

NO 1 SPINNINGFIELDS, MANCHESTER MEANS OF ESCAPE – LEVEL 8 TERRACE

JM3046/hz/01obi
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INTRODUCTION

Building Description

This technical note relates to No 1 Spinningfields, Manchester. As existing, the building is 20 storeys high with 2 levels of basement. The building predominantly comprises of office spaces with a restaurant at Level 19.

The building is approximately 83m tall and is served by three stairs at all levels.

It is proposed to convert an existing “roof” at Level 8 into an outdoor terrace, see Figure 1.

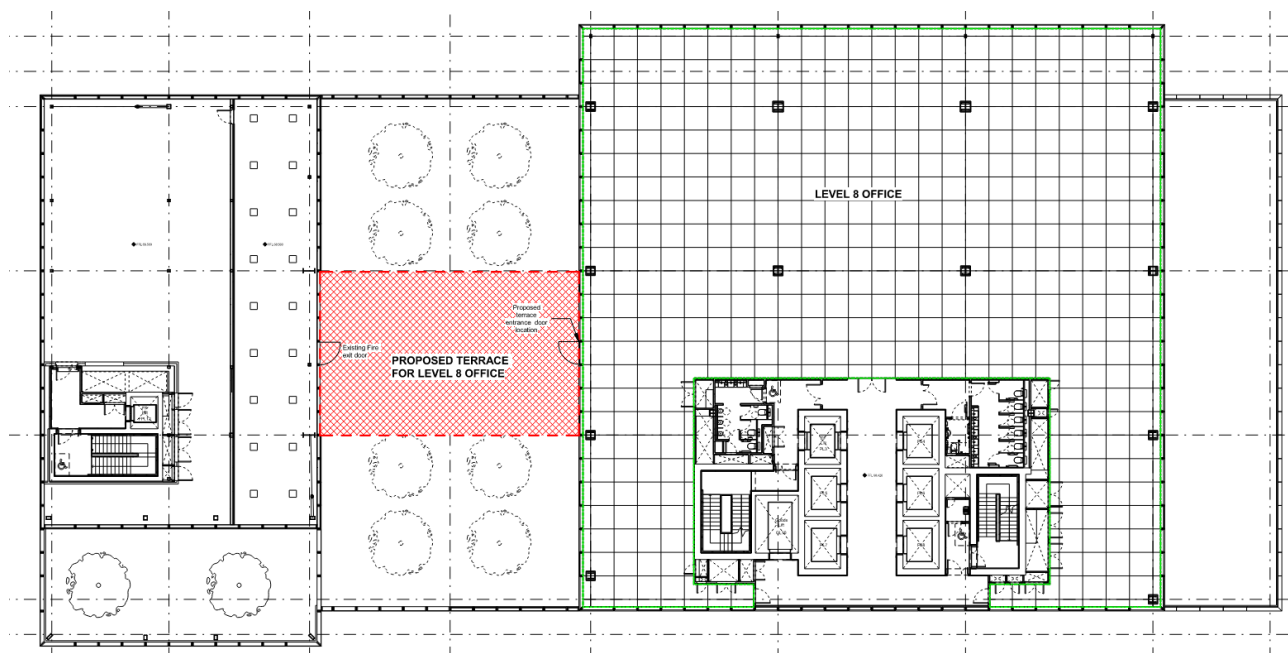


Figure 1 Level 8 Terrace

Aim of the Report

This technical note is not intended to review the fire strategy for the entire building but is only to review the impact of the proposed changes at Level 8. This report is suitable for submission to Building Control and the Fire Service.

This technical note addresses life safety only, not property protection.

FIRE STRATEGY SUMMARY

The original fire strategy has been developed by Sweco (Fire Safety Strategy, One Spinningfields; Rev: 113444/MD/17026, Revision 11 dated July 2019). The building is summarised as follows:

- The building operates on a phased evacuation strategy.
 - Upon detection of fire within the floor, the fire floor and floor immediately above will evacuate.
 - Remaining floors will evacuate two floors at a time. This will be managed by the management team.
 - Ground floor, mezzanine and the first-floor form as a single evacuation zone.
 - Level 7 and 8 form as a single evacuation zone.
 - A voice alarm and emergency voice communication system is provided to ease the movement.
- The building is provided with an L1 standard of alarm system designed in accordance with BS 5839-1 while the voice alarm is designed to BS 5839-8 and the emergency voice communication system is to BS 5839-9.
- External sounders and beacons are provided to the roof top plant and terrace areas.
- An OH3 Life Safety Sprinkler system is installed in accordance with LPC Rules incorporating the recommendations in BS EN 12845.
- The basement car park is smoke vented.
- Occupancy of the building is as per Figure 2 (extract from Sweco's report).
- Firefighting shafts are provided to the building and comprise of the following:
 - Firefighting stair that is 1200mm wide
 - Firefighting lobby
 - Firefighting lift
 - Smoke vented lobby
 - Wet riser
- Construction of the building is as follows:
 - Elements of structure – 90 minutes fire resistance (for compliance with the code guidance, it should be 120 minutes however Sweco has carried out a fire engineering approach to support reducing this to 90 minutes).
 - Floors have been designed as compartment floors.
 - Service risers achieve 90 minutes fire resistance.
 - The separation between the reception and restaurant entrance, reception and retail unit and reception and mezzanine café is 90 minutes fire resistance.
 - Firefighting shafts achieve 120 minutes fire resistance.

Population breakdown

Level	NIA ^[1] m ²	Occupancy
19 Restaurant	-	440 ^[2]
18	168 & 625 (external plant)	27
8-17	1,029	172
7	1,636 & 465 (terrace)	351
3-6	2,298	383
1-2	2,092	349
Mezzanine	1,356	-
Ground	1,425	-

Figure 2 Occupancy Level

LEVEL 8

General

As discussed, the proposal is to convert the existing walkway at Level 8 to a terrace. As part of the conversion guard rails will be provided to ensure the safety of occupants from falling.

Sounders

The sounders and voice alarm communication will be extended to the terrace as part of the works.

Occupancy

The building operates on a phased evacuation strategy. This means that during fire, only occupants of the fire floor and the floor above evacuates while the rest will progressively be evacuated out. However, the strategy also calls Level 7 and 8 to evacuate simultaneously regardless of where the fire occurs. As such, by referring to the ADB: Volume 2 guidance, each stair should be able to provide a capacity of up to 130 persons giving a total capacity of 390 persons. Given that the existing fire strategy have specified that there can be up to 172 persons technically the terrace can occupy up to 272 persons.

However, this strategy takes on a more generic approach and this does not consider the worst-case scenario.

The terrace is located in between the office core and the plant room core with only a single escape into each core, see Figure 3. There is a risk that there can be a fire (on either side of the space) that can automatically compromise the exit into the two office stairs and the tenants on the terrace can only leave via the single stair core. As such, the occupancy of each space is limited to as follows:

- Terrace area is limited to only 60 people. This is due to the direction of exits swinging against the direction of escape.
- The blue area is also limited to only 60 people. This is due to the space being served by a single means of escape.
- The combination of the blue area and the terrace is only up to 130 persons.
- The yellow area can be retained at 172 persons as there is sufficient escape capacity to accommodate this number of people.

Note: if both doors leading into the terrace can swing into the direction of escape, then the combined occupancy of blue space and the terrace can be up to 130 persons based on the stair width.

In total, this floor space can be up to 302 persons. This is shown clearly in Figure 3.

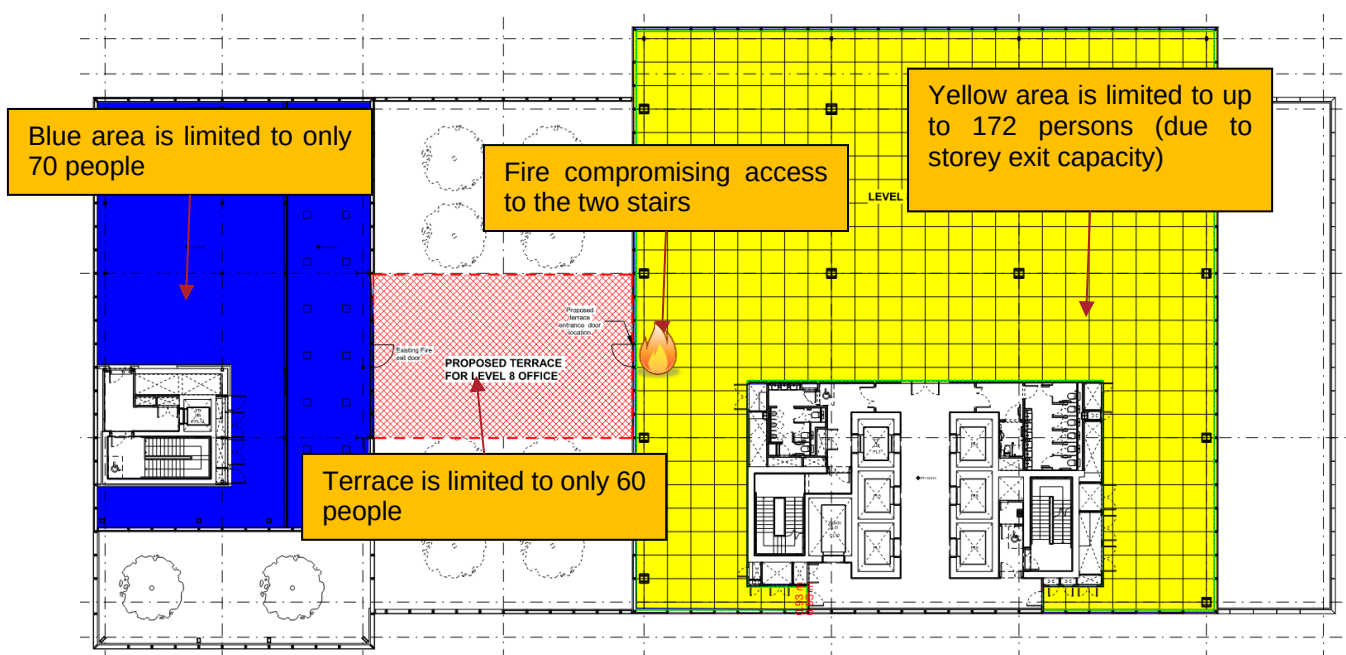


Figure 3 Level 8 Exits

Travel Distance

As per the existing fire strategy, the travel distance is limited to 18m in a single direction and 45m where alternative escape is available. This will be easily achieved even after fit-out.

Construction

It has been proposed for the metal deck to the terrace to be 120 minutes fire resistance with the structure supporting the terrace to also be intumescent painted to achieve 90 minutes fire resistance as part of the works.

Firefighting Provision

The existing firefighting provision will not be affected due to the proposal.