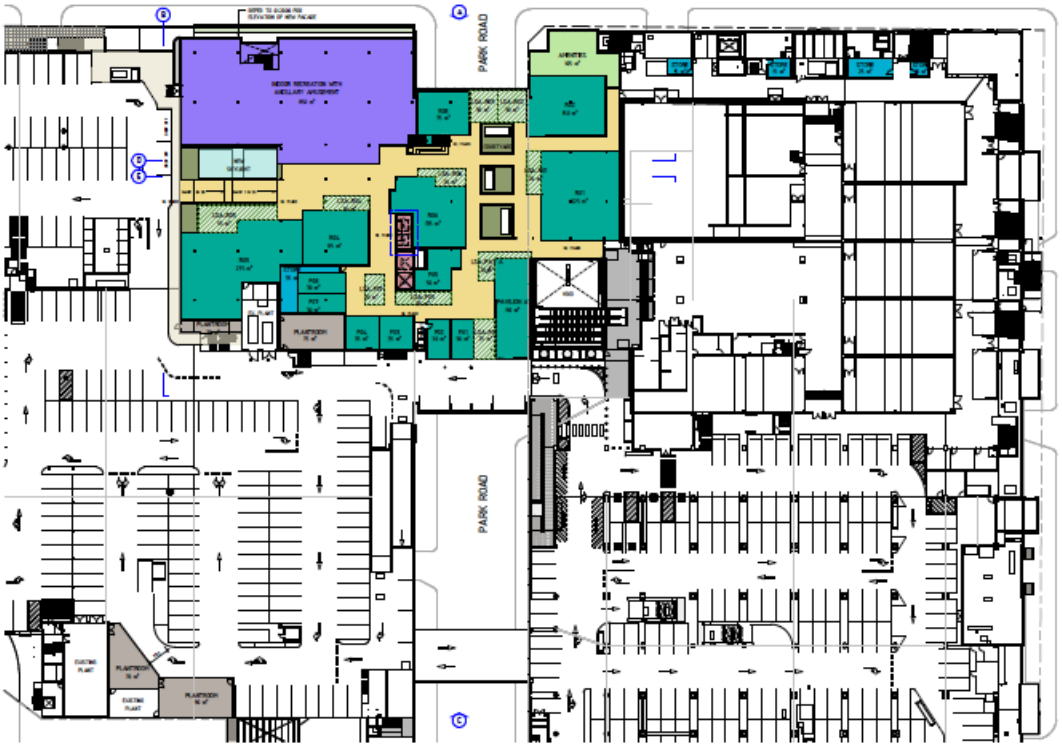

Figure 7-2: Floor Plan – Retail Level 4 – Proposed works associated with ELP extension

Figure 7-3: Floor Plan – Retail Level 5 – Proposed works associated with ELP extension

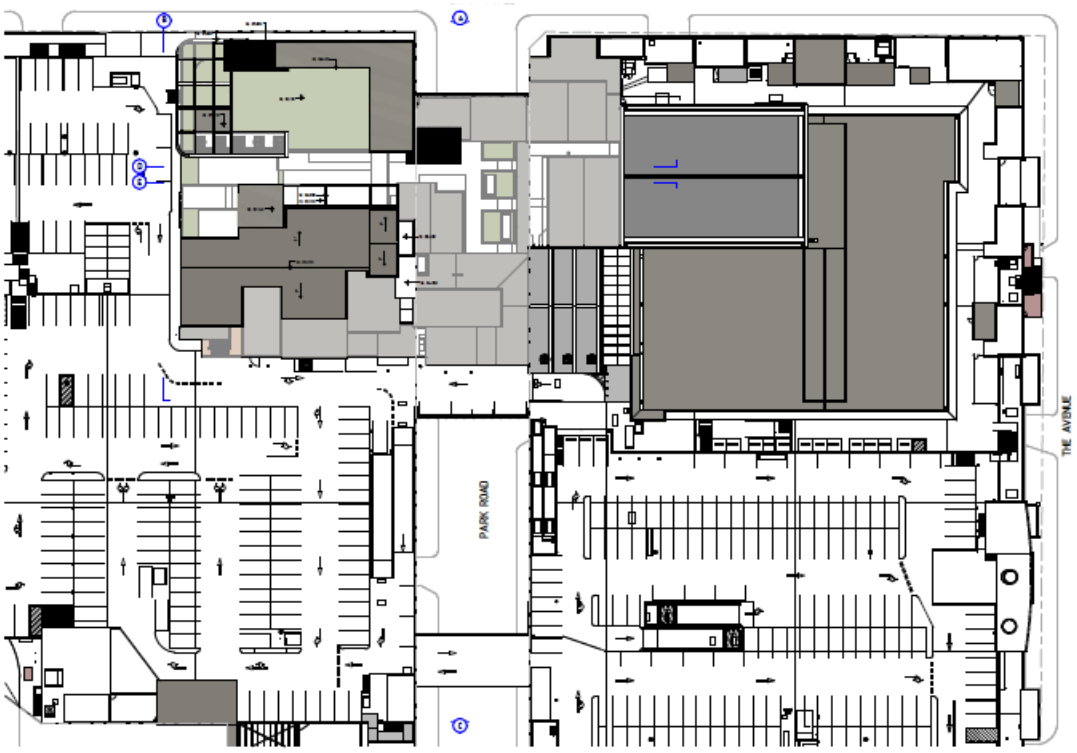

Figure 7-4: Floor Plan – Roof Level – Proposed works associated with ELP extension

8. FIRE AND RESCUE NSW ACCESS

The NSW Fire Brigades vehicular and pedestrian access to different parts of Westfield Hurstville is available from the Avenue, Cross Street, Park Road, Rose Street and Humphreys Lane.

The closest NSW Fire Brigades stations are ***Hurstville***, located approximately 0.7km to the south-west of Westfield Hurstville, and ***Kogarah***, located approximately 2.8km to the east. The closest NSW Fire Brigades aerial appliance is stationed at ***Kogarah*** Fire Station.

The two closest back-up NSW Fire Brigades stations are ***Mortdale***, located approximately 3.3km to the south-west of Westfield Hurstville, and ***Riverwood***, located approximately 6.1km to the north-west.

All stations, except for ***Mortdale*** Fire Station, are manned full time. The location of NSW Fire Brigades stations in relation to Westfield Hurstville is illustrated in **Figure 8-1**, provided below.

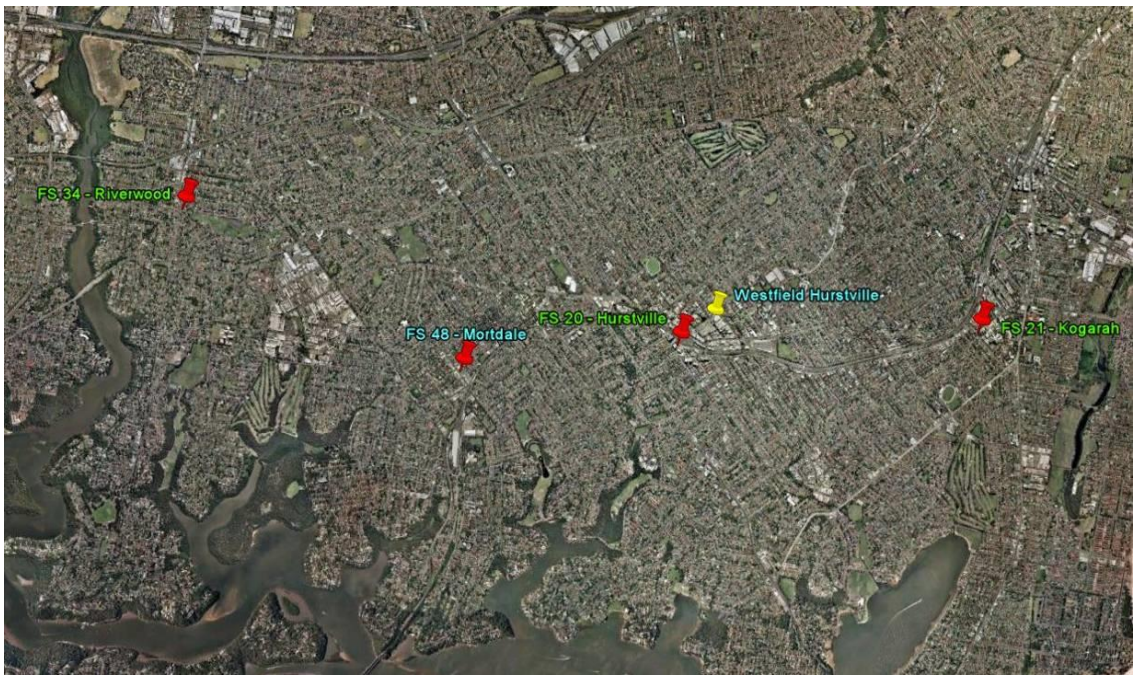

Figure 8-1: Location of NSW Fire Brigades station in relation to Westfield Hurstville (courtesy Google Maps)

The proposed ELP extension is not considered to cause an adverse impact on the existing perimeter vehicular access around the Westfield Hurstville building. The proposed development works and the fire brigade access will be subject of a detailed discussion with Fire & Rescue NSW.

It is currently understood that Westfield Hurstville has a retail fire compartment size exceeding that permitted by BCA Table C2.2 and will therefore is required to be assessed as a large isolated building.

9. SUMMARY OF ITEMS REQUIRING PERFORMANCE SOLUTIONS

The non-compliances with the BCA DTS provisions associated with the Performance Solution Report, as nominated in SWP BCA report to accompany the Development Application (DA), are provided below:

- Fire resistance levels; and
- Exit travel distance; and
- Distance between exits; and
- Roof as open space; and
- Separation of rising and descending flights; and
- Smoke hazard management; and

In addition to the above, the fire services infrastructure serving the new areas including fire hydrant and automatic sprinkler systems serving is required to comply with current BCA DTS provisions. Any non-conformances related to these fire services will be identified by the fire services engineers and addressed as a Performance Solution in discussions with Fire & Rescue NSW.

10. CONCLUSION

FEP have reviewed the proposed architectural design for the extension of the existing rooftop dining, entertainment and leisure precinct at Westfield Hurstville, which forms the subject of this Development Application (DA). FEP have also reviewed the BCA Report prepared by Steve Watson & Partners that forms part of this DA submission and consider that the BCA DTS non-compliances identified with the proposed building design are able to be addressed by way of a “Performance Solution”. The preparation of the 'Performance Solution Report' will require a discussion and an agreement between relevant stakeholders (Fire Engineering Brief process).

The Fire Engineering Brief (FEB) Report will outline the fire engineering strategy that is to be adopted; the modelling tools to be used for calculations; the methodology for the fire engineering assessments; and the acceptance criteria nominated for each “Performance Solution” to be undertaken. A Trial Concept Design will also be nominated which outlines the building requirements which are to be met in order for the building design to be shown, via supporting evidence in the form of fire engineering assessments, to be capable of meeting the Performance Requirements of the BCA with respect to the identified non-compliances.

11. APPENDIX A – DOCUMENTATION

The drawings identified in **Table 11-1** were examined during the production of this report.

Table 11-1: Assessment Documentation

Drawing Description	Drawing No.	Revision	Drawn	Date
Proposed Plan Retail Level 03	01.1003	A	Scentre Design & Construction	N/A
Proposed Plan Retail Level 04 (Parking P5)	01.1004	A	Scentre Design & Construction	N/A
Proposed Plan Retail Level 05 (Parking P6)	01.1005	A	Scentre Design & Construction	N/A
Proposed Plan Level Roof	01.1006	A	Scentre Design & Construction	N/A