



## TECHNICAL NOTE – Construction Bushfire Protection

<b>Project:</b>	<b>LINDFIELD LEARNING VILLAGE</b> 100 ETON ROAD, LINDFIELD NSW	<b>File:</b>	2018/321
<b>Recipient:</b>	DesignInc Sydney	<b>Note No.:</b>	DRAFT FOR DISCUSSION ONLY
		<b>Date:</b>	15/05/2020
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### 1. INTRODUCTION

The Lindfield Learning Village school is proposed to undergo “Stage 2” expansion and alteration works in order to increase its student capacity and facilities. The construction works are divided into three phases, namely Stage 2A, Stage 2B and Stage 2C, with the school gradually expanding and occupying with each stage. Consequently, the extent and location of construction works on the site also changes with each stage.

The school is located beside the Lane Cove National Park, hence the facility is subject to the risk of bushfires affecting the school. Assessment of bushfire safety, as well as “internal” fire safety for the completed school (at Stage 2A, 2B and 2C) are currently being undertaken and documented in the Bushfire Engineering Report, and Fire Engineering Reports, respectively.

This technical note is intended to document the proposed minimum management procedures to be adopted during the construction phases of Lindfield Learning Village Stage 2 to protect school users from additional fire hazards arising from the presence of construction work adjacent to the operational school.

This technical note should be read in conjunction with the Bushfire Engineering Report prepared by BlackAsh Bushfire Consulting. This document is not a substitute for workplace health and safety assessment for the construction sites.

### 2. DESCRIPTION:

#### 2.1. BASE BUILDING FIRE SAFETY

The school buildings comply with the DTS provisions of the BCA except for the departures that have been addressed on a performance-basis by a fire engineer and are documented in the Fire Engineering Reports. The overall fire safety strategy for a fire originating within the building is for occupants to egress to the safe place outside the building.

With respect to bushfire protection, both bushfire emergency management and bushfire evacuation plan have been prepared by a bushfire consultant for the current school and subsequent expansions. The bushfire safety strategy includes the requirement for BAL-FZ protection to all external facades, procedures for early warning and notification of a bushfire event, evacuation of the school in the event of a bushfire emergency to a place of safety away from the bushfire (that is, evacuating on foot via public roadways to the Lindfield Public School at 213 Pacific Highway), or if it is too late to leave, sheltering in place within the school buildings.

## 2.2. OBJECTIVES

The following overall objectives are considered essential to protect from fire during construction phases and to avoid the fire life safety design being undermined by the construction works needed to complete Stage 2:

- Construction activity must not block or impair the egress routes from an internal fire through the school to the outside, or the egress routes for bushfire (e.g. the path of egress through the site, and from the site to the place of safety to Lindfield Public School); nor impede brigade access to the school and firefighting facilities.
- Construction work must not undermine the facilities supporting fire containment, and refuge, that is, the BAL-FZ facades, the air-handling and sprinkler protection systems, as well as fire separations.
- The school (that would be partially open and occupying the areas that are not under construction) must be automatically notified of any fire emergency in the construction sites; and
- The construction site is notified of any building fire emergency and bushfire necessitating evacuation.

## 2.3. HAZARDS & CHALLENGES

The key hazards to the fire life safety design that could arise due to the construction work that is occurring concurrent with school occupation are:

- Obstruction of egress routes (within the building or outside the building to the bushfire safe place) by equipment or construction works. The bushfire egress routes are identified below in Section 2.4. The internal egress routes are as per the BCA/Fire Report.
- Additional fire hazards associated with construction (i.e. fires within the construction site) whose notification to the school is delayed compared to fires within the occupied school.
- Risk of bushfire occurring that jeopardises the site and necessitates evacuation, but the construction workers are not made aware of the need for evacuation
- Access to fire-fighting or emergency equipment (such as sprinkler pump rooms or hydrants) impaired by construction works) impeded by construction works
- Compartmentation affected by the fire size associated with a construction fire, or due to the inadvertent removal of fire separations.
- The BAL-FZ façade protection affected by construction work

## 2.4. BUSHFIRE EGRESS ROUTES AND FACILITIES

Any critical areas that are not to be blocked or compromised during construction are to be identified and dealt with accordingly in conjunction with consultation of the Bushfire Consultant.

Below figures indicate premises of the building that are not to be blocked or compromised during construction. The the Bushfire Design Report prepared by BlackAsh Consulting must be referred to when reading this document. Internal routes to reach the bushfire refuge are included in Appendix A to this document.

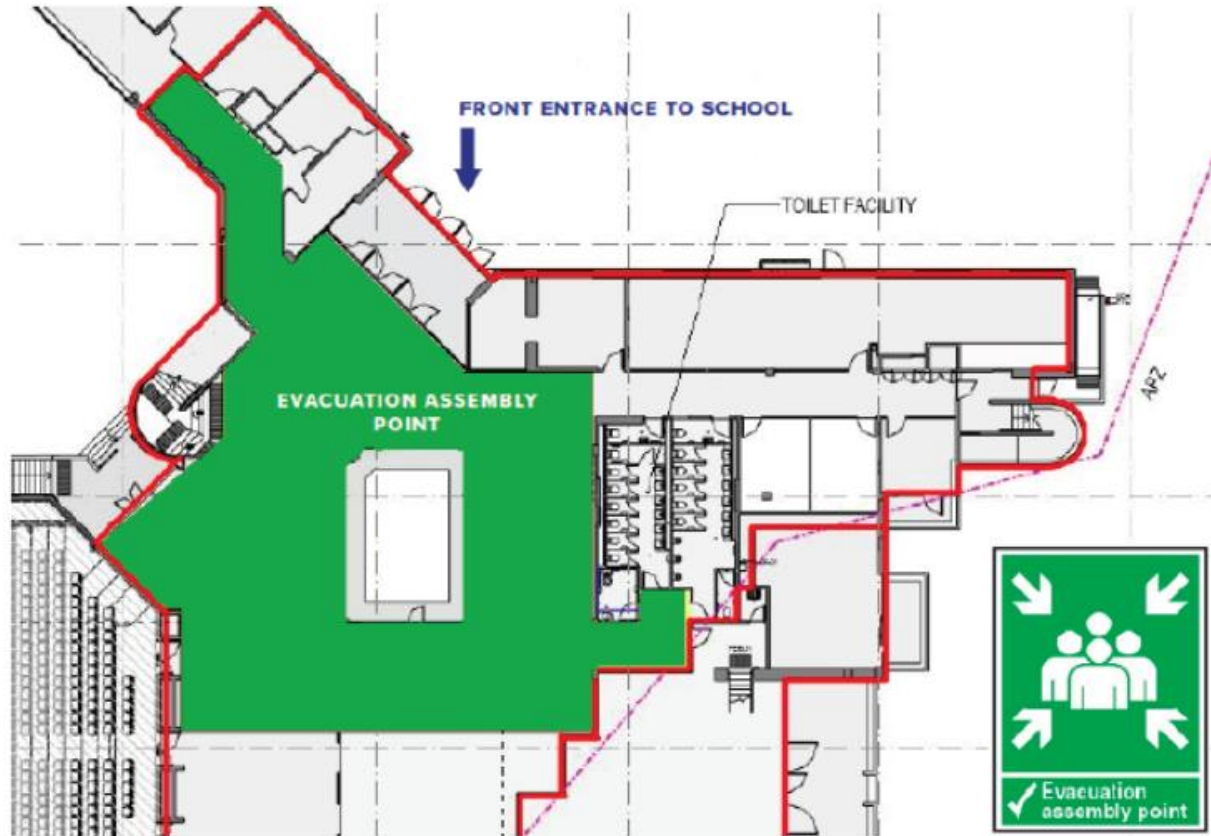


Figure 1 - Bushfire Evacuation Assembly and Egress Route through front doors

## 2.5. PROPOSED INTERIM FIRE SAFETY MEASURES DURING CONSTRUCTION PHASES

The following measures are recommended to be installed during the construction phases to meet the objectives named above:

- Any emergency alarms triggering evacuation within the school building must also provide alarms to the construction zone via sounders or Public Address (PA) for evacuation of the building.
- Manual call points to be provided to construction site that alert the construction site and the school via sounders of a fire incident within the construction site.
- Hydrants and extinguishers are to be provided to the construction site in accordance with the relevant standards and legislation.
- If bushfire evacuation is required, the alerting of the school is to include alerting the construction site i.e. the responsible school bushfire warden is to communicate the need for evacuation to the construction site foreman via mobile telephone.
- No internal egress routes or refuges are permitted be occupied or infringed upon by construction works nor can the route from the school to the bushfire place of safety. This means that the

construction team needs to be made aware of the egress routes and refuges (for bushfire and for internal fire scenarios) so that these areas can be maintained clear of obstructions or hazards.

- Egress routes for construction workers from the construction site to a place of safety must be provided for bushfire and for building fire scenarios, and should not go through the occupied school.
- The bushfire egress assessment should consider the additional occupant load arising from the construction site occupancy on bushfire egress times and capacity.
- Construction works are to be fire-separated from the operational school. The construction work is to take place in stages in such a way that no fire compartments are jeopardised.
- All external facades are to be entirely treated to BAL-FZ as early as is feasible (i.e. as part of Stage 2A). Any areas that are not protected to BAL-FZ must be fire-separated from the occupied school until BAL-FZ treatment is installed.

## 2.6. HOW TO USE THIS DOCUMENT

This Technical Note is a supporting document to be part of the Bushfire Engineering Report.

The strategy noted in this document is to be agreed with stakeholders. Prior to commencing of each construction phase, the emergency plan/strategy for the school and construction site staging and emergency planning should be reviewed and updated to meet the minimum requirements set out in this Technical Note. A copy of the emergency plan/strategy is to be kept at the Fire Indicator Panel/Bushfire console within the school, as well as the main site office of the construction.

Note: This Technical Note is applicable to life safety of occupants within the subject premises. Evacuation of construction site is to be managed by the management of the construction team.

## 2.7. RELEVANT STAKEHOLDERS

Below table lists relevant stakeholders. The stakeholders should be furnished with a copy of this Technical Note.

Table 1 – List of stakeholders

Stakeholders Role	Company
Client	School Infrastructure NSW
School	Lindfield Learning Village
Builder	To be confirmed
Architect	DesignInc
Project Manager	Savills
Bushfire Consultant	BlackAsh Consulting
Fire Engineer	Stephen Grubits & Associates
Fire Brigade	Fire & Rescue NSW/ Rural Fire Service

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# APPENDIX A. BUSHFIRE EGRESS ROUTES

## A.1 OCCUPANTS ON LEVEL 1

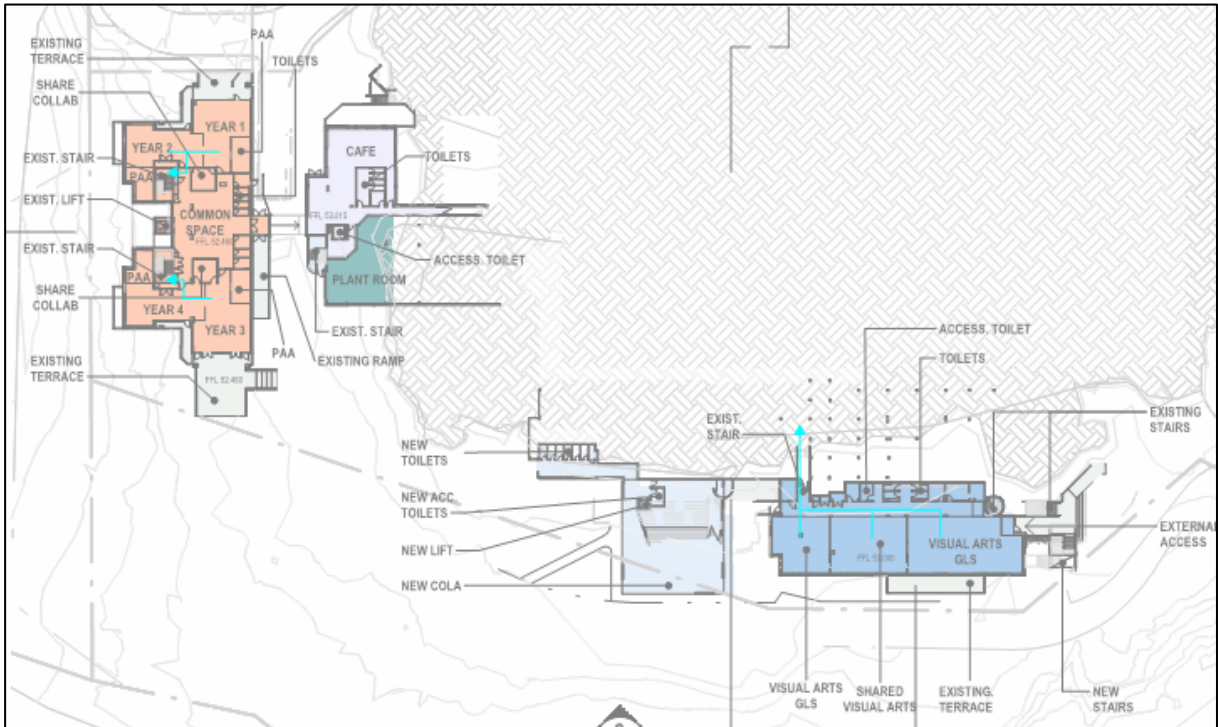


Figure 2 – Path of travel by Occupants on Level 1 from Level 1 to Level 2 (shown in sky blue colour arrows).

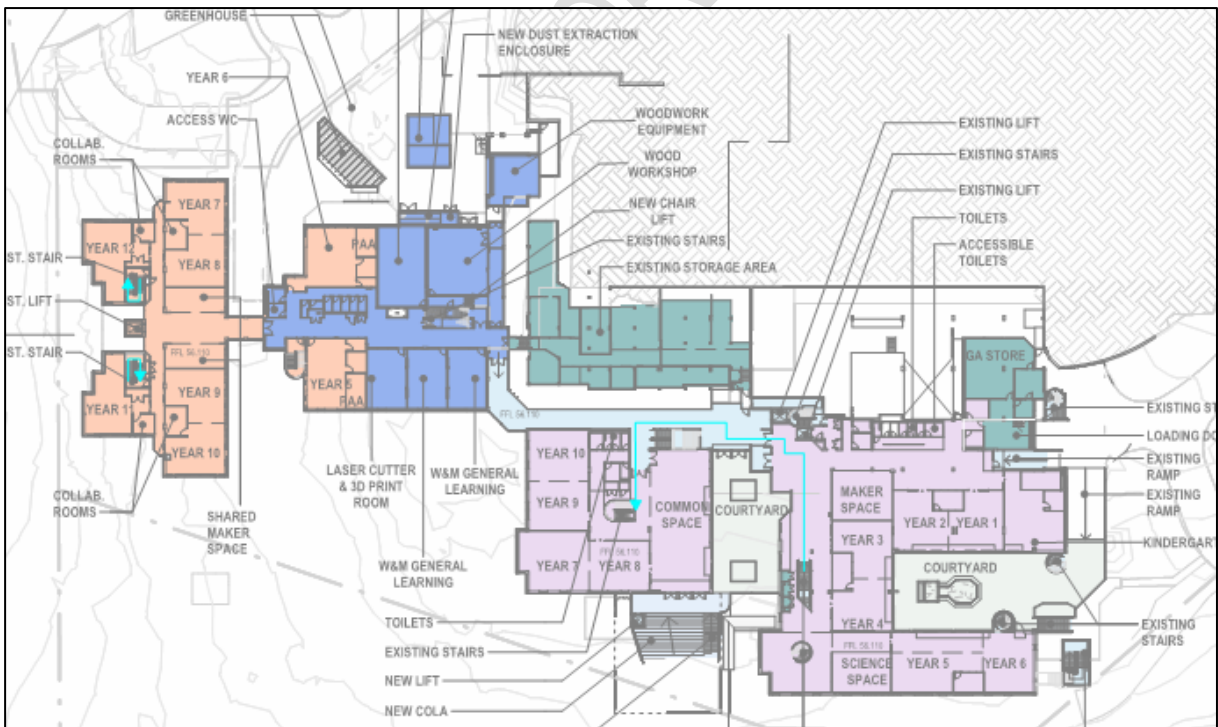


Figure 3 – Path of travel by Occupants on Level 1 from Level 2 to Level 3.



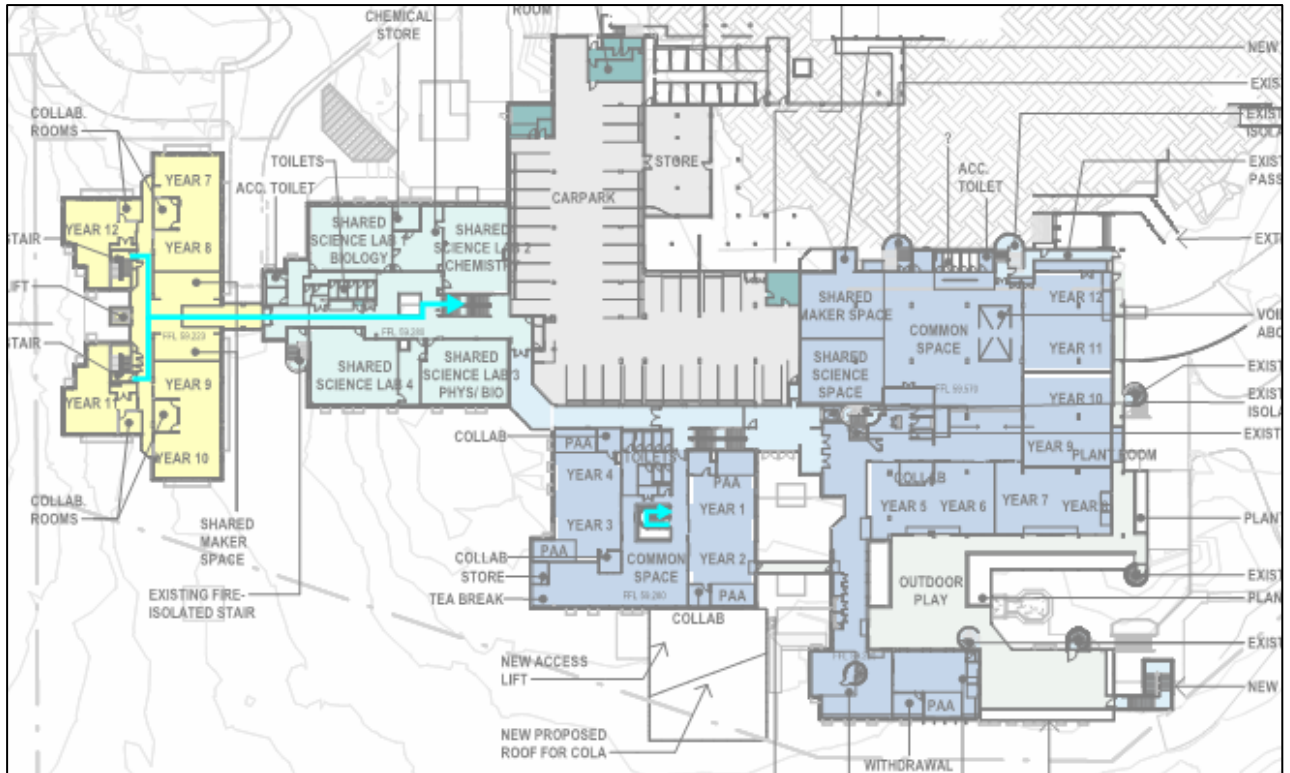


Figure 4 – Path of travel by Occupants on Level 1 from Level 3 to Level 4.

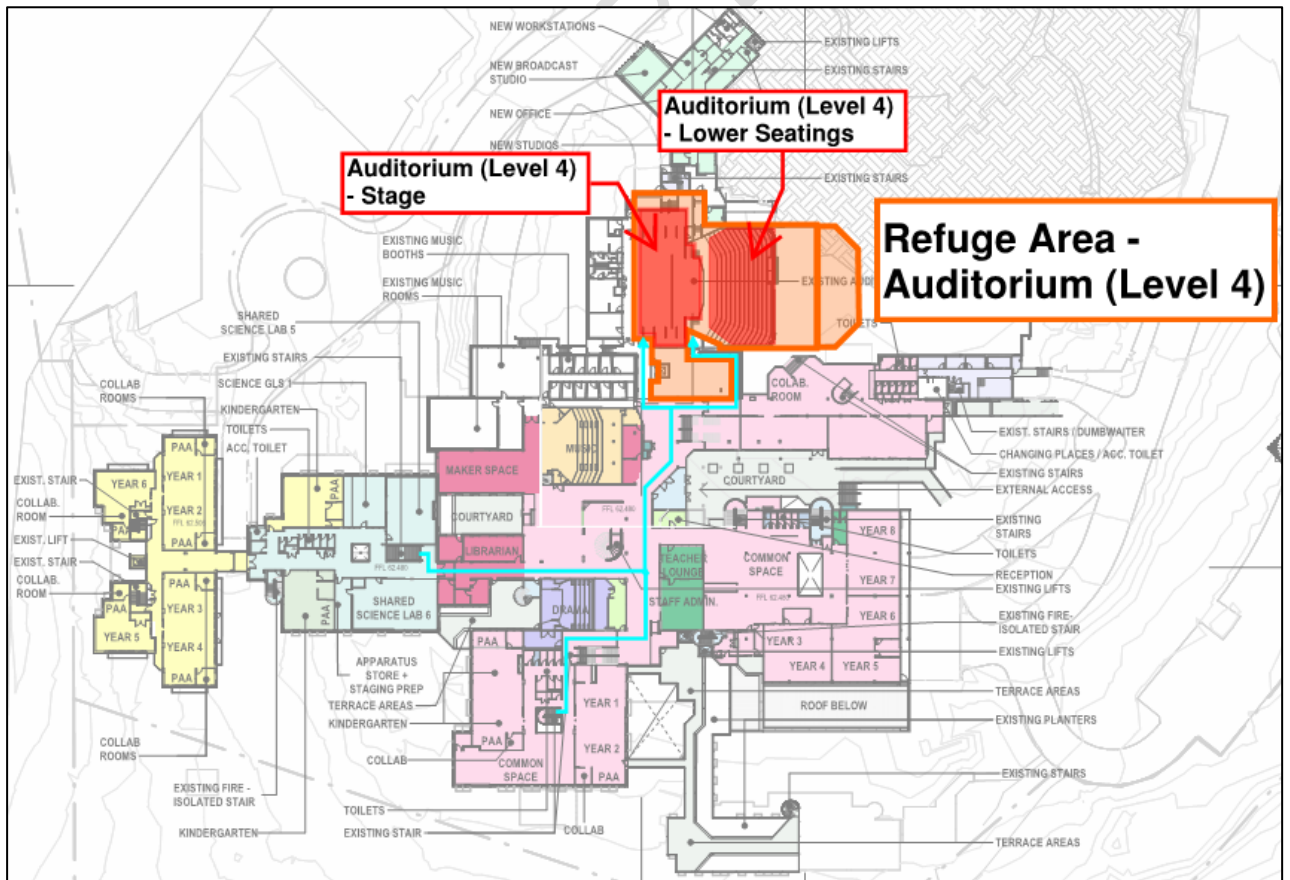


Figure 5 – Path of travel by Occupants on Level 1 from Level 4 to Auditorium (Refuge Area).

**A.2 OCCUPANTS ON LEVEL 2**

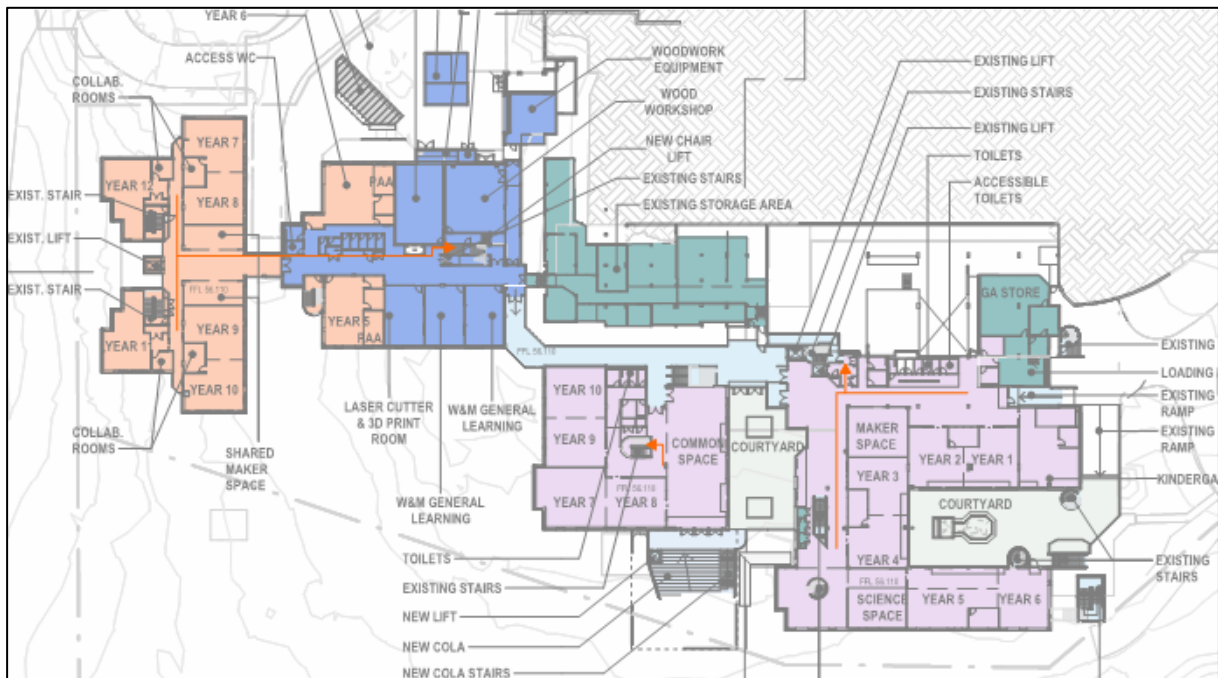


Figure 6 – Path of travel by Occupants on Level 2 from Level 2 to Level 3 (shown in orange colour arrow).

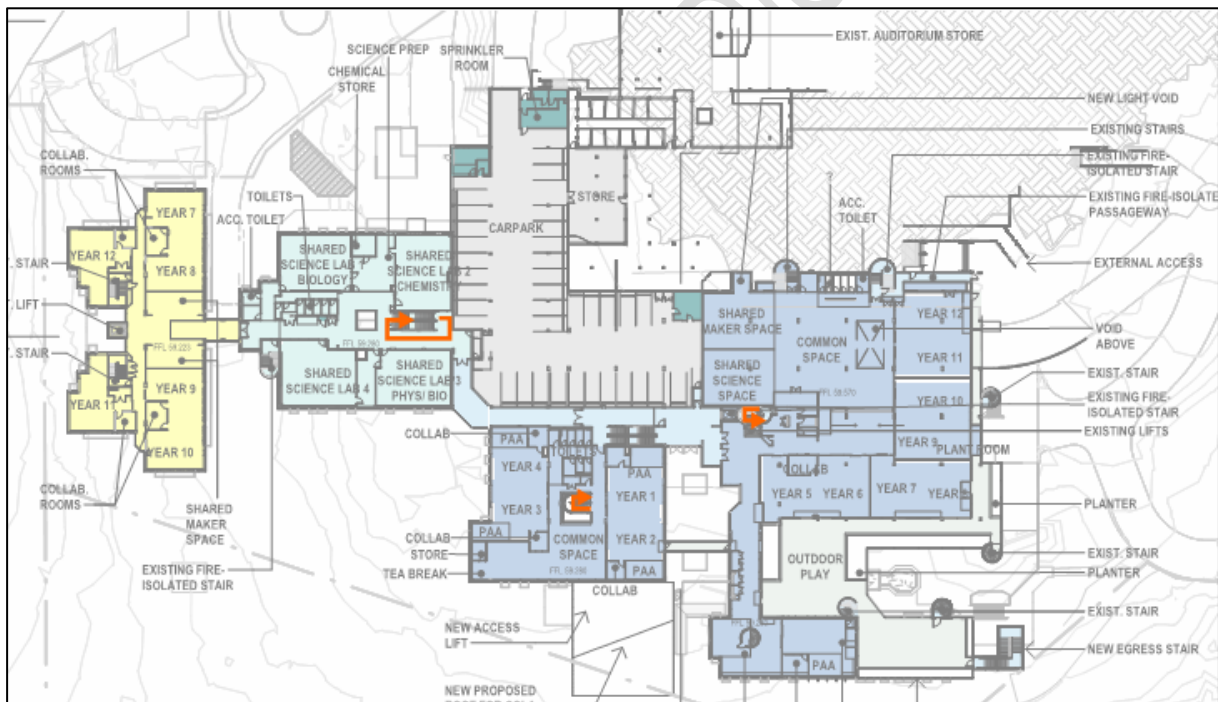


Figure 7 – Path of travel by Occupants on Level 2 from Level 3 to Level 4.



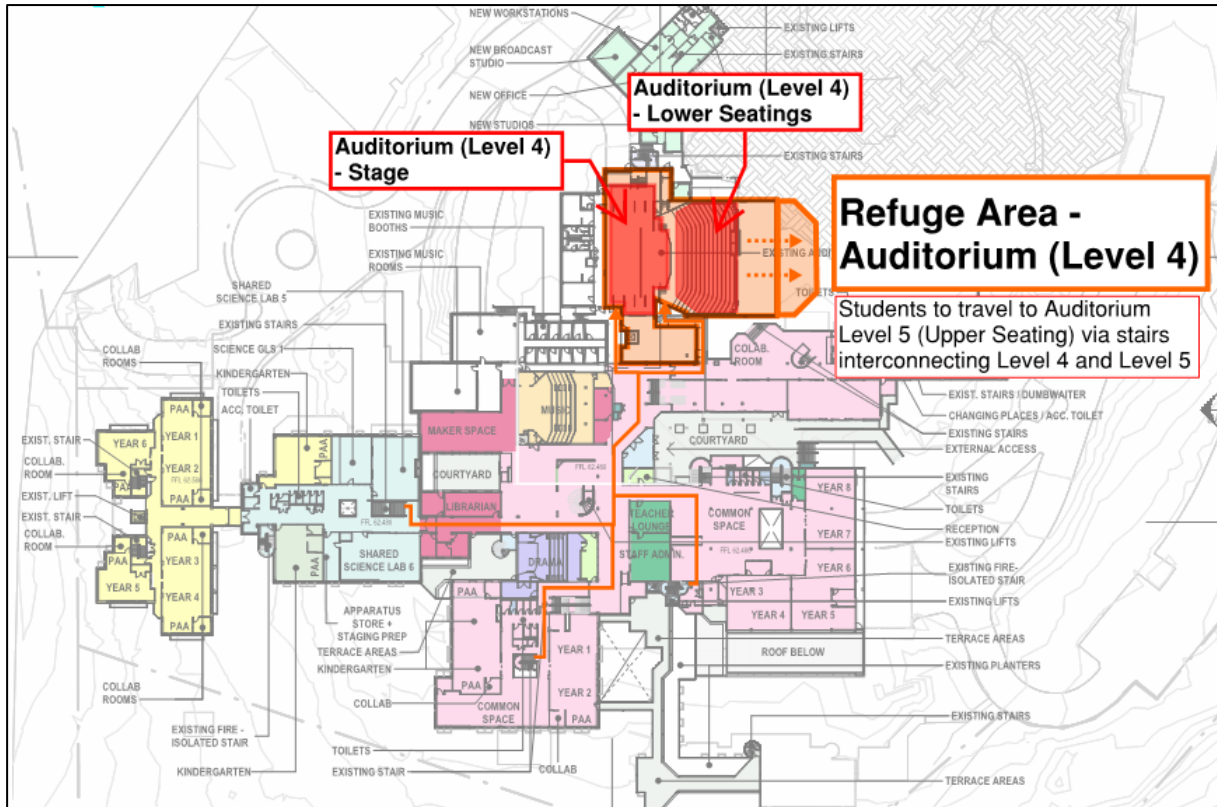


Figure 8 – Path of travel by Occupants on Level 2 from Level 4 to Auditorium (Refuge Area) and to Level 5.

### A.3 OCCUPANTS ON LEVEL 3

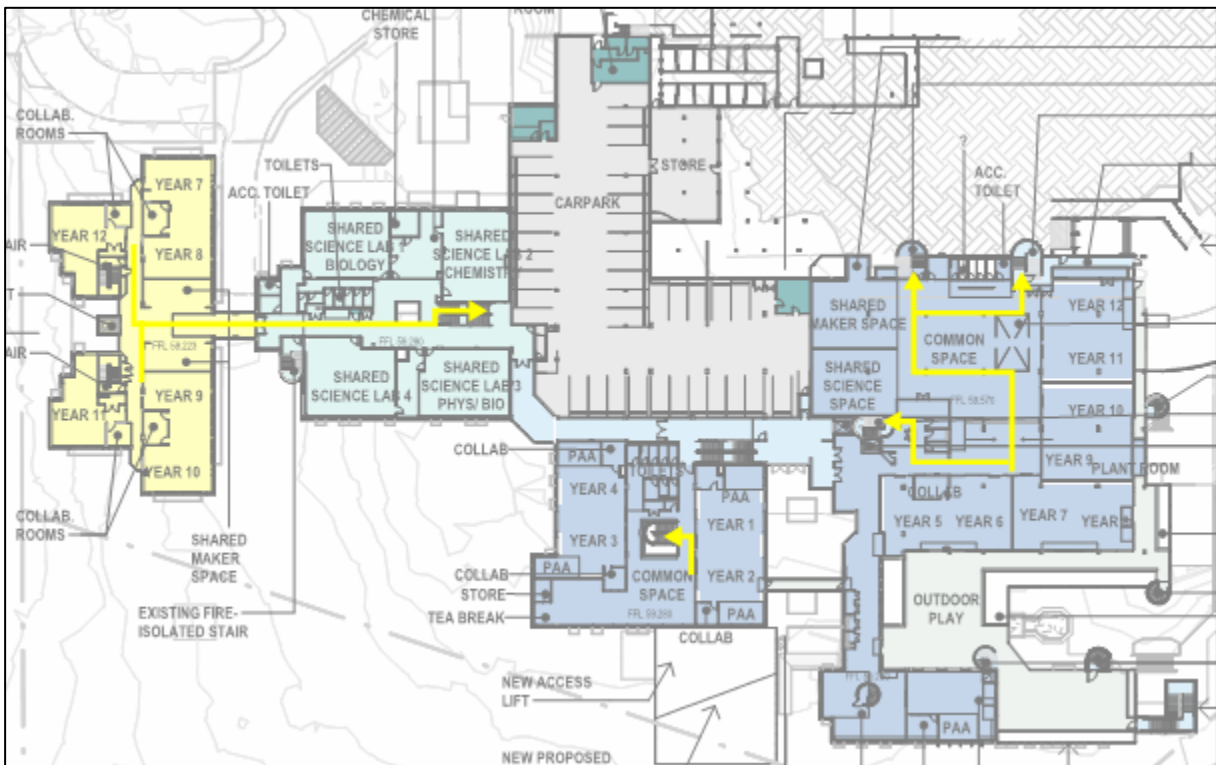


Figure 9 – Path of travel by Occupants on Level 3 from Level 3 to Level 4 (shown in yellow colour arrow).

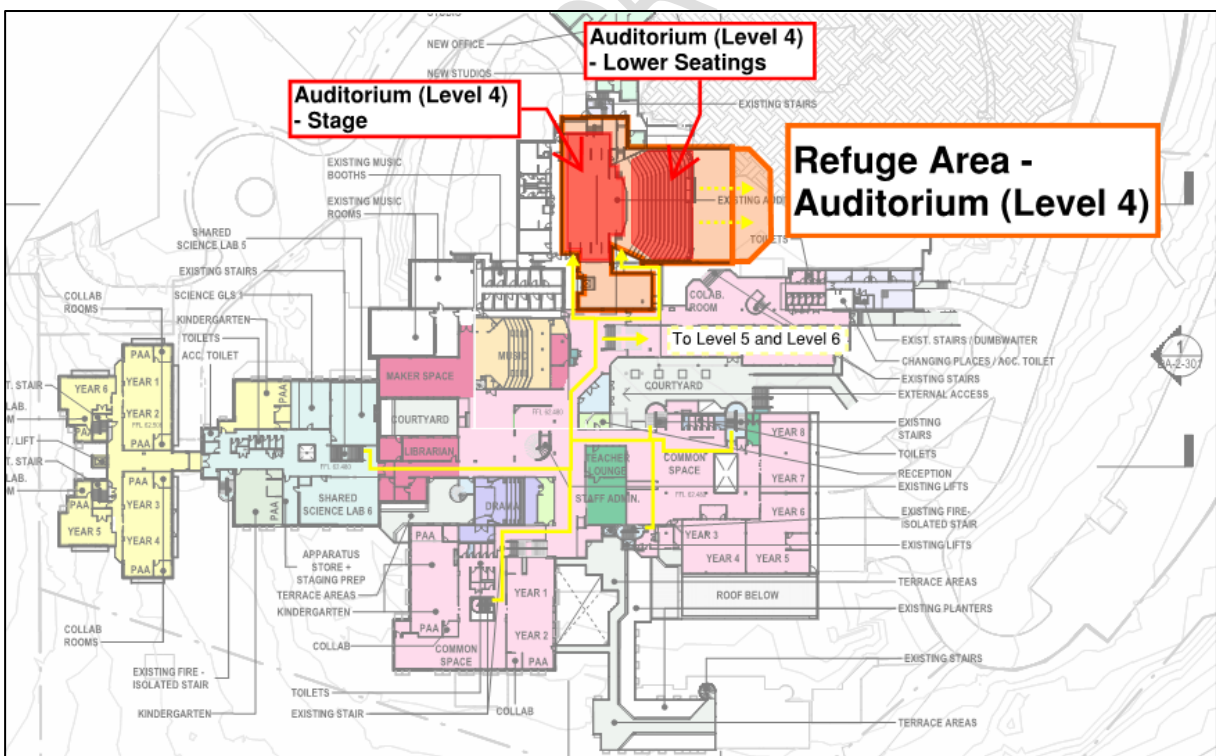


Figure 10 – Path of travel by Occupants on Level 3 from Level 4 to Auditorium (Refuge Area) and to Level 5.

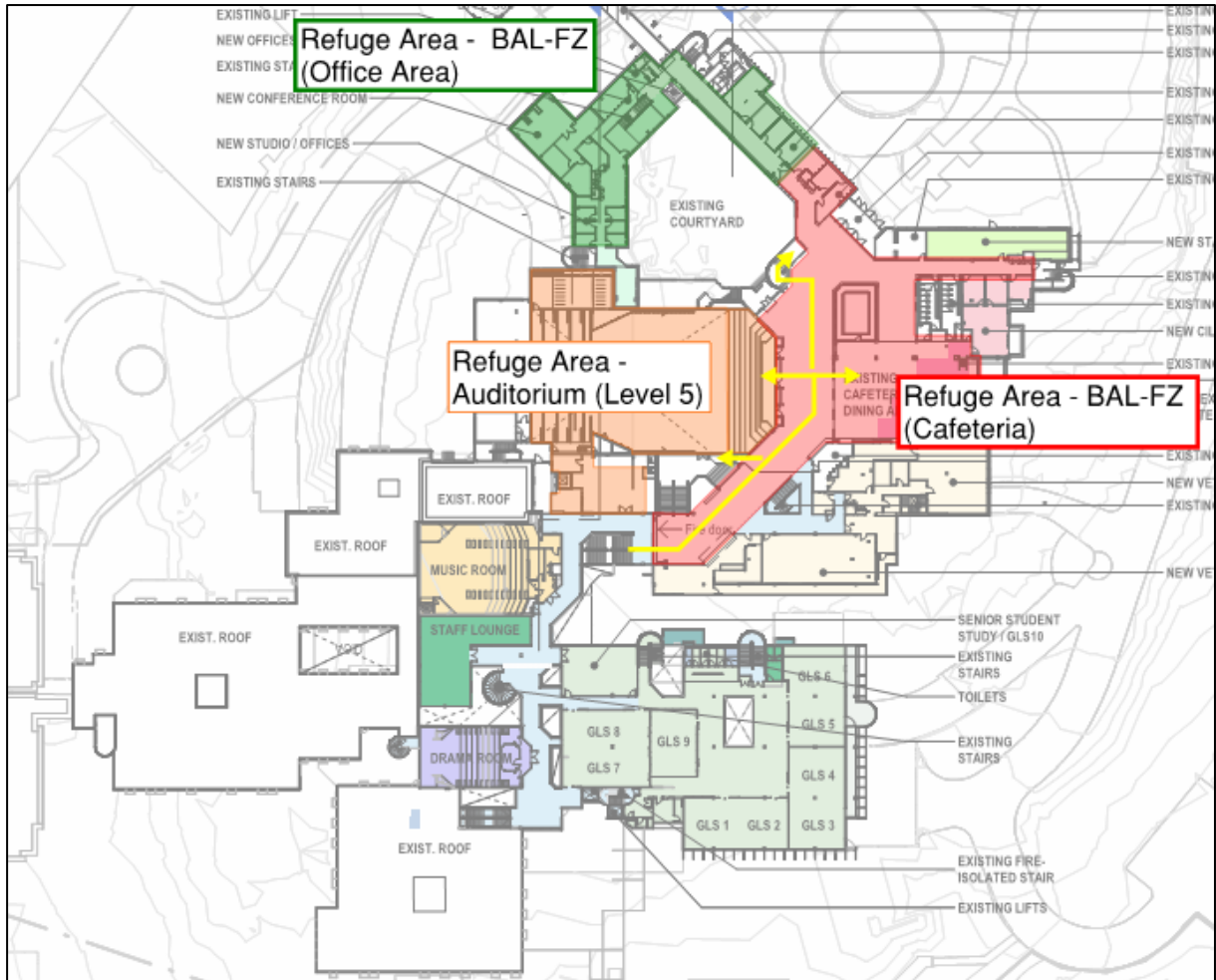


Figure 11 – Path of travel by Occupants on Level 3 from Level 5 to Auditorium (Refuge Area) and to Level 6.

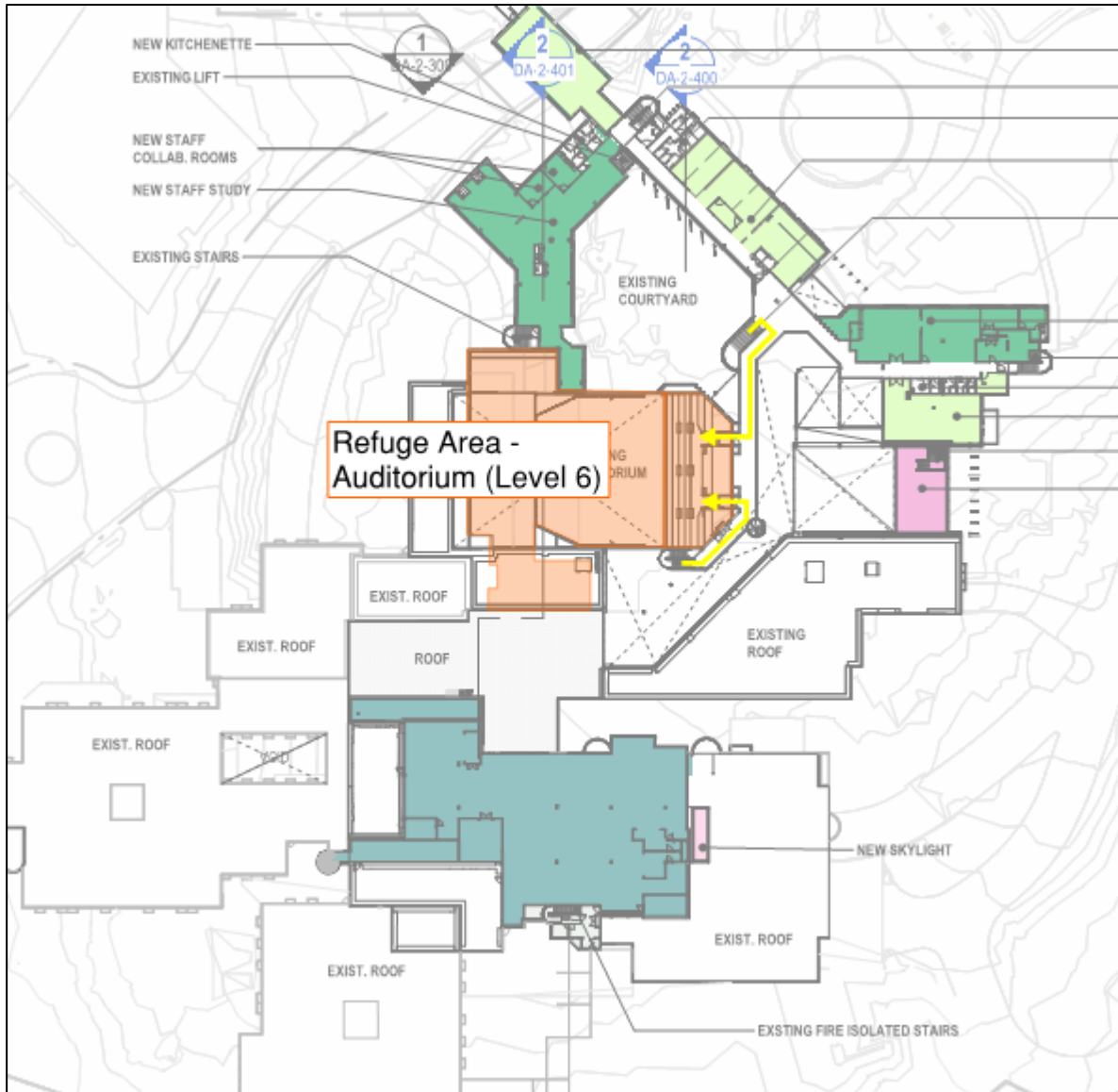


Figure 12 – Path of travel by Occupants on Level 3 from Level 6 to Auditorium (Refuge Area).

### A.4 OCCUPANTS ON LEVEL 4

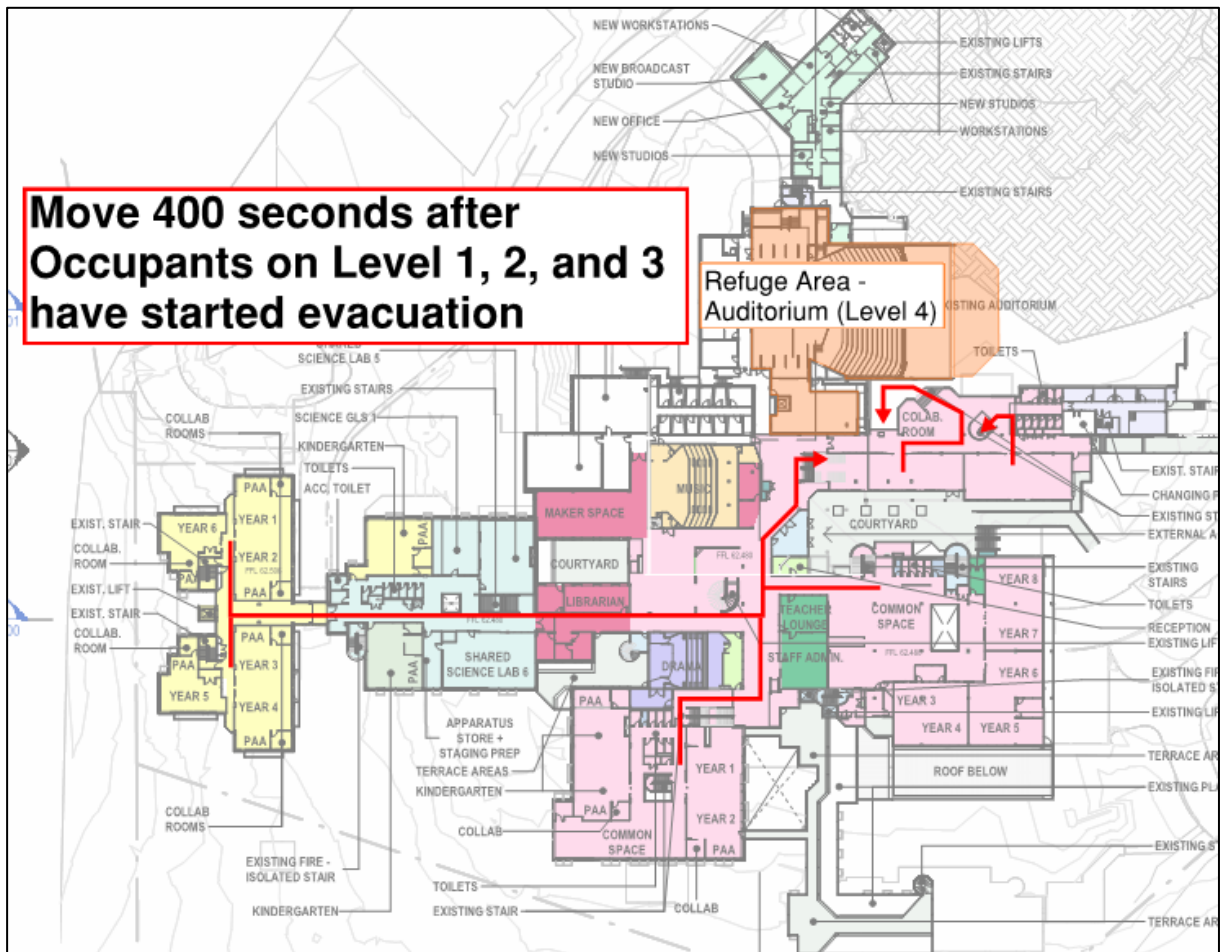


Figure 13 – Path of travel by Occupants on Level 4 from Level 4 to Level 5.



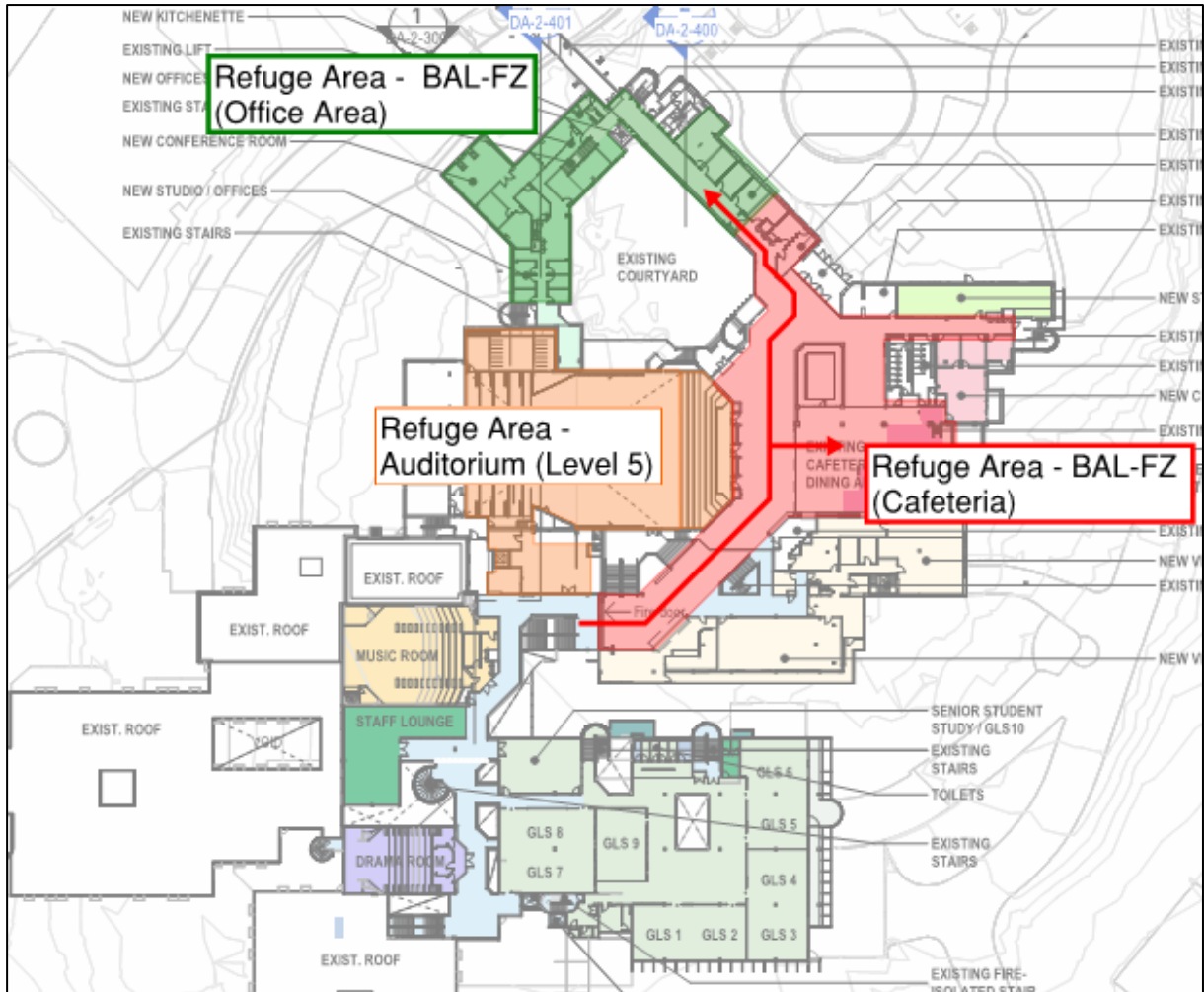


Figure 14 – Path of travel by Occupants on Level 4 from Level 5 to BAL-FZ refuge area (Cafeteria and Office Area).

### A.5 OCCUPANTS ON LEVEL 5

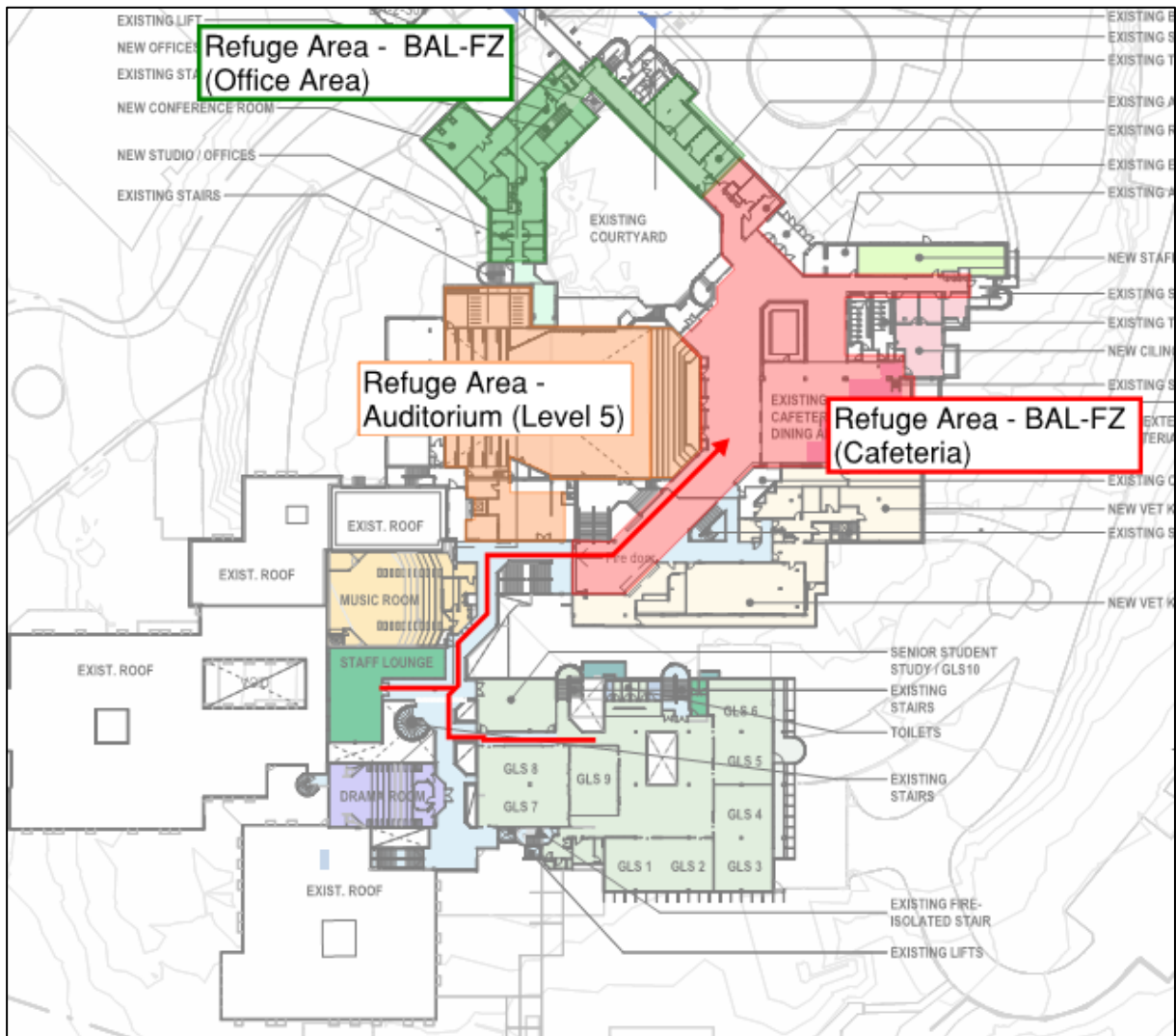


Figure 15 – Path of travel by Occupants on Level 5 from Level 5 to BAL-FZ refuge area (Cafeteria and Office Area).

**A.6 OCCUPANTS IN GYMNASIUM**

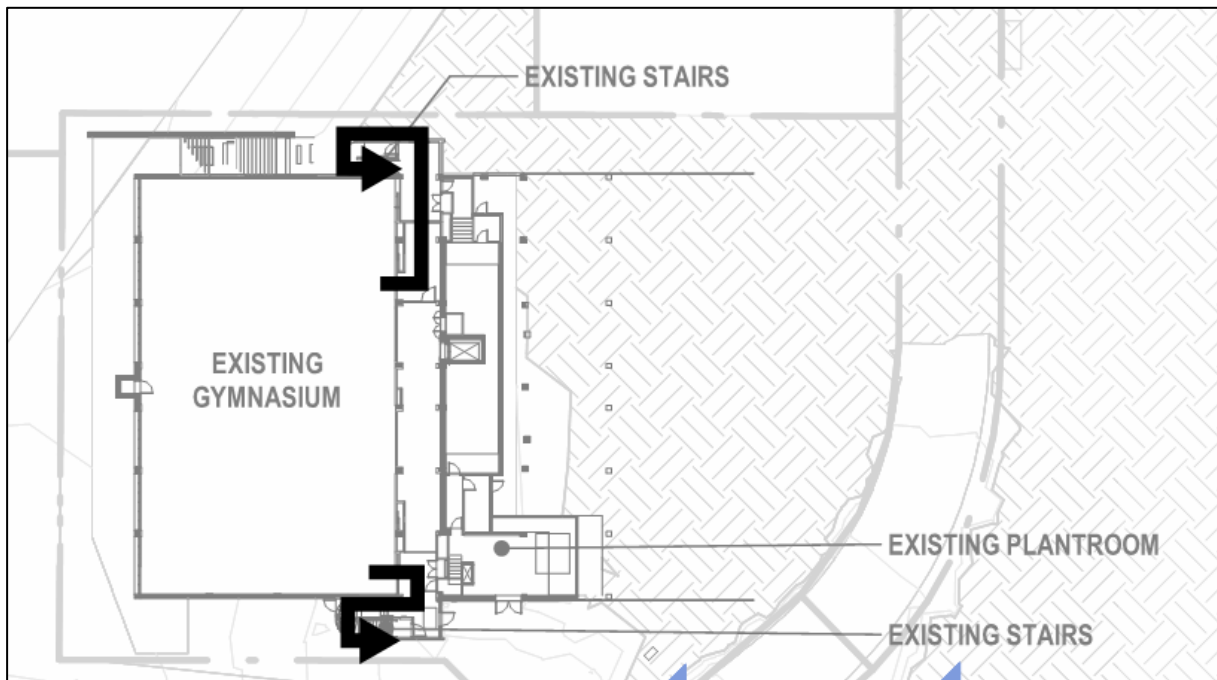


Figure 16 - Path of travel by Occupants in Gymnasium (Level 4) to Gymnasium Corridor to 'External Bridge' on Level 5.

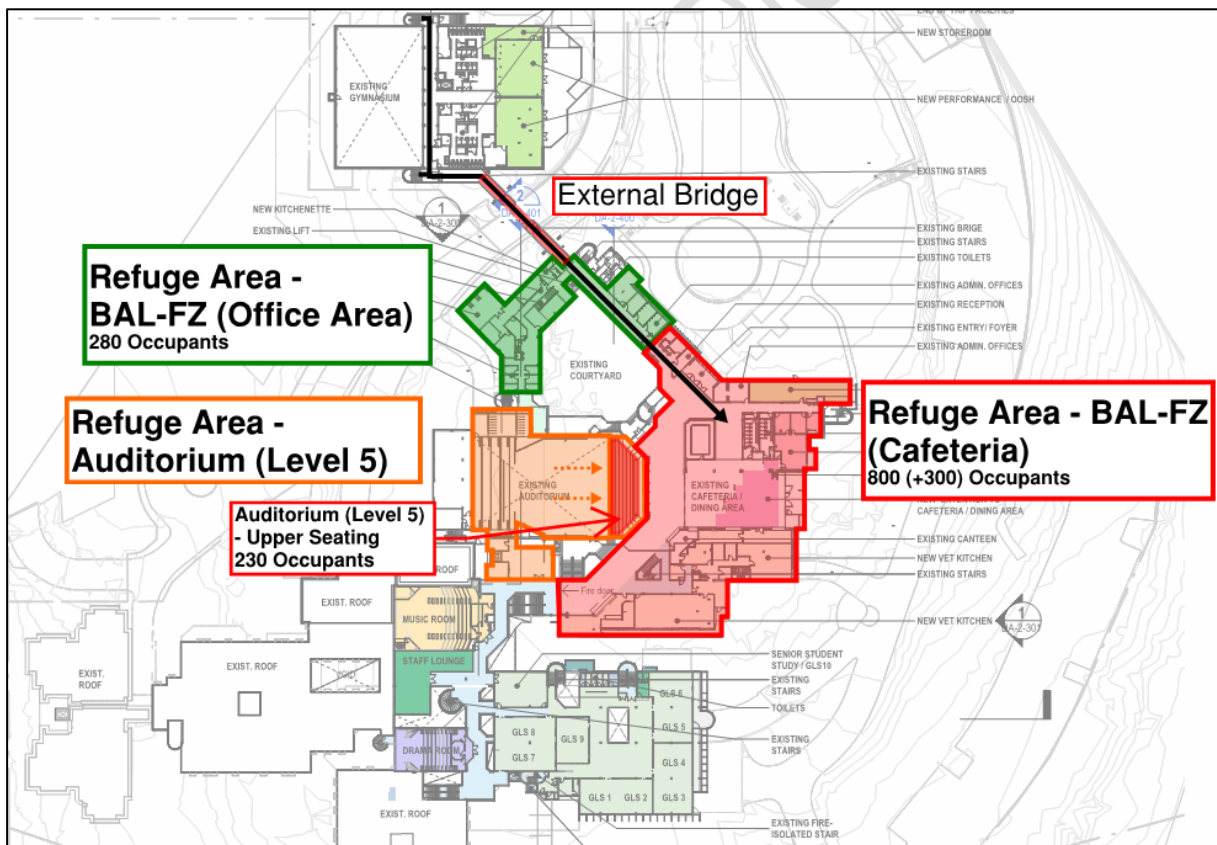


Figure 17 - Path of travel by Occupants from Gymnasium to Refuge Area via external bridge.