Holmes Fire

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FIRE SAFETY UPGRADE CONCEPT REPORT

To:	Effie Nassis & Zois Nassis	Wynyard Pty Ltd	Project:	140012.00
	Lyndall Wynne	Wynne Planning		
	Gavin Ho	Sutherland Shire Council		
From:	Michael Bower		Version:	A
Date:	14 October 2020			
Subject:	Unit 3, 5 Clerke Place, Kurnell, NSW			

1 INTRODUCTION

The purpose of this Fire Safety Upgrade Concept Report (FSUCR) is to outline the fire engineering process for the subject project and establish and agree the fire protection needs of the project with the relevant stakeholders, namely the client (Wynyard Pty Ltd), the client's representative (Wynne Planning), and the Council (Sutherland Shire Council).

The goal is to achieve acceptance of the scope of work, critical input factors and acceptance criteria before detailed design commences. Stakeholder comments will then be incorporated into the Fire Safety Upgrade Report (FSUR) as necessary. The requirements of all interested parties are thereby established and incorporated into the proposed fire safety strategy. This brief therefore covers both the client liaison for an understanding of their objectives, and also any necessary technical considerations for compliance with Section 4.12(8) of the Environmental Planning and Assessment Act 1979[1] and the Environmental Planning and Assessment (EP&A) Regulation[2] Clause 94, as well as consideration with the Building Code of Australia, 2019 (BCA)[3].

Note that this is not a detailed FSUCR, but is provided to set down the basis on which the fire safety analysis will be undertaken, as per the intent of the International Fire Engineering Guidelines[4].

2 BUILDING DESCRIPTION AND NON-COMPLIANCE

The project involves the retrofit of the existing Class 7b and Class 8 use at Unit 3 located at 5 Clerke Place, Kurnell, NSW. The subject building will be converted into a waste management facility where animal fat and used cooking oils will be processed and stored with a Class 5 office upstairs in the mezzanine. The

[1] Environment Planning and Assessment Act 1979, No 203, 1 July 2020 to date

[2] Environmental Planning and Assessment Regulation 2000, 1 October 2020 to date

[3] Australian Building Codes Board, National Construction Code 2019, *Volume 1, Building Code of Australia, Class 2 to Class 9 Buildings*. Australian Building Codes Board, CAN, Australia, 2019.

[4] National Research Council of Canada; International Code Council, United States of America; Department of Building and Housing, New Zealand; and Australian Building Codes Board, *International Fire Engineering Guidelines, Edition 2005*. Australian Building Codes Board, 2005.

subject building is a single fire compartment separated from the remainder of the building by FRL 90/90/90 rated wall.

The issues of non-compliance with the Deemed-to-Satisfy Provisions of the BCA relate to unprotected openings in external walls and clear width of path of travel.

The general description of the building under the Deemed-to-Satisfy Provisions of the BCA, is as indicated in Table 2-1.

Table 2-1: BCA General Description

BCA Clause		Description
Schedule 3	Effective Height	~ 4.5 m
A6	Classification	Class 7b – Storage Class 8 – Process Class 5 – Office
C1.1	Type of Construction Required	Type C construction
C1.2	Rise in Storeys	2, with 2 storeys contained
C2.2	Floor Area and Volume Limitations	Class 5 / Class 7b & 8 Maximum floor area: 3,000 m² / 5,000 m² Maximum volume: 18,000 m² / 30,000 m² These size limitations for the fire compartments are not exceeded, based on the building being a single fire compartment. Building area ~ 690 m²

3 DESIGN BASIS

To clarify the overall objectives of the project, Table 3-1 identifies the basis upon which the design will be undertaken.

Table 3-1: Design Objective and Acceptance Criteria

Design Objective	Acceptance Criteria
Legislative	
Compliance with the legislative requirements of the EP&A Act and Regulation	Section 4.12(8) of the Environmental Planning and Assessment Act 1979 and the Environmental Planning and Assessment (EP&A) Regulation Clause 94 refer to Table 5-1 Consideration will also be given to the relevant Performance Requirements of the BCA, refer to Table 5-1.
Extent of assessment	Extent of assessment is limited to the identified non-compliances only.
Client Specific (beyond legislative requirements)	
Property protection and business continuity (subject building)	No identified additional issues from client. Please note that Deemed-to-Satisfy compliant solutions and Performance Solutions do not provide an absolute level of safety for protection from fire for occupants or property.
Egress for persons with disabilities	No additional objectives to that of the Disability Discrimination Act.
Extent or availability of insurance	No additional objectives
Multiple simultaneous fires	No additional objectives
Explosions, arson, malicious acts, or terrorism	No additional objectives
Flexibility for the use of each floor	No additional objectives

4 CONSTRUCTION REQUIREMENTS

To ensure the works that will be proposed within the FSUR are appropriately completed, it is recommended that Holmes Fire be engaged to undertake inspections of the building prior to issue of the Occupation Certificate.

A visual inspection of the active and passive measures, in addition to witnessing of active systems, will be required to be undertaken. Certification will be required from designers, suppliers and installers confirming compliance with the requirements of the FSUR. Holmes Fire will provide a detailed list of the inspection, witnessing and certification requirements prior to commencing construction inspections.

5 STAKEHOLDER ACCEPTANCE

Please respond in writing to Holmes Fire as soon as possible with any comments in relation to this FSUCR. Comments are required from the stakeholders demonstrating that they understand the contents of this FSUCR.

Written By:

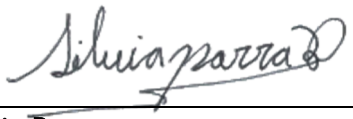

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Table 5-1: Scope of Fire Safety Upgrade Report

	Scope of Fire Safety Upgrade Report	Issue 1 – Unprotected Openings in External Walls	Issue 2 – Clear Width of Path of Travel
1	BCA Deemed-to-Satisfy non-compliance	Clause C3.2 requires openings in external walls that are required to be fire rated to be protected in accordance with Clause C3.4 if they are located within 3 m of an allotment boundary. The building contains openings in the front external wall located approximately 1.2 and 2.7 m from a fire source feature in the adjacent building (Unit 2), as shown in Figure 7 1. These openings are proposed to be provided with alternative means of protection.	The clear width of paths of travel to exits is required to be at least 1,000 mm. However, the clear width is reduced to 800 mm between Vat 45 & Vat 46 and 700 mm between Vat 42 & Vat 48.
2	Performance Requirements to be considered	CP2, CP8	DP4
3	Client objectives	No additional objectives	No additional objectives
4	Analysis approach	Quantitative	Qualitative
5	Acceptance criteria	The incident radiant heat imposed to the neighbouring buildings is not to exceed the maximum permitted at that respective distance by CV1.	The path of travel width is not to impede the evacuation of occupants or the access of fire brigade personnel.
6	Sub-systems to be considered	C (fire spread, impact and control)	E (occupant evacuation and control), and F (Fire Services intervention).

	Scope of Fire Safety Upgrade Report	Issue 1 – Unprotected Openings in External Walls	Issue 2 – Clear Width of Path of Travel
7	Design tools for fire modelling	Radiation assessments using methods as per the SFPE Handbook[5].	Not applicable
8	Design tools for egress modelling	Not applicable	Not applicable
9	Sensitivity	Not applicable	Not applicable
10	Redundancy	Not applicable	Not applicable
11	Uncertainty	Not applicable	Not applicable
12	Factors of safety	Not applicable	Not applicable
13	Occupant parameters	Not applicable	
14	Design fires	A single fire will be assumed to occur in one location at one time only. Multiple fires are not considered. Fires are anticipated to initially be smouldering, developing to a flaming fire. Should occupant intervention not extinguish the fire, it is assumed that flashover may occur in the area of fire origin.	A single fire will be assumed to occur in one location at one time only. Multiple fires are not considered. Fires are anticipated to initially be smouldering, developing to a flaming fire. Should occupant intervention not extinguish the fire, it is assumed that the fire may progress to a flashover scenario.

[5] Lautenberger, C., *Radiation Heat Transfer*. The SFPE Handbook of Fire Protection Engineering, 5th Edition, Chapter 4, Springer, New York, USA, 2016.

	Scope of Fire Safety Upgrade Report	Issue 1 – Unprotected Openings in External Walls	Issue 2 – Clear Width of Path of Travel
		For this assessment, fires are assumed to occur anywhere within the subject building or on a neighbouring allotment.	For this assessment, fires are assumed to occur anywhere within the building.
15	Proposed solution	It is to be demonstrated by way of radiant heat assessment and the provision of a fire-rated blade wall that fire spread is limited to an acceptable degree.	It is to be demonstrated by use of anthropometric data that the clear width of not less than 800 mm between Vat 45 & Vat 46 and 700 mm between Vat 42 & Vat 48 provide a level of fire safety that complies with the Performance Requirements in relation to the dimensions of a path of travel to an exit.
16	Outline of schedule of works	A blade wall or equivalent level of protection will be provided to serve as protection of openings along the main façade of the building and are to achieve an FRL of not less than -/60/- and to be neither transparent nor translucent	The protruding valve on Vat 46 is to be highlighted with a black and yellow striped adhesive hazard tape to be installed on the circular ring surrounding the valve. Potential trip hazards at floor level are to be ameliorated by the installation of stainless steel steps and catwalk type raised flooring.

Table 5-2: Scope of Fire Safety Upgrade Report - General

	Scope of Fire Safety Upgrade Report	
1	Referral to Fire & Rescue NSW	Not required by Clause 144 of the Environmental Planning and Assessment Regulation due to the fire compartment size being less than 2,000 m² and the building size being less than 6,000 m².
2	Involvement of a Registered Certifier – Fire Safety / Fire Safety Engineer	Not required by Clause 144A of the Environmental Planning and Assessment Regulation due to the fire compartment size being less than 2,000 m² and the building size being less than 6,000 m². Nevertheless a registered Certifier - Fire Safety is involved with this project
3	Construction Review	Recommended
4	Compliance Certificate	Not required
5	Peer Review	Not required